



wwPDB EM Validation Summary Report ⓘ

May 12, 2024 – 02:12 am BST

PDB ID : 6SL5
EMDB ID : EMD-10236
Title : Dunaliella Photosystem I Supercomplex
Authors : Nelson, N.; Caspy, I.; Malavath, T.; Klaiman, D.; Shkolinsky, Y.
Deposited on : 2019-08-18
Resolution : 2.84 Å(reported)

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.1.dev92
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

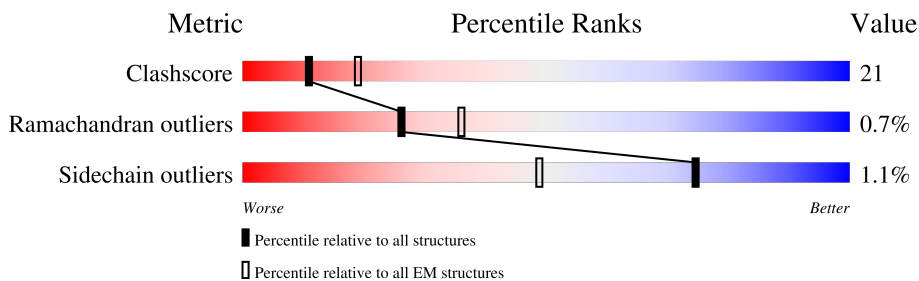
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.84 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	740	 79% 21%
2	B	733	 78% 21%
3	C	80	 74% 26%
4	D	144	 74% 25%
5	E	64	 75% 25%
6	F	162	 80% 19%
7	J	41	 5% 66% 27% 7%
8	G	101	 73% 60% 36%

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Mol	Chain	Length	Quality of chain
9	H	92	
10	I	39	
11	K	84	
12	L	155	
13	O	86	
14	1	197	
15	2	208	
16	3	228	
17	4	211	
18	5	202	
19	6	178	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
20	CL0	A	1011	X	-	-	-
21	CLA	1	601	X	-	X	-
21	CLA	1	602	X	-	-	-
21	CLA	1	603	X	-	-	-
21	CLA	1	604	X	-	-	-
21	CLA	1	605	X	-	-	-
21	CLA	1	606	X	-	-	-
21	CLA	1	607	X	-	-	-
21	CLA	1	608	X	-	-	-
21	CLA	1	611	X	-	-	-
21	CLA	1	612	X	-	-	-
21	CLA	1	613	X	-	-	-
21	CLA	1	615	X	-	-	-
21	CLA	2	601	X	-	-	-
21	CLA	2	602	X	-	-	-
21	CLA	2	603	X	-	-	-
21	CLA	2	604	X	-	-	-
21	CLA	2	605	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
21	CLA	2	606	X	-	-	-
21	CLA	2	607	X	-	-	-
21	CLA	2	608	X	-	-	-
21	CLA	2	612	X	-	-	-
21	CLA	2	615	X	-	-	-
21	CLA	3	601	X	-	-	-
21	CLA	3	602	X	-	-	-
21	CLA	3	603	X	-	-	-
21	CLA	3	605	X	-	-	-
21	CLA	3	606	X	-	-	-
21	CLA	3	607	X	-	-	-
21	CLA	3	608	X	-	-	-
21	CLA	3	610	X	-	-	-
21	CLA	3	611	X	-	-	-
21	CLA	3	612	X	-	-	-
21	CLA	3	613	X	-	-	-
21	CLA	3	614	X	-	-	-
21	CLA	3	615	X	-	-	-
21	CLA	4	601	X	-	-	-
21	CLA	4	602	X	-	-	-
21	CLA	4	603	X	-	-	-
21	CLA	4	604	X	-	-	-
21	CLA	4	605	X	-	-	-
21	CLA	4	606	X	-	-	-
21	CLA	4	607	X	-	-	-
21	CLA	4	608	X	-	-	-
21	CLA	4	609	X	-	-	-
21	CLA	4	612	X	-	-	-
21	CLA	4	615	X	-	-	-
21	CLA	5	601	X	-	-	-
21	CLA	5	602	X	-	-	-
21	CLA	5	603	X	-	-	-
21	CLA	5	604	X	-	X	-
21	CLA	5	605	X	-	-	-
21	CLA	5	606	X	-	-	-
21	CLA	5	607	X	-	-	-
21	CLA	5	608	X	-	-	-
21	CLA	5	612	X	-	-	-
21	CLA	5	613	X	-	-	-
21	CLA	5	614	X	-	-	-
21	CLA	6	601	X	-	X	-
21	CLA	6	602	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
21	CLA	6	603	X	-	X	-
21	CLA	6	604	X	-	-	-
21	CLA	6	605	X	-	-	-
21	CLA	6	606	X	-	-	-
21	CLA	6	607	X	-	-	-
21	CLA	6	608	X	-	-	-
21	CLA	6	609	X	-	-	-
21	CLA	6	612	X	-	-	-
21	CLA	6	613	X	-	-	-
21	CLA	A	1012	X	-	-	-
21	CLA	A	1013	X	-	-	-
21	CLA	A	1101	X	-	-	-
21	CLA	A	1102	X	-	-	-
21	CLA	A	1103	X	-	-	-
21	CLA	A	1104	X	-	-	-
21	CLA	A	1105	X	-	-	-
21	CLA	A	1106	X	-	-	-
21	CLA	A	1107	X	-	-	-
21	CLA	A	1108	X	-	-	-
21	CLA	A	1109	X	-	-	-
21	CLA	A	1110	X	-	-	-
21	CLA	A	1111	X	-	-	-
21	CLA	A	1112	X	-	-	-
21	CLA	A	1113	X	-	-	-
21	CLA	A	1114	X	-	-	-
21	CLA	A	1115	X	-	-	-
21	CLA	A	1116	X	-	-	-
21	CLA	A	1117	X	-	-	-
21	CLA	A	1118	X	-	-	-
21	CLA	A	1119	X	-	-	-
21	CLA	A	1120	X	-	-	-
21	CLA	A	1121	X	-	X	-
21	CLA	A	1122	X	-	-	-
21	CLA	A	1123	X	-	-	-
21	CLA	A	1124	X	-	-	-
21	CLA	A	1125	X	-	-	-
21	CLA	A	1126	X	-	-	-
21	CLA	A	1127	X	-	-	-
21	CLA	A	1128	X	-	-	-
21	CLA	A	1129	X	-	-	-
21	CLA	A	1130	X	-	-	-
21	CLA	A	1131	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
21	CLA	A	1132	X	-	-	-
21	CLA	A	1133	X	-	-	-
21	CLA	A	1134	X	-	-	-
21	CLA	A	1135	X	-	-	-
21	CLA	A	1136	X	-	-	-
21	CLA	A	1137	X	-	-	-
21	CLA	A	1138	X	-	-	-
21	CLA	A	1139	X	-	-	-
21	CLA	A	1140	X	-	-	-
21	CLA	A	1141	X	-	-	-
21	CLA	B	1021	X	-	-	-
21	CLA	B	1022	X	-	-	-
21	CLA	B	1023	X	-	X	-
21	CLA	B	1201	X	-	-	-
21	CLA	B	1202	X	-	-	-
21	CLA	B	1203	X	-	-	-
21	CLA	B	1204	X	-	-	-
21	CLA	B	1205	X	-	-	-
21	CLA	B	1206	X	-	-	-
21	CLA	B	1207	X	-	-	-
21	CLA	B	1208	X	-	-	-
21	CLA	B	1209	X	-	-	-
21	CLA	B	1210	X	-	-	-
21	CLA	B	1211	X	-	-	-
21	CLA	B	1212	X	-	-	-
21	CLA	B	1213	X	-	-	-
21	CLA	B	1214	X	-	-	-
21	CLA	B	1215	X	-	-	-
21	CLA	B	1216	X	-	-	-
21	CLA	B	1217	X	-	-	-
21	CLA	B	1218	X	-	-	-
21	CLA	B	1219	X	-	-	-
21	CLA	B	1220	X	-	-	-
21	CLA	B	1221	X	-	-	-
21	CLA	B	1222	X	-	-	-
21	CLA	B	1223	X	-	-	-
21	CLA	B	1224	X	-	-	-
21	CLA	B	1225	X	-	-	-
21	CLA	B	1226	X	-	-	-
21	CLA	B	1227	X	-	-	-
21	CLA	B	1228	X	-	-	-
21	CLA	B	1229	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
21	CLA	B	1230	X	-	-	-
21	CLA	B	1231	X	-	-	-
21	CLA	B	1232	X	-	-	-
21	CLA	B	1234	X	-	-	-
21	CLA	B	1235	X	-	-	-
21	CLA	B	1236	X	-	-	-
21	CLA	B	1237	X	-	-	-
21	CLA	B	1238	X	-	-	-
21	CLA	B	1239	X	-	-	-
21	CLA	B	1240	X	-	-	-
21	CLA	F	1301	X	-	-	-
21	CLA	F	1302	X	-	-	-
21	CLA	G	1601	X	-	-	-
21	CLA	G	1602	X	-	-	-
21	CLA	G	1603	X	-	-	-
21	CLA	H	1701	X	-	-	-
21	CLA	H	1702	X	-	-	-
21	CLA	J	1901	X	-	-	-
21	CLA	K	1401	X	-	-	-
21	CLA	K	1402	X	-	-	-
21	CLA	K	1403	X	-	-	-
21	CLA	K	1404	X	-	-	-
21	CLA	L	1501	X	-	-	-
21	CLA	L	1502	X	-	-	-
21	CLA	L	1503	X	-	-	-
21	CLA	L	1504	X	-	-	-
21	CLA	O	1801	X	-	-	-
21	CLA	O	1802	X	-	-	-
21	CLA	O	1803	X	-	-	-
24	BCR	G	4001	-	-	X	-
34	LUT	4	501	X	-	-	-
34	LUT	5	501	X	-	-	-
34	LUT	5	504	X	-	-	-
34	LUT	6	501	X	-	X	-
35	XAT	1	502	X	-	-	-
35	XAT	2	502	X	-	-	-
35	XAT	3	502	X	-	-	-
35	XAT	4	502	X	-	-	-
35	XAT	6	502	X	-	-	-
35	XAT	6	504	X	-	-	-
36	CHL	1	609	X	-	-	-
36	CHL	1	610	X	-	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
36	CHL	2	609	X	-	-	-
36	CHL	2	610	X	-	-	-
36	CHL	2	611	X	-	-	-
36	CHL	2	613	X	-	-	-
36	CHL	3	604	X	-	-	-
36	CHL	4	610	X	-	-	-
36	CHL	4	611	X	-	-	-
36	CHL	4	613	X	-	-	-
36	CHL	5	609	X	-	X	-
36	CHL	5	610	X	-	-	-
36	CHL	6	610	X	-	-	-

2 Entry composition [i](#)

There are 39 unique types of molecules in this entry. The entry contains 43789 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Photosystem I P700 chlorophyll a apoprotein A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	740	5808	3795	993	1002	18	0	0

- Molecule 2 is a protein called Photosystem I P700 chlorophyll a apoprotein A2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	733	5808	3815	974	1006	13	0	0

- Molecule 3 is a protein called Photosystem I iron-sulfur center.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	80	600	370	104	115	11	0	0

- Molecule 4 is a protein called PsaD.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	143	1134	727	197	204	6	0	0

- Molecule 5 is a protein called PsaE.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
5	E	64	515	327	89	99	0	0

- Molecule 6 is a protein called PsaF.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	162	1278	823	217	236	2	0	0

- Molecule 7 is a protein called Photosystem I reaction center subunit IX.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	J	41	327	223	47	56	1	0	0

- Molecule 8 is a protein called PsaG.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	G	101	773	500	135	136	2	0	0

- Molecule 9 is a protein called PsaH.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	H	92	704	445	120	137	2	0	0

- Molecule 10 is a protein called PsaI.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	I	39	301	208	43	49	1	0	0

- Molecule 11 is a protein called PsaK.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	K	84	573	354	106	110	3	0	0

- Molecule 12 is a protein called PsaL.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	155	1137	736	191	203	7	0	0

- Molecule 13 is a protein called PsaO.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	O	86	684	456	108	118	2	0	0

- Molecule 14 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	1	197	1501	963	255	276	7	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	204	ALA	GLU	conflict	UNP C1K003

- Molecule 15 is a protein called Lhca2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	2	208	1609	1033	272	297	7	0	0

- Molecule 16 is a protein called Chlorophyll a-b binding protein, chloroplastic.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	3	228	1740	1134	284	317	5	0	0

- Molecule 17 is a protein called Lhca4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	4	211	1637	1058	272	303	4	0	0

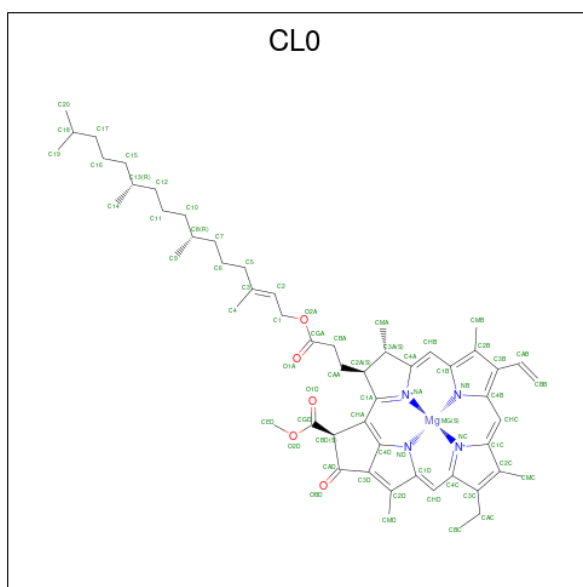
- Molecule 18 is a protein called Lhca5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	5	202	1525	977	257	284	7	0	0

- Molecule 19 is a protein called Lhca6.

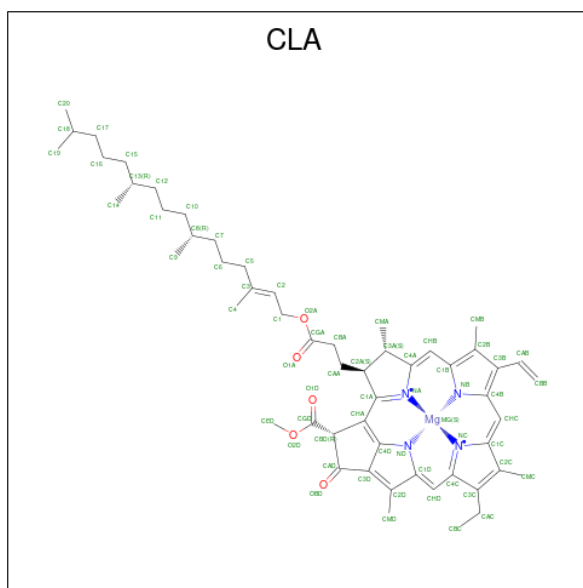
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	6	178	1378	896	230	245	7	0	0

- Molecule 20 is CHLOROPHYLL A ISOMER (three-letter code: CL0) (formula: C₅₅H₇₂MgN₄O₅).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
20	A	1	65	55	1	4	5	0

- Molecule 21 is CHLOROPHYLL A (three-letter code: CLA) (formula: $C_{55}H_{72}MgN_4O_5$).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	60	50	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	55	45	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	55	45	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	55	45	1	4	5	0
21	A	1	60	50	1	4	5	0
21	A	1	56	46	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	50	40	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	60	50	1	4	5	0
21	A	1	60	50	1	4	5	0
21	A	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	A	1	65	55	1	4	5	0
21	A	1	60	50	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	55	45	1	4	5	0
21	A	1	55	45	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	55	45	1	4	5	0
21	A	1	51	41	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	60	50	1	4	5	0
21	A	1	65	55	1	4	5	0
21	A	1	61	51	1	4	5	0
21	A	1	60	50	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	B	1	65	55	1	4	5	0
21	B	1	48	38	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	60	50	1	4	5	0
21	B	1	46	36	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	55	45	1	4	5	0
21	B	1	60	50	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	55	45	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	60	50	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	60	50	1	4	5	0
21	B	1	55	45	1	4	5	0
21	B	1	55	45	1	4	5	0
21	B	1	60	50	1	4	5	0
21	B	1	55	45	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	B	1	65	55	1	4	5	0
21	F	1	47	37	1	4	5	0
21	F	1	49	39	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	J	1	49	39	1	4	5	0
21	G	1	47	37	1	4	5	0
21	G	1	46	36	1	4	5	0
21	G	1	45	35	1	4	5	0
21	H	1	60	50	1	4	5	0
21	H	1	46	36	1	4	5	0
21	K	1	45	35	1	4	5	0
21	K	1	55	45	1	4	5	0
21	K	1	48	38	1	4	5	0
21	K	1	45	35	1	4	5	0
21	L	1	65	55	1	4	5	0
21	L	1	65	55	1	4	5	0
21	L	1	50	40	1	4	5	0
21	L	1	50	40	1	4	5	0
21	O	1	38	30	1	4	3	0
21	O	1	38	30	1	4	3	0
21	O	1	60	50	1	4	5	0
21	1	1	65	55	1	4	5	0
21	1	1	46	36	1	4	5	0
21	1	1	60	50	1	4	5	0
21	1	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	1	1	65	55	1	4	5	0
21	1	1	50	40	1	4	5	0
21	1	1	46	36	1	4	5	0
21	1	1	55	45	1	4	5	0
21	1	1	65	55	1	4	5	0
21	1	1	60	50	1	4	5	0
21	1	1	45	35	1	4	5	0
21	1	1	60	50	1	4	5	0
21	2	1	65	55	1	4	5	0
21	2	1	52	42	1	4	5	0
21	2	1	65	55	1	4	5	0
21	2	1	65	55	1	4	5	0
21	2	1	65	55	1	4	5	0
21	2	1	50	40	1	4	5	0
21	2	1	60	50	1	4	5	0
21	2	1	50	40	1	4	5	0
21	2	1	65	55	1	4	5	0
21	2	1	65	55	1	4	5	0
21	3	1	60	50	1	4	5	0
21	3	1	52	42	1	4	5	0
21	3	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	3	1	65	55	1	4	5	0
21	3	1	55	45	1	4	5	0
21	3	1	60	50	1	4	5	0
21	3	1	65	55	1	4	5	0
21	3	1	50	40	1	4	5	0
21	3	1	65	55	1	4	5	0
21	3	1	65	55	1	4	5	0
21	3	1	46	36	1	4	5	0
21	3	1	42	34	1	4	3	0
21	3	1	56	46	1	4	5	0
21	4	1	60	50	1	4	5	0
21	4	1	50	40	1	4	5	0
21	4	1	65	55	1	4	5	0
21	4	1	60	50	1	4	5	0
21	4	1	65	55	1	4	5	0
21	4	1	50	40	1	4	5	0
21	4	1	60	50	1	4	5	0
21	4	1	46	36	1	4	5	0
21	4	1	60	50	1	4	5	0
21	4	1	65	55	1	4	5	0
21	4	1	51	41	1	4	5	0

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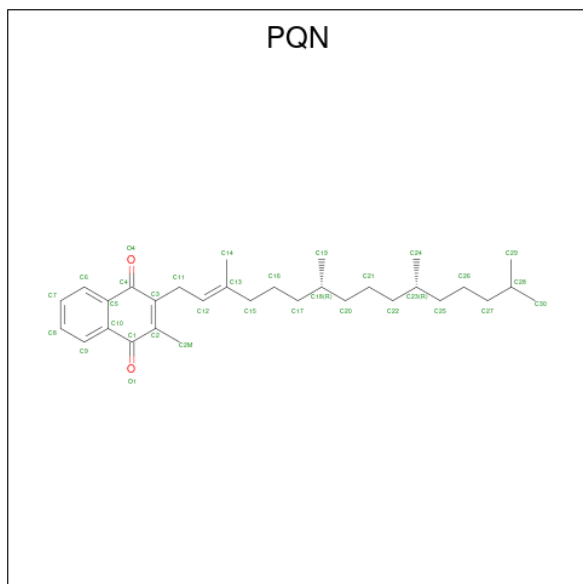
Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	5	1	45	35	1	4	5	0
21	5	1	46	36	1	4	5	0
21	5	1	60	50	1	4	5	0
21	5	1	65	55	1	4	5	0
21	5	1	65	55	1	4	5	0
21	5	1	50	40	1	4	5	0
21	5	1	60	50	1	4	5	0
21	5	1	55	45	1	4	5	0
21	5	1	46	36	1	4	5	0
21	5	1	45	35	1	4	5	0
21	5	1	65	55	1	4	5	0
21	6	1	60	50	1	4	5	0
21	6	1	50	40	1	4	5	0
21	6	1	55	45	1	4	5	0
21	6	1	60	50	1	4	5	0
21	6	1	65	55	1	4	5	0
21	6	1	50	40	1	4	5	0
21	6	1	60	50	1	4	5	0
21	6	1	46	36	1	4	5	0
21	6	1	46	36	1	4	5	0
21	6	1	65	55	1	4	5	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
21	6	1	45	35	1	4	5	0

- Molecule 22 is PHYLLOQUINONE (three-letter code: PQN) (formula: $C_{31}H_{46}O_2$).



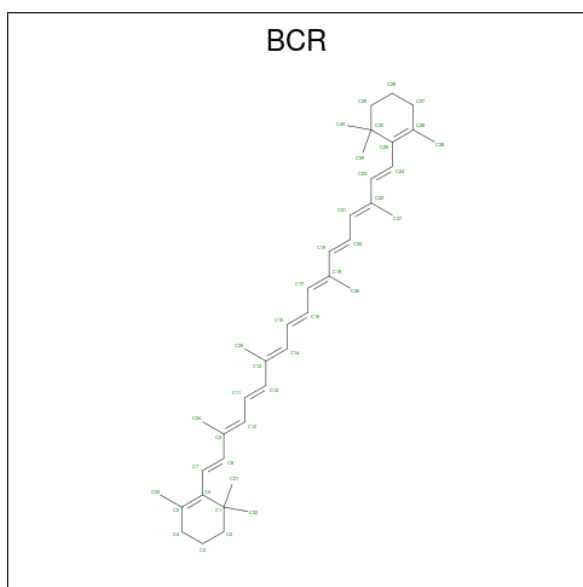
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
22	A	1	33	31	2	0
22	B	1	33	31	2	0

- Molecule 23 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4).



Mol	Chain	Residues	Atoms		AltConf
23	A	1	Total	Fe S	0
			8	4 4	
23	C	1	Total	Fe S	0
			8	4 4	
23	C	1	Total	Fe S	0
			8	4 4	

- Molecule 24 is BETA-CAROTENE (three-letter code: BCR) (formula: $C_{40}H_{56}$).



Mol	Chain	Residues	Atoms		AltConf
24	A	1	Total	C	0
			40	40	

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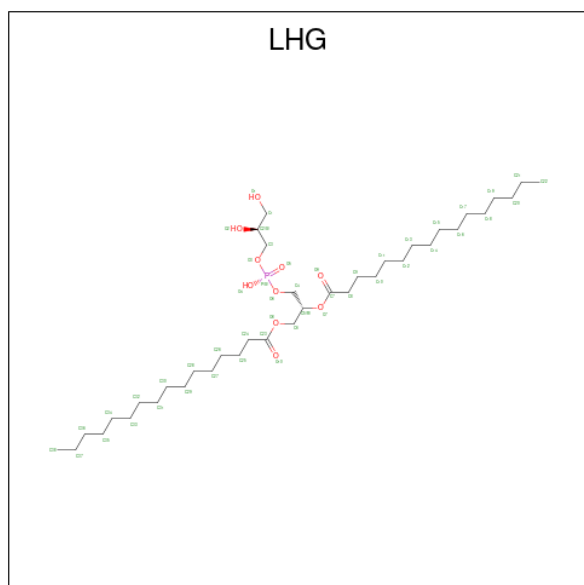
Mol	Chain	Residues	Atoms	AltConf
24	A	1	Total C 40 40	0
24	A	1	Total C 40 40	0
24	A	1	Total C 40 40	0
24	A	1	Total C 40 40	0
24	A	1	Total C 40 40	0
24	A	1	Total C 40 40	0
24	B	1	Total C 40 40	0
24	B	1	Total C 40 40	0
24	B	1	Total C 40 40	0
24	B	1	Total C 40 40	0
24	B	1	Total C 40 40	0
24	B	1	Total C 40 40	0
24	B	1	Total C 40 40	0
24	F	1	Total C 40 40	0
24	F	1	Total C 40 40	0
24	J	1	Total C 40 40	0
24	J	1	Total C 40 40	0
24	G	1	Total C 40 40	0
24	H	1	Total C 40 40	0
24	I	1	Total C 40 40	0
24	I	1	Total C 40 40	0
24	K	1	Total C 40 40	0

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Mol	Chain	Residues	Atoms	AltConf
24	L	1	Total C 40 40	0
24	L	1	Total C 40 40	0
24	O	1	Total C 40 40	0
24	1	1	Total C 40 40	0
24	2	1	Total C 40 40	0
24	3	1	Total C 40 40	0
24	3	1	Total C 40 40	0
24	3	1	Total C 40 40	0
24	4	1	Total C 40 40	0

- Molecule 25 is 1,2-DIPALMITOYL-PHOSPHATIDYL-GLYCEROLE (three-letter code: LHG) (formula: $C_{38}H_{75}O_{10}P$).



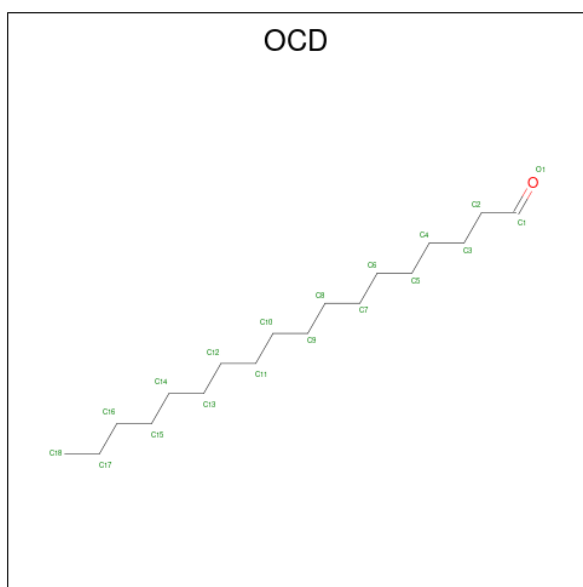
Mol	Chain	Residues	Atoms	AltConf
25	A	1	Total C O P 49 38 10 1	0
25	A	1	Total C O P 49 38 10 1	0

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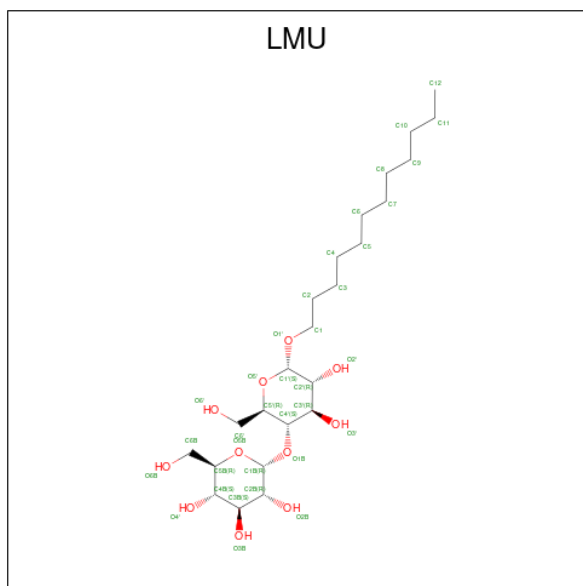
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
25	B	1	42	31	10	1	0
25	F	1	49	38	10	1	0
25	1	1	49	38	10	1	0
25	1	1	26	15	10	1	0
25	1	1	31	20	10	1	0
25	2	1	35	24	10	1	0
25	2	1	43	32	10	1	0
25	2	1	36	25	10	1	0
25	3	1	17	8	8	1	0
25	4	1	29	18	10	1	0
25	5	1	43	32	10	1	0
25	5	1	24	13	10	1	0
25	6	1	25	14	10	1	0

- Molecule 26 is octadecanal (three-letter code: OCD) (formula: C₁₈H₃₆O).



Mol	Chain	Residues	Atoms			AltConf
26	A	1	Total	C	O	0
			19	18	1	

- Molecule 27 is DODECYL-ALPHA-D-MALTOSE (three-letter code: LMU) (formula: $C_{24}H_{46}O_{11}$).



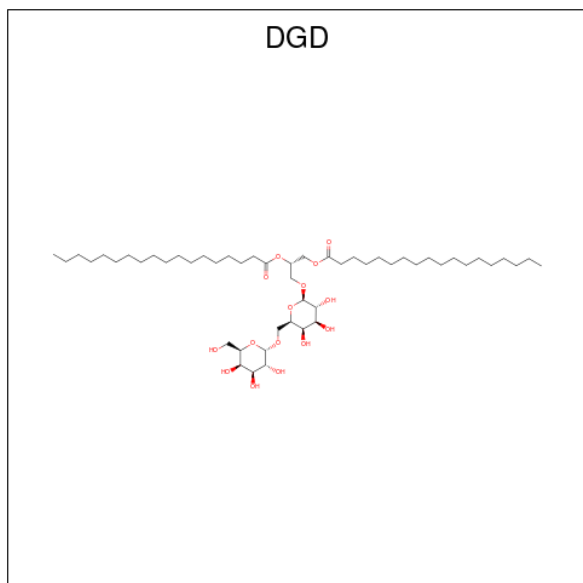
Mol	Chain	Residues	Atoms			AltConf
27	A	1	Total	C	O	0
			35	24	11	
27	A	1	Total	C	O	0
			35	24	11	

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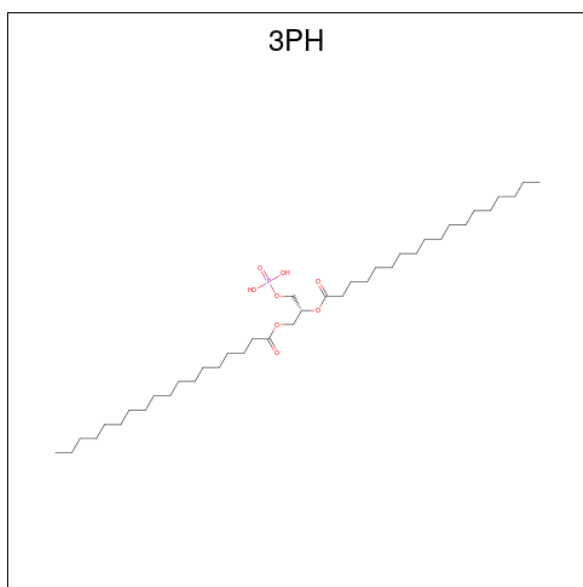
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
27	B	1	35	24	11	0
27	6	1	35	24	11	0

- Molecule 28 is DIGALACTOSYL DIACYL GLYCEROL (DGDG) (three-letter code: DGD) (formula: $C_{51}H_{96}O_{15}$).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
28	B	1	61	46	15	0
28	2	1	39	24	15	0
28	3	1	39	24	15	0
28	3	1	45	30	15	0

- Molecule 29 is 1,2-DIACYL-GLYCEROL-3-SN-PHOSPHATE (three-letter code: 3PH) (formula: $C_{39}H_{77}O_8P$).

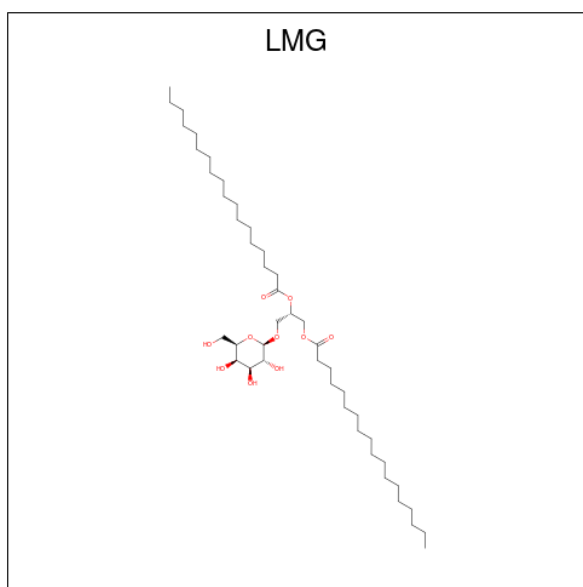


Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
29	B	1	31	22	8	1	0
29	F	1	34	25	8	1	0
29	5	1	28	19	8	1	0
29	5	1	29	20	8	1	0

- Molecule 30 is CALCIUM ION (three-letter code: CA) (formula: Ca).

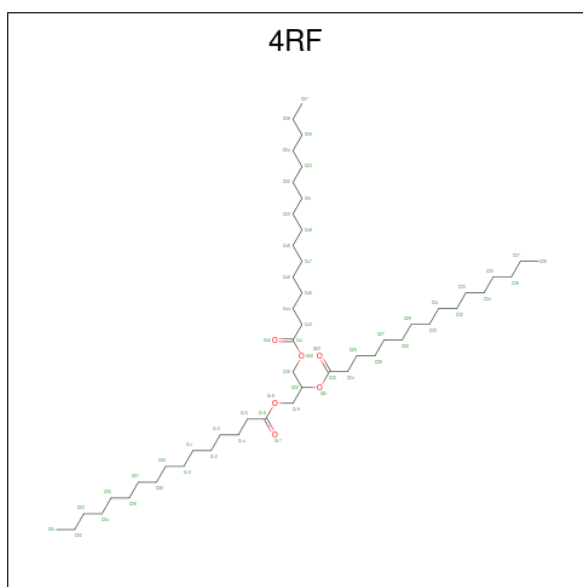
Mol	Chain	Residues	Atoms		AltConf
			Total	Ca	
30	B	1	1	1	0

- Molecule 31 is 1,2-DISTEAROYL-MONOGALACTOSYL-DIGLYCERIDE (three-letter code: LMG) (formula: C₄₅H₈₆O₁₀).



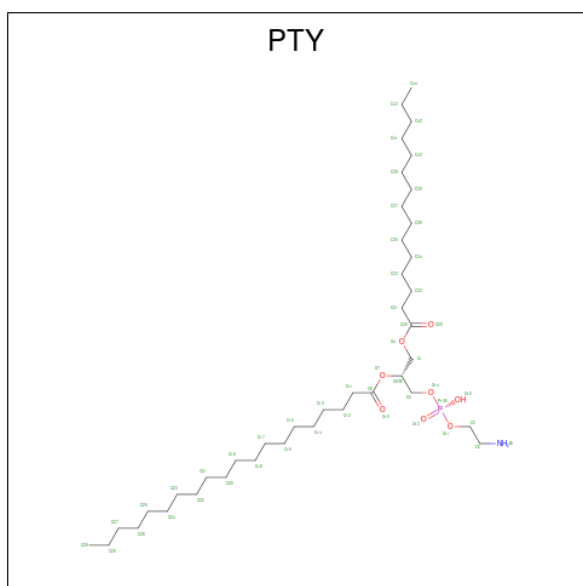
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
31	F	1	50	40	10	0
31	1	1	32	22	10	0
31	2	1	50	40	10	0
31	3	1	32	22	10	0
31	3	1	50	40	10	0
31	4	1	46	36	10	0
31	4	1	39	29	10	0
31	6	1	37	27	10	0

- Molecule 32 is Tripalmitoylglycerol (three-letter code: 4RF) (formula: C₅₁H₉₈O₆).



Mol	Chain	Residues	Atoms			AltConf
32	L	1	Total	C	O	0
			39	33	6	
32	5	1	Total	C	O	0
			32	26	6	

- Molecule 33 is PHOSPHATIDYLETHANOLAMINE (three-letter code: PTY) (formula: $C_{40}H_{80}NO_8P$).



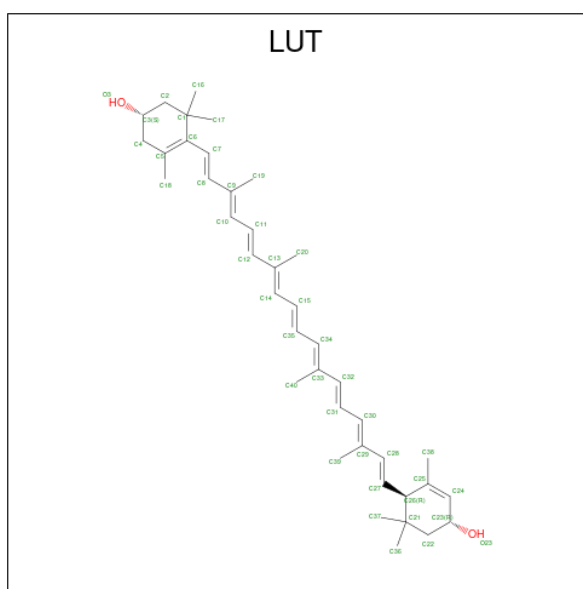
Mol	Chain	Residues	Atoms					AltConf
33	L	1	Total	C	N	O	P	0
			20	10	1	8	1	

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
33	O	1	Total	C	N	O	P	0
			22	12	1	8	1	
33	1	1	Total	C	N	O	P	0
			40	30	1	8	1	
33	1	1	Total	C	N	O	P	0
			18	8	1	8	1	
33	3	1	Total	C	N	O	P	0
			26	16	1	8	1	
33	3	1	Total	C	N	O	P	0
			20	10	1	8	1	
33	4	1	Total	C	N	O	P	0
			35	25	1	8	1	
33	5	1	Total	C	N	O	P	0
			36	26	1	8	1	
33	6	1	Total	C	N	O	P	0
			24	14	1	8	1	

- Molecule 34 is (3R,3'R,6S)-4,5-DIDEHYDRO-5,6-DIHYDRO-BETA,BETA-CAROTENE-3,3'-DIOL (three-letter code: LUT) (formula: C₄₀H₅₆O₂).



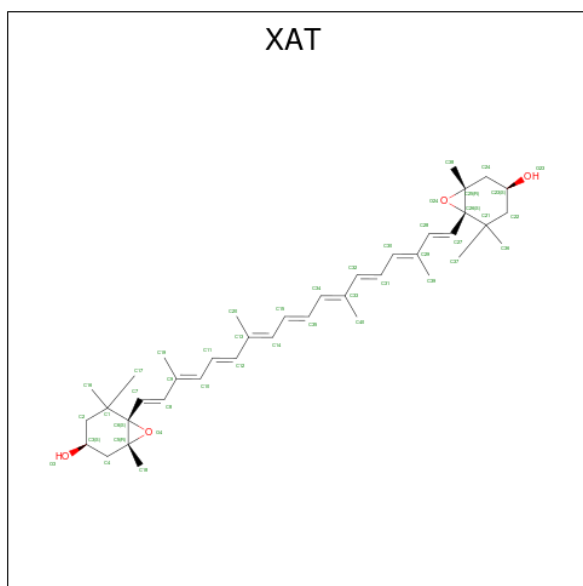
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
34	1	1	Total	C	O	0
			42	40	2	
34	2	1	Total	C	O	0
			42	40	2	
34	3	1	Total	C	O	0
			42	40	2	

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Mol	Chain	Residues	Atoms			AltConf
34	4	1	Total	C	O	0
			42	40	2	
34	5	1	Total	C	O	0
			42	40	2	
34	5	1	Total	C	O	0
			42	40	2	
34	5	1	Total	C	O	0
			42	40	2	
34	5	1	Total	C	O	0
			42	40	2	
34	6	1	Total	C	O	0
			42	40	2	

- Molecule 35 is (3S,5R,6S,3'S,5'R,6'S)-5,6,5',6'-DIEPOXY-5,6,5',6'-TETRAHYDRO-BETA ,BETA-CAROTENE-3,3'-DIOL (three-letter code: XAT) (formula: C₄₀H₅₆O₄).



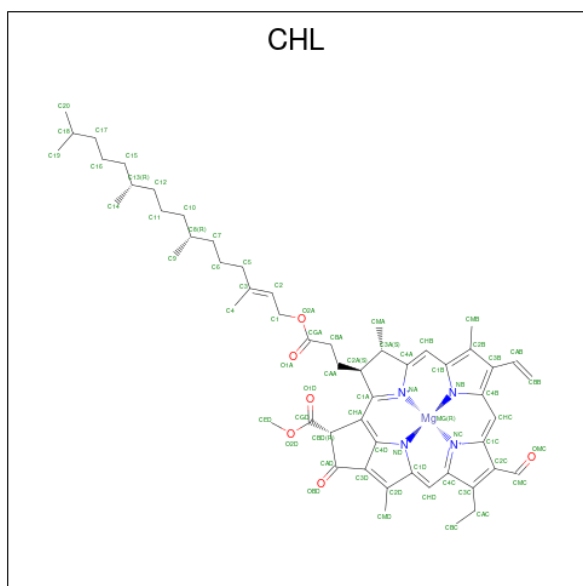
Mol	Chain	Residues	Atoms			AltConf
35	1	1	Total	C	O	0
			44	40	4	
35	2	1	Total	C	O	0
			44	40	4	
35	3	1	Total	C	O	0
			44	40	4	
35	4	1	Total	C	O	0
			44	40	4	
35	6	1	Total	C	O	0
			44	40	4	

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Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
35	6	1	44	40	4	0

- Molecule 36 is CHLOROPHYLL B (three-letter code: CHL) (formula: $C_{55}H_{70}MgN_4O_6$).



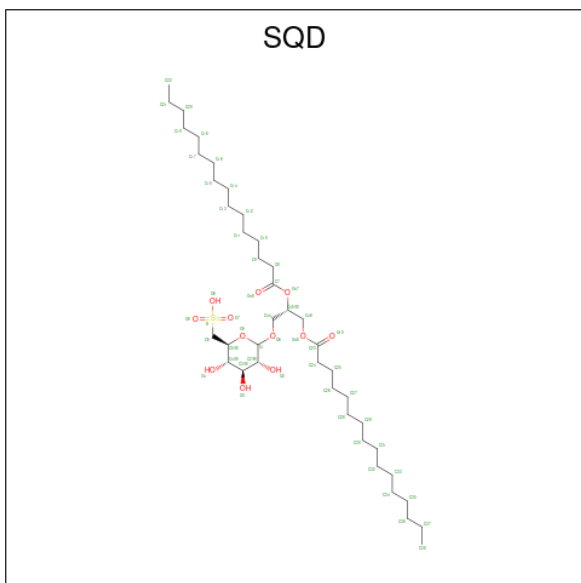
Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
36	1	1	66	55	1	4	6	0
36	1	1	47	36	1	4	6	0
36	2	1	66	55	1	4	6	0
36	2	1	56	45	1	4	6	0
36	2	1	48	37	1	4	6	0
36	2	1	46	35	1	4	6	0
36	3	1	66	55	1	4	6	0
36	4	1	47	36	1	4	6	0
36	4	1	51	40	1	4	6	0
36	4	1	61	50	1	4	6	0

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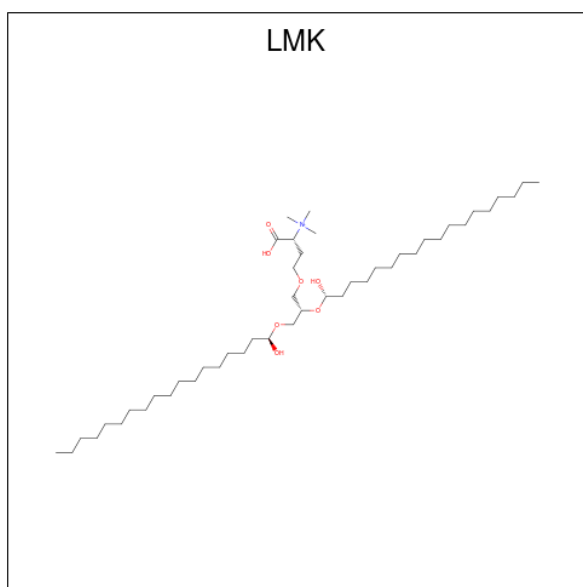
Mol	Chain	Residues	Atoms					AltConf
			Total	C	Mg	N	O	
36	5	1	Total	C	Mg	N	O	0
			66	55	1	4	6	
36	5	1	Total	C	Mg	N	O	0
			47	36	1	4	6	
36	6	1	Total	C	Mg	N	O	0
			47	36	1	4	6	

- Molecule 37 is 1,2-DI-O-ACYL-3-O-[6-DEOXY-6-SULFO-ALPHA-D-GLUCOPYRANOSYL]-SN-GLYCEROL (three-letter code: SQD) (formula: C₄₁H₇₈O₁₂S).



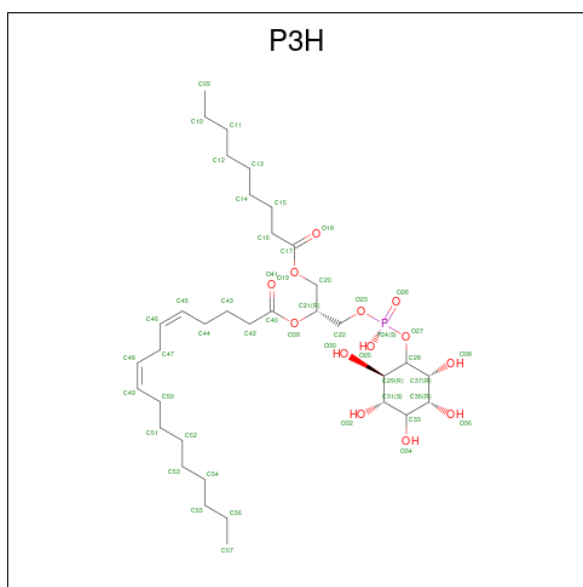
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	S	
37	2	1	Total	C	O	S	0
			40	27	12	1	
37	3	1	Total	C	O	S	0
			35	22	12	1	
37	6	1	Total	C	O	S	0
			32	19	12	1	

- Molecule 38 is trimethyl-[(2 {R})-1-oxidanyl-1-oxidanylidene-4-[(2 {S})-2-[(1 {S})-1-oxidanonyloctadecoxy]-3-[(1 {R})-1-oxidanyloctadecoxy]propoxy]butan-2-yl]azanium (three-letter code: LMK) (formula: C₄₆H₉₄NO₇).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
38	2	1	31	23	1	7	0
38	4	1	35	27	1	7	0

- Molecule 39 is [(2 {R})-1-nonanoyloxy-3-[oxidanyl-[(2 {R},3 {S},5 {R},6 {R})-2,3,4,5,6-pentakis(oxidanyl)cyclohexyl]oxy-phosphoryl]oxy-propan-2-yl] (5 {Z},8 {Z})-heptadeca-5,8-dienoate (three-letter code: P3H) (formula: $C_{35}H_{63}O_{13}P$).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
39	2	1	49	35	13	1	0

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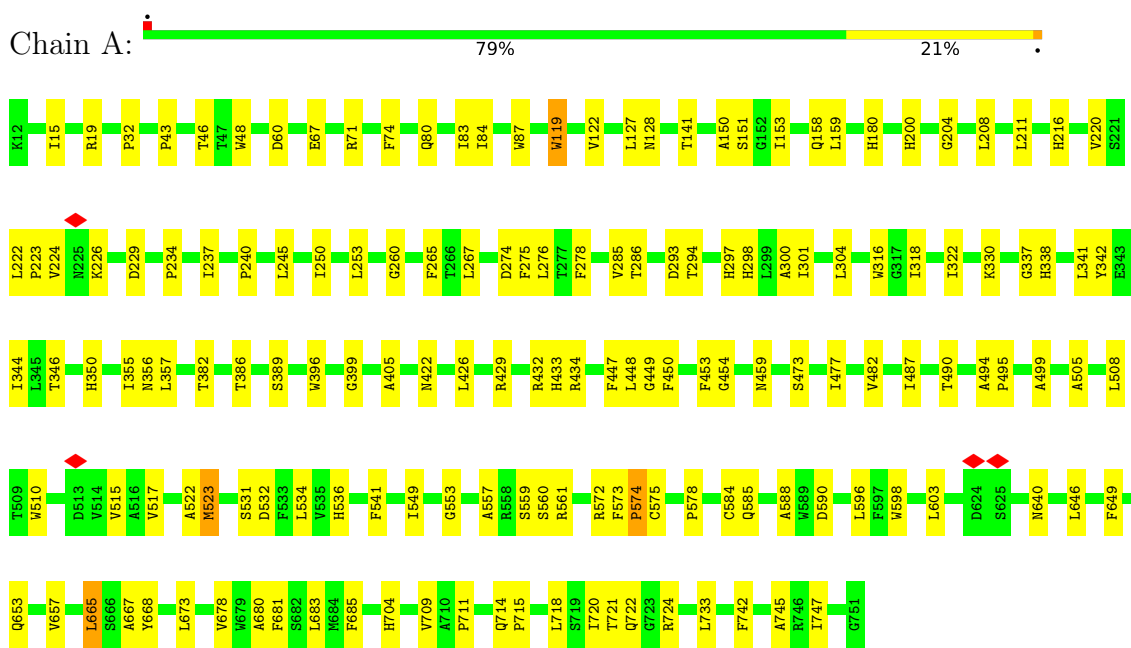
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Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
39	5	1	32	18	13	1	0

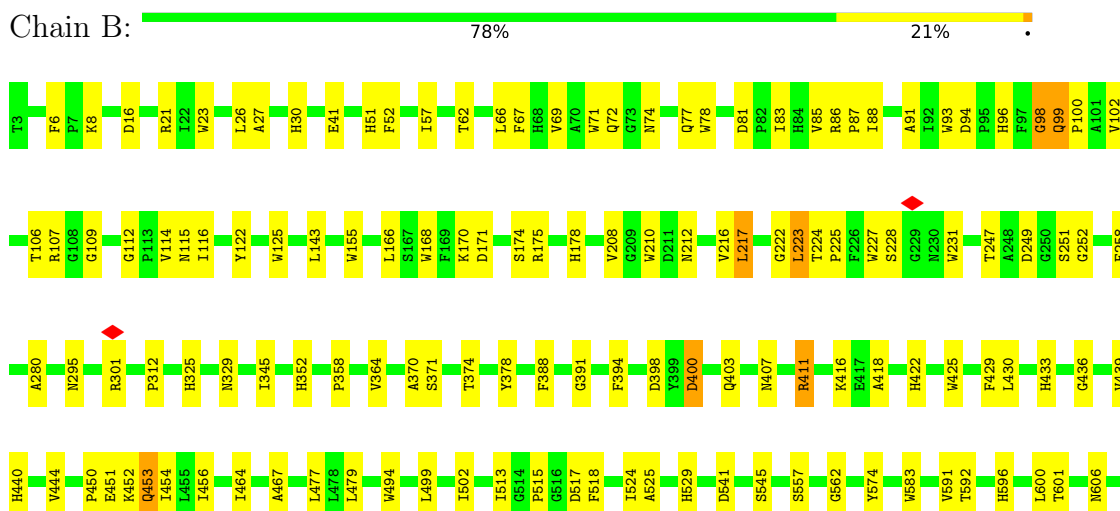
3 Residue-property plots

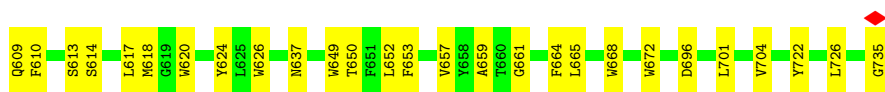
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Photosystem I P700 chlorophyll a apoprotein A1



- Molecule 2: Photosystem I P700 chlorophyll a apoprotein A2





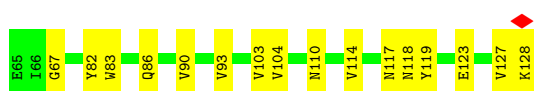
- Molecule 3: Photosystem I iron-sulfur center



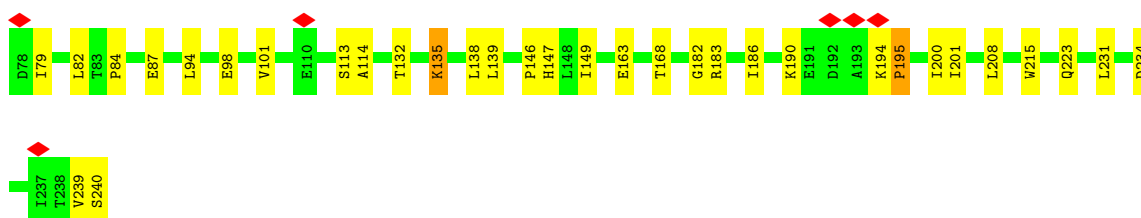
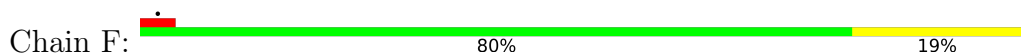
- Molecule 4: PsaD



- Molecule 5: PsaE



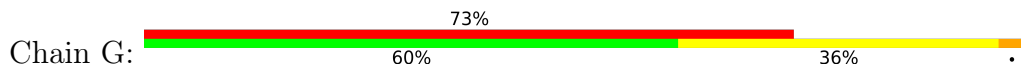
- Molecule 6: PsaF

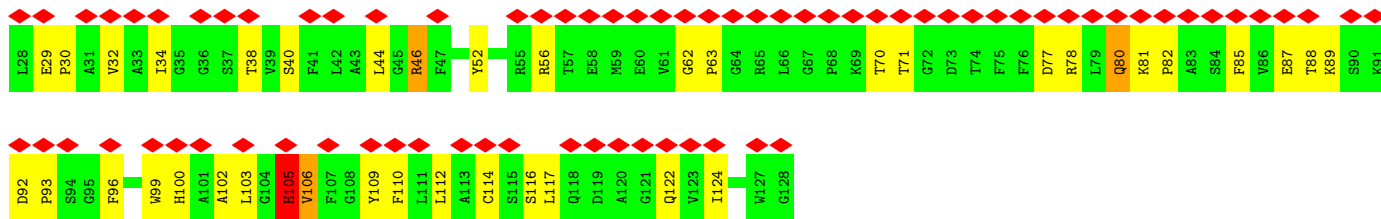


- Molecule 7: Photosystem I reaction center subunit IX

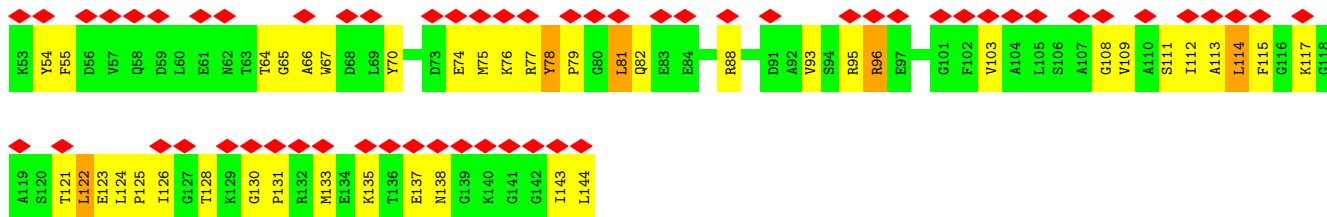


- Molecule 8: PsaG





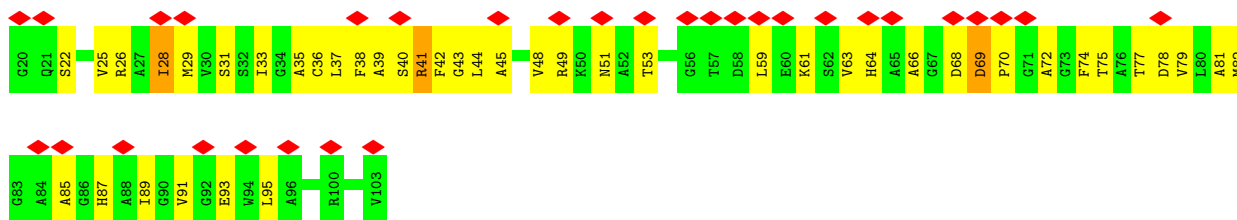
• Molecule 9: PsaH



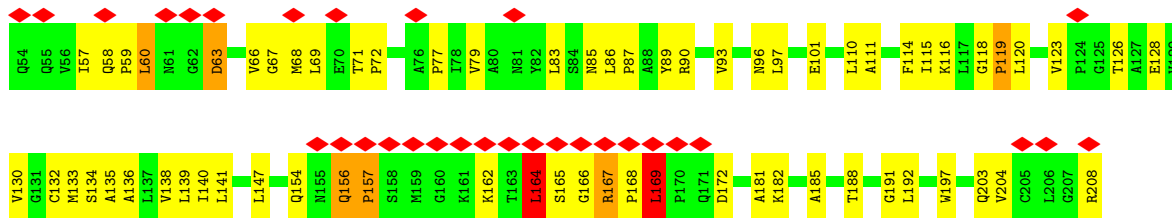
• Molecule 10: PsaI



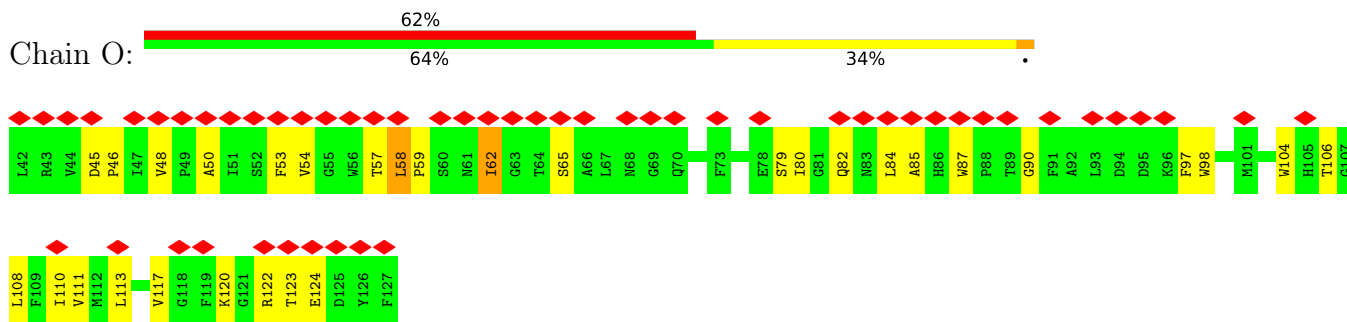
• Molecule 11: PsaK



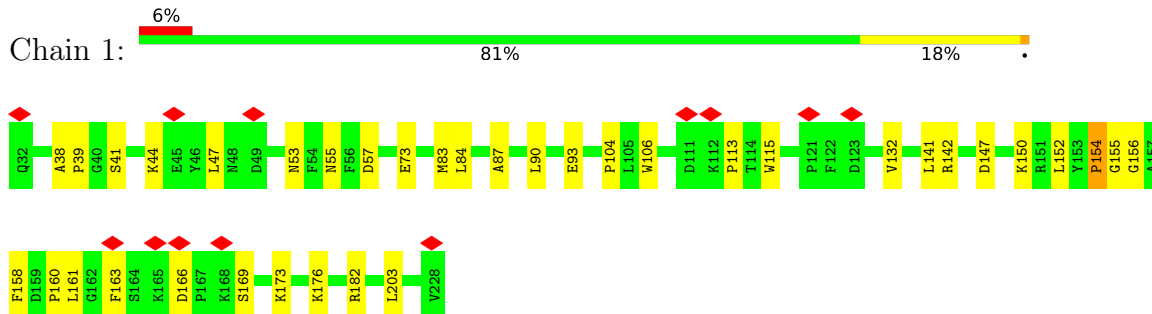
• Molecule 12: PsaL



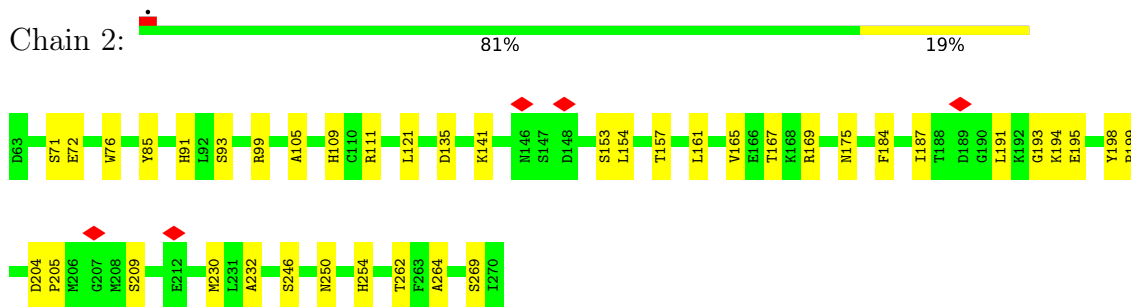
• Molecule 13: PsaO



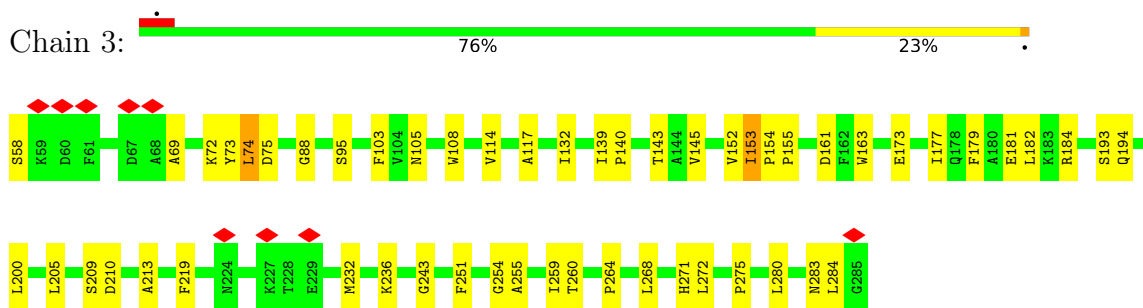
• Molecule 14: Chlorophyll a-b binding protein, chloroplastic



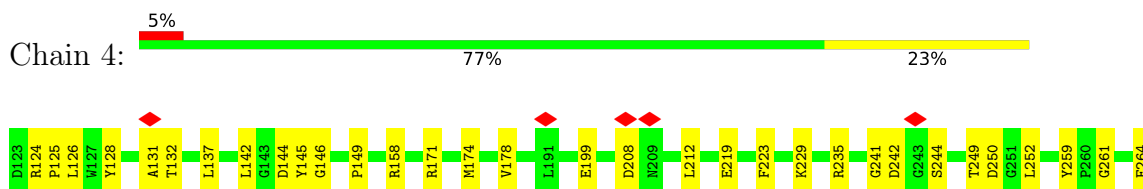
• Molecule 15: Lhca2



• Molecule 16: Chlorophyll a-b binding protein, chloroplastic

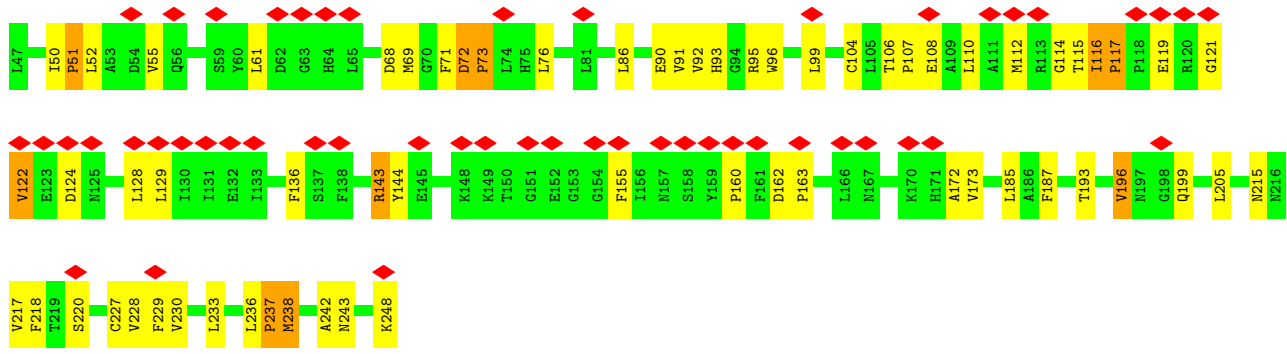


• Molecule 17: Lhca4

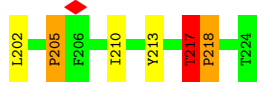
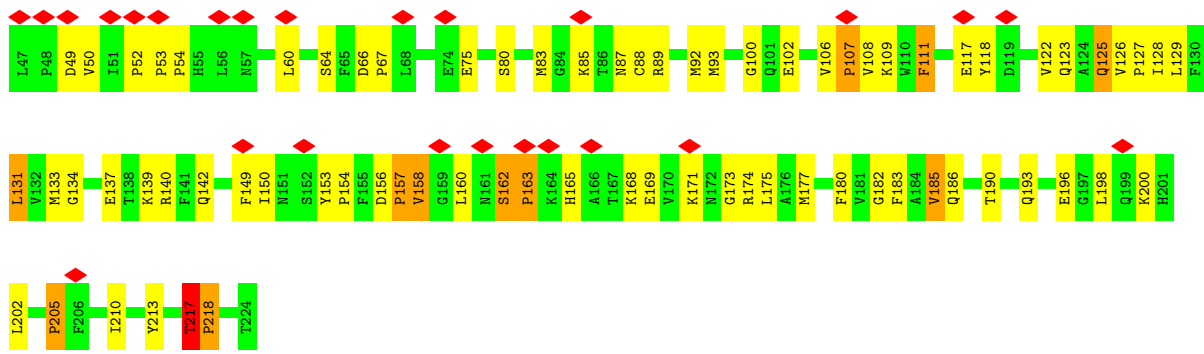




• Molecule 18: Lhca5



• Molecule 19: Lhca6



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	189006	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	42.68	Depositor
Minimum defocus (nm)	900	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.155	Depositor
Minimum map value	-0.071	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.0247	Depositor
Map size (\AA)	384.12003, 384.12003, 384.12003	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.067, 1.067, 1.067	Depositor

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: CLA, LHG, CHL, LMG, LMU, LMK, BCR, LUT, SQD, OCD, PQN, 4RF, DGD, XAT, CL0, 3PH, P3H, PTY, SF4, CA

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.52	4/6004 (0.1%)	0.59	3/8190 (0.0%)
2	B	0.49	2/6021 (0.0%)	0.59	2/8230 (0.0%)
3	C	0.55	1/610 (0.2%)	0.63	1/828 (0.1%)
4	D	0.66	2/1164 (0.2%)	0.66	1/1570 (0.1%)
5	E	0.53	0/525	0.55	0/712
6	F	0.62	2/1305 (0.2%)	0.69	1/1764 (0.1%)
7	J	0.96	2/338 (0.6%)	0.83	1/461 (0.2%)
8	G	0.70	1/796 (0.1%)	0.90	3/1077 (0.3%)
9	H	0.62	1/716 (0.1%)	0.88	2/963 (0.2%)
10	I	1.09	3/315 (1.0%)	0.87	1/437 (0.2%)
11	K	0.74	1/581 (0.2%)	0.90	2/785 (0.3%)
12	L	0.96	7/1164 (0.6%)	0.88	4/1589 (0.3%)
13	O	0.69	1/708 (0.1%)	0.86	2/966 (0.2%)
14	1	0.44	0/1540	0.60	0/2088
15	2	0.44	0/1656	0.56	0/2243
16	3	0.48	0/1790	0.63	3/2432 (0.1%)
17	4	0.48	0/1687	0.65	1/2300 (0.0%)
18	5	0.80	3/1561 (0.2%)	0.92	8/2123 (0.4%)
19	6	0.72	3/1417 (0.2%)	0.85	5/1929 (0.3%)
All	All	0.60	33/29898 (0.1%)	0.69	40/40687 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
11	K	0	2
16	3	0	1
All	All	0	3

The worst 5 of 33 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
19	6	218	PRO	N-CA	13.72	1.70	1.47
4	D	198	PRO	N-CA	13.63	1.70	1.47
7	J	36	PRO	N-CA	13.63	1.70	1.47
6	F	195	PRO	N-CA	13.60	1.70	1.47
18	5	73	PRO	N-CA	13.58	1.70	1.47

The worst 5 of 40 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
19	6	131	LEU	CB-CG-CD1	-10.46	93.22	111.00
7	J	36	PRO	CA-N-CD	-9.81	97.76	111.50
8	G	106	VAL	CG1-CB-CG2	-8.88	96.68	110.90
1	A	574	PRO	CA-N-CD	-8.56	99.52	111.50
18	5	73	PRO	CA-N-CD	-8.29	99.90	111.50

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
16	3	153	ILE	Mainchain
11	K	66	ALA	Mainchain
11	K	68	ASP	Mainchain

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5808	0	5641	151	0
2	B	5808	0	5560	195	0
3	C	600	0	582	13	0
4	D	1134	0	1142	26	0
5	E	515	0	508	10	0
6	F	1278	0	1299	40	0
7	J	327	0	328	18	0
8	G	773	0	756	45	0
9	H	704	0	693	90	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
10	I	301	0	297	40	0
11	K	573	0	567	58	0
12	L	1137	0	1165	80	0
13	O	684	0	661	33	0
14	1	1501	0	1469	39	0
15	2	1609	0	1556	31	0
16	3	1740	0	1698	53	0
17	4	1637	0	1579	45	0
18	5	1525	0	1517	94	0
19	6	1378	0	1382	102	0
20	A	65	0	72	10	0
21	1	682	0	648	53	0
21	2	602	0	609	14	0
21	3	746	0	722	50	0
21	4	632	0	600	28	0
21	5	602	0	549	99	0
21	6	602	0	542	105	0
21	A	2658	0	2762	243	0
21	B	2619	0	2762	225	0
21	F	96	0	74	2	0
21	G	138	0	99	18	0
21	H	106	0	92	7	0
21	J	49	0	38	4	0
21	K	193	0	148	36	0
21	L	230	0	219	25	0
21	O	136	0	95	3	0
22	A	33	0	46	3	0
22	B	33	0	46	6	0
23	A	8	0	0	0	0
23	C	16	0	0	0	0
24	1	40	0	53	5	0
24	2	40	0	53	1	0
24	3	120	0	159	16	0
24	4	40	0	53	1	0
24	A	280	0	367	44	0
24	B	240	0	317	37	0
24	F	80	0	106	24	0
24	G	40	0	53	22	0
24	H	40	0	53	5	0
24	I	80	0	106	16	0
24	J	80	0	105	6	0
24	K	40	0	53	8	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
24	L	80	0	106	5	0
24	O	40	0	52	7	0
25	1	106	0	128	5	0
25	2	114	0	141	8	0
25	3	17	0	12	0	0
25	4	29	0	28	0	0
25	5	67	0	77	11	0
25	6	25	0	20	0	0
25	A	98	0	148	6	0
25	B	42	0	57	3	0
25	F	49	0	74	2	0
26	A	19	0	0	0	0
27	6	35	0	46	2	0
27	A	70	0	92	2	0
27	B	35	0	46	2	0
28	2	39	0	36	2	0
28	3	84	0	84	5	0
28	B	61	0	83	5	0
29	5	57	0	60	5	0
29	B	31	0	35	2	0
29	F	34	0	41	0	0
30	B	1	0	0	0	0
31	1	32	0	34	1	0
31	2	50	0	73	0	0
31	3	82	0	107	20	0
31	4	85	0	113	2	0
31	6	37	0	44	12	0
31	F	50	0	73	3	0
32	5	32	0	39	1	0
32	L	39	0	53	2	0
33	1	58	0	64	0	0
33	3	46	0	38	0	0
33	4	35	0	43	0	0
33	5	36	0	48	10	0
33	6	24	0	21	1	0
33	L	20	0	13	0	0
33	O	22	0	17	6	0
34	1	42	0	55	7	0
34	2	42	0	55	6	0
34	3	42	0	55	9	0
34	4	42	0	55	4	0
34	5	168	0	220	40	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
34	6	42	0	55	22	0
35	1	44	0	56	2	0
35	2	44	0	56	4	0
35	3	44	0	56	6	0
35	4	44	0	56	3	0
35	6	88	0	112	14	0
36	1	113	0	100	7	0
36	2	216	0	180	10	0
36	3	66	0	69	3	0
36	4	159	0	124	3	0
36	5	113	0	100	39	0
36	6	47	0	30	8	0
37	2	40	0	46	2	0
37	3	35	0	33	2	0
37	6	32	0	27	1	0
38	2	31	0	0	0	0
38	4	35	0	0	0	0
39	2	49	0	0	0	0
39	5	32	0	0	1	0
All	All	43789	0	43687	1802	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 21.

The worst 5 of 1802 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:I:27:PRO:N	10:I:27:PRO:CA	1.69	1.49
12:L:157:PRO:N	12:L:157:PRO:CA	1.69	1.47
1:A:574:PRO:N	1:A:574:PRO:CA	1.70	1.45
6:F:195:PRO:N	6:F:195:PRO:CA	1.70	1.42
18:5:73:PRO:N	18:5:73:PRO:CA	1.70	1.42

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	738/740 (100%)	693 (94%)	43 (6%)	2 (0%)	41	61
2	B	731/733 (100%)	693 (95%)	37 (5%)	1 (0%)	51	75
3	C	78/80 (98%)	71 (91%)	7 (9%)	0	100	100
4	D	141/144 (98%)	125 (89%)	16 (11%)	0	100	100
5	E	62/64 (97%)	60 (97%)	2 (3%)	0	100	100
6	F	160/162 (99%)	143 (89%)	16 (10%)	1 (1%)	25	46
7	J	39/41 (95%)	33 (85%)	6 (15%)	0	100	100
8	G	99/101 (98%)	86 (87%)	11 (11%)	2 (2%)	7	16
9	H	90/92 (98%)	81 (90%)	9 (10%)	0	100	100
10	I	37/39 (95%)	32 (86%)	4 (11%)	1 (3%)	5	11
11	K	82/84 (98%)	75 (92%)	6 (7%)	1 (1%)	13	28
12	L	153/155 (99%)	143 (94%)	6 (4%)	4 (3%)	5	12
13	O	84/86 (98%)	74 (88%)	10 (12%)	0	100	100
14	1	195/197 (99%)	177 (91%)	16 (8%)	2 (1%)	15	31
15	2	206/208 (99%)	193 (94%)	13 (6%)	0	100	100
16	3	226/228 (99%)	213 (94%)	13 (6%)	0	100	100
17	4	209/211 (99%)	188 (90%)	21 (10%)	0	100	100
18	5	200/202 (99%)	177 (88%)	17 (8%)	6 (3%)	4	9
19	6	176/178 (99%)	152 (86%)	17 (10%)	7 (4%)	3	5
All	All	3706/3745 (99%)	3409 (92%)	270 (7%)	27 (1%)	26	42

5 of 27 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
18	5	122	VAL
18	5	160	PRO

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Mol	Chain	Res	Type
19	6	107	PRO
6	F	135	LYS
8	G	82	PRO

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	599/599 (100%)	598 (100%)	1 (0%)	93	97
2	B	593/593 (100%)	589 (99%)	4 (1%)	84	91
3	C	68/68 (100%)	67 (98%)	1 (2%)	65	82
4	D	122/123 (99%)	121 (99%)	1 (1%)	81	90
5	E	57/57 (100%)	57 (100%)	0	100	100
6	F	135/135 (100%)	134 (99%)	1 (1%)	84	91
7	J	36/36 (100%)	35 (97%)	1 (3%)	43	68
8	G	78/78 (100%)	74 (95%)	4 (5%)	24	45
9	H	71/71 (100%)	66 (93%)	5 (7%)	15	30
10	I	30/30 (100%)	30 (100%)	0	100	100
11	K	53/53 (100%)	51 (96%)	2 (4%)	33	59
12	L	119/119 (100%)	114 (96%)	5 (4%)	30	54
13	O	71/71 (100%)	71 (100%)	0	100	100
14	1	152/152 (100%)	152 (100%)	0	100	100
15	2	167/167 (100%)	167 (100%)	0	100	100
16	3	173/173 (100%)	173 (100%)	0	100	100
17	4	169/169 (100%)	169 (100%)	0	100	100
18	5	163/163 (100%)	160 (98%)	3 (2%)	59	78
19	6	147/147 (100%)	141 (96%)	6 (4%)	30	56
All	All	3003/3004 (100%)	2969 (99%)	34 (1%)	74	86

5 of 34 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
19	6	87	ASN
19	6	88	CYS
19	6	111	PHE
8	G	105	HIS
8	G	85	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	99	GLN
8	G	105	HIS
17	4	281	GLN
19	6	165	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 292 ligands modelled in this entry, 1 is monoatomic - leaving 291 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
24	BCR	I	4001	-	41,41,41	1.86	4 (9%)	56,56,56	4.17	17 (30%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CLA	A	1120	-	60,68,73	1.43	8 (13%)	70,107,113	2.14	20 (28%)
28	DGD	3	805	-	46,46,67	0.87	2 (4%)	60,60,81	1.02	3 (5%)
21	CLA	5	613	-	45,53,73	1.68	8 (17%)	52,89,113	2.48	15 (28%)
36	CHL	3	604	-	66,74,74	1.27	9 (13%)	73,114,114	1.34	10 (13%)
24	BCR	A	4001	-	41,41,41	1.87	4 (9%)	56,56,56	5.02	22 (39%)
24	BCR	2	503	-	41,41,41	1.78	4 (9%)	56,56,56	4.27	15 (26%)
29	3PH	F	5003	-	33,33,47	1.00	4 (12%)	37,38,52	1.17	2 (5%)
21	CLA	6	601	-	60,68,73	1.40	8 (13%)	70,107,113	2.02	17 (24%)
24	BCR	O	4001	-	41,41,41	1.92	6 (14%)	56,56,56	5.09	21 (37%)
25	LHG	F	5001	-	48,48,48	0.40	0	51,54,54	0.95	3 (5%)
21	CLA	B	1022	-	65,73,73	1.34	8 (12%)	76,113,113	2.00	17 (22%)
21	CLA	B	1205	-	65,73,73	1.38	8 (12%)	76,113,113	2.07	16 (21%)
21	CLA	K	1402	-	55,63,73	1.47	7 (12%)	64,101,113	2.13	18 (28%)
25	LHG	4	801	-	28,28,48	0.54	0	31,34,54	1.28	4 (12%)
21	CLA	4	612	-	65,73,73	1.36	8 (12%)	76,113,113	1.95	17 (22%)
36	CHL	5	610	-	47,55,74	1.03	3 (6%)	50,91,114	1.42	9 (18%)
39	P3H	5	806	-	32,32,49	1.44	6 (18%)	42,44,61	1.03	2 (4%)
21	CLA	B	1234	-	55,63,73	1.47	7 (12%)	64,101,113	2.26	21 (32%)
21	CLA	B	1223	-	65,73,73	1.37	8 (12%)	76,113,113	2.07	18 (23%)
33	PTY	5	803	-	35,35,49	1.02	4 (11%)	38,40,54	1.13	2 (5%)
21	CLA	6	607	-	60,68,73	1.43	8 (13%)	70,107,113	2.07	16 (22%)
21	CLA	B	1235	-	60,68,73	1.39	8 (13%)	70,107,113	2.08	17 (24%)
24	BCR	G	4001	-	41,41,41	1.93	4 (9%)	56,56,56	4.15	22 (39%)
24	BCR	K	4001	-	41,41,41	1.85	4 (9%)	56,56,56	4.33	17 (30%)
21	CLA	2	612	-	65,73,73	1.37	8 (12%)	76,113,113	2.06	18 (23%)
36	CHL	6	610	-	47,55,74	0.98	3 (6%)	50,91,114	1.49	10 (20%)
21	CLA	6	609	-	46,54,73	1.61	8 (17%)	53,90,113	2.12	15 (28%)
21	CLA	A	1102	-	65,73,73	1.38	8 (12%)	76,113,113	2.08	18 (23%)
25	LHG	5	801	-	42,42,48	0.44	0	45,48,54	1.17	5 (11%)
21	CLA	4	609	17	60,68,73	1.39	7 (11%)	70,107,113	2.31	20 (28%)
21	CLA	2	607	25	60,68,73	1.43	8 (13%)	70,107,113	2.21	19 (27%)
28	DGD	B	5002	-	62,62,67	1.11	6 (9%)	76,76,81	1.06	4 (5%)
35	XAT	6	504	-	39,47,47	0.90	1 (2%)	54,74,74	6.81	18 (33%)
24	BCR	3	506	-	41,41,41	1.96	4 (9%)	56,56,56	3.96	23 (41%)
21	CLA	B	1226	-	65,73,73	1.40	8 (12%)	76,113,113	2.12	21 (27%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
26	OCD	A	5003	-	18,18,18	0.30	0	17,17,17	0.97	0
21	CLA	B	1224	-	65,73,73	1.37	8 (12%)	76,113,113	1.98	17 (22%)
21	CLA	A	1134	1	55,63,73	1.45	7 (12%)	64,101,113	2.11	16 (25%)
33	PTY	1	806	-	17,17,49	1.26	2 (11%)	18,21,54	1.21	2 (11%)
21	CLA	2	602	-	52,60,73	1.53	9 (17%)	60,97,113	2.14	18 (30%)
21	CLA	A	1101	-	65,73,73	1.37	8 (12%)	76,113,113	2.00	20 (26%)
21	CLA	B	1219	-	65,73,73	1.38	8 (12%)	76,113,113	1.94	15 (19%)
21	CLA	A	1141	25	60,68,73	1.43	8 (13%)	70,107,113	2.15	18 (25%)
21	CLA	K	1403	-	48,56,73	1.54	9 (18%)	55,92,113	2.55	17 (30%)
32	4RF	L	5002	-	38,38,56	1.05	6 (15%)	41,41,59	0.97	3 (7%)
21	CLA	A	1135	-	51,59,73	1.58	7 (13%)	59,96,113	2.35	18 (30%)
21	CLA	B	1239	-	65,73,73	1.34	8 (12%)	76,113,113	1.97	17 (22%)
21	CLA	B	1214	-	65,73,73	1.38	8 (12%)	76,113,113	2.05	19 (25%)
21	CLA	4	608	-	46,54,73	1.61	8 (17%)	53,90,113	2.20	14 (26%)
34	LUT	1	501	-	42,43,43	2.41	2 (4%)	51,60,60	4.98	23 (45%)
25	LHG	5	802	-	23,23,48	0.54	0	26,29,54	1.49	3 (11%)
21	CLA	A	1012	-	65,73,73	1.34	8 (12%)	76,113,113	1.94	17 (22%)
31	LMG	1	804	-	32,32,55	0.60	0	40,40,63	1.50	7 (17%)
36	CHL	2	611	-	48,56,74	1.15	4 (8%)	51,92,114	1.55	10 (19%)
24	BCR	1	504	-	41,41,41	1.86	4 (9%)	56,56,56	4.11	20 (35%)
21	CLA	A	1132	-	65,73,73	1.34	8 (12%)	76,113,113	2.00	17 (22%)
21	CLA	A	1112	-	65,73,73	1.34	7 (10%)	76,113,113	2.01	18 (23%)
21	CLA	A	1133	-	65,73,73	1.45	9 (13%)	76,113,113	1.86	15 (19%)
21	CLA	B	1208	-	60,68,73	1.39	8 (13%)	70,107,113	2.03	15 (21%)
21	CLA	B	1210	-	65,73,73	1.39	9 (13%)	76,113,113	2.06	17 (22%)
21	CLA	3	602	-	52,60,73	1.55	7 (13%)	60,97,113	2.22	18 (30%)
21	CLA	5	603	-	60,68,73	1.43	7 (11%)	70,107,113	2.31	23 (32%)
21	CLA	A	1104	-	65,73,73	1.41	8 (12%)	76,113,113	2.17	17 (22%)
25	LHG	1	803	-	30,30,48	0.44	0	33,36,54	1.19	4 (12%)
36	CHL	2	610	-	56,64,74	1.06	4 (7%)	61,102,114	1.48	14 (22%)
21	CLA	A	1126	-	65,73,73	1.43	8 (12%)	76,113,113	2.00	19 (25%)
21	CLA	B	1227	-	65,73,73	1.34	8 (12%)	76,113,113	2.07	21 (27%)
36	CHL	4	613	-	61,69,74	1.03	4 (6%)	67,108,114	1.10	9 (13%)
24	BCR	3	503	-	41,41,41	1.83	4 (9%)	56,56,56	4.19	15 (26%)
21	CLA	K	1401	-	45,53,73	1.74	9 (20%)	52,89,113	2.76	17 (32%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CLA	B	1240	-	65,73,73	1.39	8 (12%)	76,113,113	1.94	15 (19%)
21	CLA	2	604	15	65,73,73	1.39	9 (13%)	76,113,113	2.03	17 (22%)
21	CLA	A	1113	-	65,73,73	1.40	7 (10%)	76,113,113	1.88	16 (21%)
21	CLA	4	604	-	60,68,73	1.39	8 (13%)	70,107,113	2.03	16 (22%)
21	CLA	2	615	-	65,73,73	1.39	8 (12%)	76,113,113	1.93	16 (21%)
21	CLA	A	1124	-	60,68,73	1.44	8 (13%)	70,107,113	2.08	20 (28%)
21	CLA	1	612	-	60,68,73	1.40	8 (13%)	70,107,113	2.15	16 (22%)
21	CLA	B	1231	-	60,68,73	1.45	8 (13%)	70,107,113	2.09	16 (22%)
21	CLA	H	1701	-	60,68,73	1.44	7 (11%)	70,107,113	2.31	20 (28%)
21	CLA	3	614	-	42,50,73	1.62	7 (16%)	48,85,113	2.26	14 (29%)
21	CLA	B	1236	-	55,63,73	1.49	8 (14%)	64,101,113	2.20	16 (25%)
33	PTY	3	808	-	19,19,49	1.35	3 (15%)	22,24,54	1.51	2 (9%)
21	CLA	A	1108	-	55,63,73	1.48	8 (14%)	64,101,113	2.17	17 (26%)
25	LHG	3	801	-	16,16,48	0.82	1 (6%)	17,20,54	0.72	0
27	LMU	A	5005	-	36,36,36	0.40	0	47,47,47	0.84	1 (2%)
21	CLA	B	1212	-	55,63,73	1.45	7 (12%)	64,101,113	2.13	16 (25%)
21	CLA	1	607	-	46,54,73	1.64	8 (17%)	53,90,113	2.10	13 (24%)
21	CLA	B	1207	-	65,73,73	1.34	7 (10%)	76,113,113	1.99	16 (21%)
21	CLA	2	603	-	65,73,73	1.36	8 (12%)	76,113,113	1.96	16 (21%)
35	XAT	4	502	-	39,47,47	0.74	1 (2%)	54,74,74	1.70	13 (24%)
24	BCR	L	4001	-	41,41,41	1.84	6 (14%)	56,56,56	4.29	16 (28%)
21	CLA	B	1206	2	65,73,73	1.33	6 (9%)	76,113,113	1.97	17 (22%)
24	BCR	A	4003	-	41,41,41	1.87	4 (9%)	56,56,56	4.23	19 (33%)
24	BCR	B	4004	-	41,41,41	1.84	4 (9%)	56,56,56	4.23	15 (26%)
24	BCR	B	4003	-	41,41,41	1.86	5 (12%)	56,56,56	4.37	23 (41%)
34	LUT	6	501	-	42,43,43	2.39	1 (2%)	51,60,60	2.24	16 (31%)
24	BCR	A	4005	-	41,41,41	1.79	5 (12%)	56,56,56	4.20	8 (14%)
37	SQD	3	806	-	34,35,54	0.92	0	43,46,65	1.18	4 (9%)
21	CLA	G	1603	-	45,53,73	1.50	7 (15%)	52,89,113	2.96	22 (42%)
31	LMG	4	802	-	46,46,55	0.95	3 (6%)	54,54,63	1.44	4 (7%)
21	CLA	6	605	-	65,73,73	1.34	8 (12%)	76,113,113	2.27	22 (28%)
21	CLA	B	1021	-	65,73,73	1.36	7 (10%)	76,113,113	2.20	23 (30%)
24	BCR	B	4001	-	41,41,41	1.95	4 (9%)	56,56,56	4.44	16 (28%)
29	3PH	5	804	-	27,27,47	1.11	4 (14%)	31,32,52	1.19	2 (6%)
21	CLA	5	604	18	65,73,73	1.36	7 (10%)	76,113,113	2.03	17 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CLA	5	614	-	65,73,73	1.27	7 (10%)	76,113,113	2.87	20 (26%)
34	LUT	2	501	-	42,43,43	2.31	1 (2%)	51,60,60	2.20	17 (33%)
36	CHL	2	609	15	66,74,74	1.01	4 (6%)	73,114,114	1.29	11 (15%)
21	CLA	A	1137	-	60,68,73	1.42	6 (10%)	70,107,113	2.19	23 (32%)
21	CLA	1	606	-	50,58,73	1.54	7 (14%)	58,95,113	2.16	17 (29%)
21	CLA	B	1217	-	65,73,73	1.38	8 (12%)	76,113,113	1.98	18 (23%)
24	BCR	J	4002	-	41,41,41	1.98	6 (14%)	56,56,56	4.44	18 (32%)
33	PTY	L	5003	-	19,19,49	1.37	4 (21%)	22,24,54	1.46	2 (9%)
21	CLA	4	601	-	60,68,73	1.45	9 (15%)	70,107,113	2.35	23 (32%)
37	SQD	2	805	-	39,40,54	0.89	0	48,51,65	0.99	2 (4%)
21	CLA	L	1504	-	50,58,73	1.52	9 (18%)	58,95,113	2.21	17 (29%)
21	CLA	A	1121	-	60,68,73	1.39	7 (11%)	70,107,113	2.02	17 (24%)
21	CLA	1	611	-	65,73,73	1.35	8 (12%)	76,113,113	1.95	16 (21%)
24	BCR	A	4002	-	41,41,41	1.84	4 (9%)	56,56,56	4.40	21 (37%)
21	CLA	A	1114	-	55,63,73	1.45	8 (14%)	64,101,113	2.14	16 (25%)
21	CLA	3	613	-	46,54,73	1.55	7 (15%)	53,90,113	2.45	16 (30%)
21	CLA	A	1128	-	65,73,73	1.40	8 (12%)	76,113,113	2.01	17 (22%)
21	CLA	A	1130	-	55,63,73	1.53	7 (12%)	64,101,113	2.34	21 (32%)
21	CLA	3	615	-	56,64,73	1.47	9 (16%)	65,102,113	2.19	19 (29%)
24	BCR	F	4002	-	41,41,41	1.82	4 (9%)	56,56,56	4.38	19 (33%)
34	LUT	3	501	-	42,43,43	2.30	2 (4%)	51,60,60	1.96	12 (23%)
35	XAT	3	502	-	39,47,47	0.84	1 (2%)	54,74,74	2.10	16 (29%)
25	LHG	A	5002	-	48,48,48	0.39	0	51,54,54	1.01	2 (3%)
21	CLA	1	608	-	55,63,73	1.52	9 (16%)	64,101,113	2.15	18 (28%)
21	CLA	3	606	-	55,63,73	1.49	8 (14%)	64,101,113	2.23	22 (34%)
38	LMK	4	805	-	33,34,53	1.66	3 (9%)	36,41,60	1.45	2 (5%)
21	CLA	A	1129	-	55,63,73	1.47	9 (16%)	64,101,113	2.41	18 (28%)
25	LHG	1	802	-	25,25,48	0.49	0	28,31,54	1.29	3 (10%)
21	CLA	A	1125	-	65,73,73	1.39	9 (13%)	76,113,113	2.04	18 (23%)
34	LUT	5	503	-	42,43,43	2.41	1 (2%)	51,60,60	4.39	21 (41%)
21	CLA	O	1802	-	37,46,73	1.64	5 (13%)	46,81,113	2.26	16 (34%)
21	CLA	A	1138	-	65,73,73	1.36	9 (13%)	76,113,113	2.12	17 (22%)
24	BCR	A	4006	-	41,41,41	1.84	4 (9%)	56,56,56	4.15	15 (26%)
24	BCR	B	4006	-	41,41,41	1.89	5 (12%)	56,56,56	4.24	14 (25%)
21	CLA	B	1238	-	65,73,73	1.36	8 (12%)	76,113,113	2.07	17 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CLA	B	1220	-	55,63,73	1.54	8 (14%)	64,101,113	2.17	21 (32%)
21	CLA	O	1803	-	60,68,73	1.49	9 (15%)	70,107,113	2.08	18 (25%)
25	LHG	A	5001	21	48,48,48	0.45	0	51,54,54	1.10	3 (5%)
21	CLA	B	1202	-	65,73,73	1.37	8 (12%)	76,113,113	1.93	19 (25%)
21	CLA	3	612	-	65,73,73	1.39	8 (12%)	76,113,113	1.99	17 (22%)
21	CLA	1	615	-	60,68,73	1.44	9 (15%)	70,107,113	2.05	18 (25%)
21	CLA	6	604	-	60,68,73	1.42	8 (13%)	70,107,113	2.10	19 (27%)
36	CHL	4	610	-	47,55,74	1.02	3 (6%)	50,91,114	1.33	9 (18%)
21	CLA	A	1136	-	65,73,73	1.38	8 (12%)	76,113,113	2.02	22 (28%)
31	LMG	4	803	-	39,39,55	0.74	2 (5%)	47,47,63	0.99	2 (4%)
36	CHL	2	613	-	46,54,74	1.39	3 (6%)	49,90,114	1.34	8 (16%)
21	CLA	A	1122	-	65,73,73	1.36	8 (12%)	76,113,113	2.03	19 (25%)
21	CLA	B	1203	-	65,73,73	1.36	8 (12%)	76,113,113	1.96	17 (22%)
21	CLA	B	1222	-	65,73,73	1.36	7 (10%)	76,113,113	2.10	21 (27%)
21	CLA	1	603	-	60,68,73	1.41	9 (15%)	70,107,113	2.24	19 (27%)
21	CLA	5	612	18	46,54,73	1.83	11 (23%)	53,90,113	2.44	19 (35%)
21	CLA	B	1228	-	60,68,73	1.41	8 (13%)	70,107,113	2.08	17 (24%)
21	CLA	B	1218	-	65,73,73	1.44	9 (13%)	76,113,113	2.10	18 (23%)
21	CLA	3	610	16	50,58,73	1.53	8 (16%)	58,95,113	2.25	15 (25%)
28	DGD	2	806	-	40,40,67	0.89	2 (5%)	54,54,81	1.10	2 (3%)
25	LHG	6	801	-	24,24,48	0.54	0	27,30,54	1.28	3 (11%)
33	PTY	1	805	-	39,39,49	0.97	3 (7%)	42,44,54	1.14	2 (4%)
21	CLA	5	607	-	60,68,73	1.45	7 (11%)	70,107,113	2.22	16 (22%)
21	CLA	A	1103	-	65,73,73	1.32	8 (12%)	76,113,113	2.18	18 (23%)
37	SQD	6	803	-	31,32,54	0.99	0	40,43,65	1.07	2 (5%)
23	SF4	C	3003	3	0,12,12	-	-	-	-	-
21	CLA	B	1209	-	46,54,73	1.63	8 (17%)	53,90,113	2.20	16 (30%)
22	PQN	A	2001	-	34,34,34	0.34	0	42,45,45	1.13	2 (4%)
33	PTY	O	5002	-	21,21,49	1.30	4 (19%)	24,26,54	1.43	2 (8%)
24	BCR	J	4001	-	41,41,41	1.89	5 (12%)	56,56,56	4.49	23 (41%)
21	CLA	1	604	-	65,73,73	1.37	9 (13%)	76,113,113	2.18	22 (28%)
21	CLA	A	1115	-	60,68,73	1.40	8 (13%)	70,107,113	2.02	18 (25%)
34	LUT	5	504	-	42,43,43	2.48	1 (2%)	51,60,60	4.74	22 (43%)
21	CLA	A	1111	-	65,73,73	1.39	9 (13%)	76,113,113	2.07	19 (25%)
21	CLA	A	1109	-	65,73,73	1.36	8 (12%)	76,113,113	2.10	18 (23%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CLA	A	1123	-	65,73,73	1.39	8 (12%)	76,113,113	1.99	17 (22%)
21	CLA	1	601	-	65,73,73	1.34	7 (10%)	76,113,113	2.00	18 (23%)
34	LUT	4	501	-	42,43,43	2.31	2 (4%)	51,60,60	2.23	15 (29%)
25	LHG	B	5001	-	41,41,48	0.44	0	44,47,54	1.12	3 (6%)
21	CLA	3	603	-	65,73,73	1.44	8 (12%)	76,113,113	2.09	20 (26%)
24	BCR	H	4001	-	41,41,41	1.96	4 (9%)	56,56,56	4.45	20 (35%)
25	LHG	1	801	-	48,48,48	0.39	0	51,54,54	1.21	3 (5%)
21	CLA	4	607	-	60,68,73	1.43	8 (13%)	70,107,113	2.07	16 (22%)
38	LMK	2	807	-	29,30,53	1.74	2 (6%)	32,37,60	1.68	5 (15%)
21	CLA	B	1237	-	65,73,73	1.35	6 (9%)	76,113,113	2.15	20 (26%)
21	CLA	A	1117	-	65,73,73	1.32	6 (9%)	76,113,113	2.09	16 (21%)
21	CLA	6	608	-	46,54,73	1.57	7 (15%)	53,90,113	2.17	14 (26%)
28	DGD	3	804	-	40,40,67	0.89	1 (2%)	54,54,81	1.21	4 (7%)
21	CLA	A	1131	-	65,73,73	1.36	7 (10%)	76,113,113	2.14	15 (19%)
27	LMU	6	805	-	36,36,36	0.47	0	47,47,47	0.93	4 (8%)
36	CHL	5	609	-	66,74,74	0.83	3 (4%)	73,114,114	1.30	11 (15%)
21	CLA	3	608	-	65,73,73	1.37	9 (13%)	76,113,113	1.89	19 (25%)
21	CLA	6	612	-	65,73,73	1.35	7 (10%)	76,113,113	2.14	19 (25%)
21	CLA	6	613	-	45,53,73	1.56	6 (13%)	52,89,113	2.37	14 (26%)
23	SF4	C	3002	3	0,12,12	-	-	-	-	-
24	BCR	B	4005	-	41,41,41	1.81	5 (12%)	56,56,56	4.27	11 (19%)
24	BCR	I	4002	-	41,41,41	1.85	4 (9%)	56,56,56	4.39	19 (33%)
21	CLA	F	1301	-	47,55,73	1.61	8 (17%)	54,91,113	2.16	15 (27%)
21	CLA	5	608	-	55,63,73	1.51	8 (14%)	64,101,113	2.20	17 (26%)
33	PTY	3	807	-	25,25,49	1.20	3 (12%)	28,30,54	1.28	2 (7%)
24	BCR	L	4002	-	41,41,41	1.98	7 (17%)	56,56,56	4.33	16 (28%)
21	CLA	J	1901	-	49,57,73	1.67	8 (16%)	55,93,113	2.55	17 (30%)
35	XAT	2	502	-	39,47,47	0.76	1 (2%)	54,74,74	1.66	12 (22%)
36	CHL	1	610	-	47,55,74	1.20	4 (8%)	50,91,114	1.54	13 (26%)
21	CLA	B	1204	-	65,73,73	1.38	8 (12%)	76,113,113	2.10	16 (21%)
21	CLA	4	603	-	65,73,73	1.36	9 (13%)	76,113,113	1.98	18 (23%)
24	BCR	A	4004	-	41,41,41	1.86	5 (12%)	56,56,56	4.53	18 (32%)
34	LUT	5	502	-	42,43,43	2.41	1 (2%)	51,60,60	2.20	14 (27%)
33	PTY	4	804	-	34,34,49	1.02	3 (8%)	37,39,54	1.13	2 (5%)
35	XAT	1	502	-	39,47,47	0.77	1 (2%)	54,74,74	2.05	13 (24%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
36	CHL	1	609	14	66,74,74	0.91	3 (4%)	73,114,114	1.25	10 (13%)
21	CLA	A	1127	-	65,73,73	1.37	7 (10%)	76,113,113	2.03	20 (26%)
32	4RF	5	805	-	31,31,56	1.20	5 (16%)	34,34,59	1.27	4 (11%)
21	CLA	A	1106	-	65,73,73	1.37	7 (10%)	76,113,113	2.06	19 (25%)
33	PTY	6	804	-	23,23,49	1.12	2 (8%)	26,28,54	1.24	2 (7%)
23	SF4	A	3001	1,2	0,12,12	-	-	-	-	-
21	CLA	4	605	-	65,73,73	1.36	8 (12%)	76,113,113	2.07	19 (25%)
21	CLA	F	1302	-	49,57,73	1.57	8 (16%)	55,93,113	2.34	16 (29%)
39	P3H	2	808	-	49,49,49	1.42	8 (16%)	59,61,61	1.01	3 (5%)
21	CLA	O	1801	-	36,46,73	1.70	7 (19%)	41,80,113	3.16	13 (31%)
21	CLA	L	1502	-	65,73,73	1.40	9 (13%)	76,113,113	2.42	24 (31%)
21	CLA	B	1023	-	65,73,73	1.34	7 (10%)	76,113,113	2.00	17 (22%)
21	CLA	3	601	-	60,68,73	1.44	8 (13%)	70,107,113	2.19	15 (21%)
21	CLA	5	606	-	50,58,73	1.54	9 (18%)	58,95,113	2.18	17 (29%)
24	BCR	A	4007	-	41,41,41	1.88	4 (9%)	56,56,56	4.63	16 (28%)
21	CLA	2	605	-	65,73,73	1.37	7 (10%)	76,113,113	1.99	20 (26%)
21	CLA	A	1110	-	55,63,73	1.50	8 (14%)	64,101,113	2.25	20 (31%)
25	LHG	2	802	-	42,42,48	0.44	0	45,48,54	1.18	4 (8%)
29	3PH	5	807	-	28,28,47	1.09	3 (10%)	32,33,52	1.39	3 (9%)
24	BCR	B	4002	-	41,41,41	1.81	4 (9%)	56,56,56	4.22	11 (19%)
21	CLA	1	602	-	46,54,73	1.60	8 (17%)	53,90,113	2.13	14 (26%)
21	CLA	B	1216	-	65,73,73	1.38	8 (12%)	76,113,113	1.91	16 (21%)
21	CLA	3	611	-	65,73,73	1.39	8 (12%)	76,113,113	2.03	20 (26%)
21	CLA	G	1601	-	47,55,73	1.57	8 (17%)	54,91,113	2.16	15 (27%)
22	PQN	B	2002	-	34,34,34	0.35	0	42,45,45	1.24	2 (4%)
31	LMG	2	804	-	50,50,55	1.04	5 (10%)	58,58,63	1.19	2 (3%)
21	CLA	6	603	-	55,63,73	1.45	8 (14%)	64,101,113	2.10	15 (23%)
25	LHG	2	801	21	34,34,48	0.47	0	37,40,54	1.18	4 (10%)
24	BCR	3	504	-	41,41,41	1.85	5 (12%)	56,56,56	4.33	19 (33%)
21	CLA	A	1140	-	61,69,73	1.42	8 (13%)	71,108,113	2.06	18 (25%)
21	CLA	6	602	-	50,58,73	1.53	7 (14%)	58,95,113	2.23	17 (29%)
31	LMG	3	803	-	50,50,55	1.05	4 (8%)	58,58,63	1.10	3 (5%)
27	LMU	A	5004	-	36,36,36	0.44	0	47,47,47	1.08	2 (4%)
21	CLA	2	601	-	65,73,73	1.44	8 (12%)	76,113,113	2.03	15 (19%)
21	CLA	A	1013	-	65,73,73	1.37	9 (13%)	76,113,113	2.03	20 (26%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CLA	H	1702	-	46,54,73	1.63	6 (13%)	53,90,113	2.43	18 (33%)
31	LMG	6	802	-	37,37,55	0.59	1 (2%)	45,45,63	1.06	3 (6%)
20	CL0	A	1011	-	65,73,73	2.37	19 (29%)	76,113,113	2.54	20 (26%)
21	CLA	5	601	-	45,53,73	1.84	13 (28%)	52,89,113	3.13	20 (38%)
21	CLA	B	1229	-	65,73,73	1.36	8 (12%)	76,113,113	2.19	24 (31%)
21	CLA	B	1201	-	48,56,73	1.54	8 (16%)	55,92,113	2.43	18 (32%)
31	LMG	3	802	-	32,32,55	0.69	1 (3%)	40,40,63	0.98	1 (2%)
36	CHL	4	611	-	51,59,74	1.20	4 (7%)	55,96,114	1.46	10 (18%)
21	CLA	1	613	-	45,53,73	1.65	8 (17%)	52,89,113	2.11	16 (30%)
31	LMG	F	5002	-	50,50,55	1.02	5 (10%)	58,58,63	1.08	2 (3%)
21	CLA	5	602	-	46,54,73	1.65	9 (19%)	53,90,113	2.23	15 (28%)
24	BCR	4	503	-	41,41,41	1.85	4 (9%)	56,56,56	4.36	16 (28%)
21	CLA	A	1107	-	65,73,73	1.33	6 (9%)	76,113,113	2.02	17 (22%)
21	CLA	A	1116	-	56,64,73	1.44	8 (14%)	65,102,113	2.17	17 (26%)
21	CLA	L	1501	-	65,73,73	1.29	9 (13%)	76,113,113	2.29	19 (25%)
21	CLA	L	1503	-	50,58,73	1.54	7 (14%)	58,95,113	2.30	19 (32%)
21	CLA	B	1230	-	65,73,73	1.39	8 (12%)	76,113,113	2.12	20 (26%)
21	CLA	B	1211	-	65,73,73	1.38	6 (9%)	76,113,113	2.11	18 (23%)
35	XAT	6	502	-	39,47,47	0.84	1 (2%)	54,74,74	1.71	12 (22%)
27	LMU	B	5004	-	36,36,36	0.44	0	47,47,47	0.90	2 (4%)
21	CLA	B	1232	-	55,63,73	1.53	8 (14%)	64,101,113	2.15	17 (26%)
21	CLA	A	1119	-	65,73,73	1.40	8 (12%)	76,113,113	1.95	19 (25%)
21	CLA	3	605	-	65,73,73	1.37	8 (12%)	76,113,113	1.98	15 (19%)
21	CLA	6	606	-	50,58,73	1.52	7 (14%)	58,95,113	2.20	17 (29%)
25	LHG	2	803	-	35,35,48	0.46	0	38,41,54	1.19	4 (10%)
29	3PH	B	5003	-	30,30,47	1.07	4 (13%)	34,35,52	1.28	2 (5%)
24	BCR	F	4001	-	41,41,41	1.85	4 (9%)	56,56,56	4.38	17 (30%)
21	CLA	A	1139	-	65,73,73	1.41	10 (15%)	76,113,113	2.12	21 (27%)
21	CLA	B	1221	-	65,73,73	1.33	8 (12%)	76,113,113	2.15	21 (27%)
21	CLA	K	1404	-	45,53,73	1.59	8 (17%)	52,89,113	2.14	13 (25%)
21	CLA	3	607	-	60,68,73	1.44	9 (15%)	70,107,113	2.05	18 (25%)
21	CLA	4	615	17	51,59,73	1.58	8 (15%)	59,96,113	2.15	16 (27%)
34	LUT	5	501	-	42,43,43	2.53	1 (2%)	51,60,60	4.53	20 (39%)
21	CLA	B	1215	-	65,73,73	1.35	9 (13%)	76,113,113	2.07	18 (23%)
21	CLA	4	606	-	50,58,73	1.54	8 (16%)	58,95,113	2.19	16 (27%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
21	CLA	A	1105	-	60,68,73	1.46	9 (15%)	70,107,113	2.24	23 (32%)
21	CLA	B	1225	-	65,73,73	1.37	7 (10%)	76,113,113	2.00	17 (22%)
21	CLA	G	1602	-	46,54,73	1.59	7 (15%)	53,90,113	2.15	14 (26%)
21	CLA	2	606	-	50,58,73	1.57	8 (16%)	58,95,113	2.27	18 (31%)
21	CLA	A	1118	-	50,58,73	1.65	10 (20%)	58,95,113	2.35	20 (34%)
21	CLA	2	608	-	50,58,73	1.57	8 (16%)	58,95,113	2.32	18 (31%)
21	CLA	4	602	-	50,58,73	1.57	8 (16%)	58,95,113	2.26	15 (25%)
21	CLA	5	605	-	65,73,73	1.33	7 (10%)	76,113,113	1.99	16 (21%)
21	CLA	B	1213	-	60,68,73	1.43	8 (13%)	70,107,113	2.11	20 (28%)
21	CLA	1	605	-	65,73,73	1.34	8 (12%)	76,113,113	2.03	20 (26%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
24	BCR	I	4001	-	-	13/29/63/63	0/2/2/2
21	CLA	A	1120	-	1/1/14/20	16/31/109/115	-
28	DGD	3	805	-	-	12/34/74/95	0/2/2/2
21	CLA	5	613	-	1/1/11/20	8/13/91/115	-
36	CHL	3	604	-	4/4/20/26	9/39/137/137	-
24	BCR	A	4001	-	-	14/29/63/63	0/2/2/2
24	BCR	2	503	-	-	15/29/63/63	0/2/2/2
29	3PH	F	5003	-	-	22/35/35/49	-
21	CLA	6	601	-	1/1/14/20	18/31/109/115	-
24	BCR	O	4001	-	-	13/29/63/63	0/2/2/2
25	LHG	F	5001	-	-	32/53/53/53	-
21	CLA	B	1022	-	1/1/15/20	11/37/115/115	-
21	CLA	B	1205	-	1/1/15/20	11/37/115/115	-
21	CLA	K	1402	-	1/1/13/20	15/25/103/115	-
36	CHL	5	610	-	4/4/16/26	4/17/115/137	-
21	CLA	4	612	-	1/1/15/20	12/37/115/115	-
25	LHG	4	801	-	-	20/33/33/53	-
39	P3H	5	806	-	-	9/27/51/68	0/1/1/1
21	CLA	B	1234	-	1/1/13/20	10/25/103/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CLA	B	1223	-	1/1/15/20	13/37/115/115	-
33	PTY	5	803	-	-	25/39/39/53	-
21	CLA	6	607	-	1/1/14/20	16/31/109/115	-
21	CLA	B	1235	-	1/1/14/20	10/31/109/115	-
24	BCR	G	4001	-	-	12/29/63/63	0/2/2/2
36	CHL	6	610	-	3/3/16/26	4/17/115/137	-
21	CLA	2	612	-	1/1/15/20	16/37/115/115	-
24	BCR	K	4001	-	-	13/29/63/63	0/2/2/2
21	CLA	6	609	-	1/1/11/20	8/15/93/115	-
21	CLA	A	1102	-	1/1/15/20	15/37/115/115	-
25	LHG	5	801	-	-	23/47/47/53	-
21	CLA	4	609	17	1/1/14/20	20/31/109/115	-
21	CLA	2	607	25	1/1/14/20	10/31/109/115	-
28	DGD	B	5002	-	-	17/50/90/95	0/2/2/2
35	XAT	6	504	-	1/1/12/26	6/31/93/93	0/4/4/4
24	BCR	3	506	-	-	9/29/63/63	0/2/2/2
21	CLA	B	1226	-	1/1/15/20	14/37/115/115	-
26	OCD	A	5003	-	-	2/15/16/16	-
21	CLA	B	1224	-	1/1/15/20	17/37/115/115	-
29	3PH	B	5003	-	-	24/32/32/49	-
21	CLA	A	1134	1	1/1/13/20	13/25/103/115	-
33	PTY	1	806	-	-	7/19/19/53	-
21	CLA	2	602	-	1/1/12/20	7/22/100/115	-
21	CLA	A	1101	-	1/1/15/20	22/37/115/115	-
21	CLA	B	1219	-	1/1/15/20	16/37/115/115	-
21	CLA	A	1141	25	1/1/14/20	13/31/109/115	-
21	CLA	K	1403	-	1/1/11/20	7/17/95/115	-
32	4RF	L	5002	-	-	17/41/41/59	-
21	CLA	A	1135	-	1/1/12/20	9/21/99/115	-
21	CLA	B	1239	-	1/1/15/20	14/37/115/115	-
21	CLA	B	1214	-	1/1/15/20	18/37/115/115	-
21	CLA	4	608	-	1/1/11/20	10/15/93/115	-
34	LUT	1	501	-	-	5/29/67/67	0/2/2/2
23	SF4	C	3002	3	-	-	0/6/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
25	LHG	5	802	-	-	17/27/27/53	-
21	CLA	A	1012	-	1/1/15/20	16/37/115/115	-
31	LMG	1	804	-	-	9/27/47/70	0/1/1/1
24	BCR	1	504	-	-	12/29/63/63	0/2/2/2
21	CLA	A	1132	-	1/1/15/20	18/37/115/115	-
21	CLA	A	1112	-	1/1/15/20	17/37/115/115	-
21	CLA	A	1133	-	1/1/15/20	16/37/115/115	-
21	CLA	B	1208	-	1/1/14/20	12/31/109/115	-
21	CLA	B	1210	-	1/1/15/20	22/37/115/115	-
21	CLA	3	602	-	1/1/12/20	8/22/100/115	-
21	CLA	5	603	-	1/1/14/20	15/31/109/115	-
21	CLA	A	1104	-	1/1/15/20	14/37/115/115	-
36	CHL	2	610	-	4/4/18/26	2/27/125/137	-
25	LHG	1	803	-	-	15/35/35/53	-
21	CLA	A	1126	-	1/1/15/20	18/37/115/115	-
21	CLA	B	1227	-	1/1/15/20	18/37/115/115	-
36	CHL	4	613	-	4/4/19/26	7/33/131/137	-
24	BCR	3	503	-	-	13/29/63/63	0/2/2/2
21	CLA	K	1401	-	1/1/11/20	10/13/91/115	-
21	CLA	B	1240	-	1/1/15/20	13/37/115/115	-
21	CLA	2	604	15	1/1/15/20	17/37/115/115	-
21	CLA	A	1113	-	1/1/15/20	18/37/115/115	-
21	CLA	4	604	-	1/1/14/20	12/31/109/115	-
21	CLA	2	615	-	1/1/15/20	19/37/115/115	-
21	CLA	A	1124	-	1/1/14/20	13/31/109/115	-
21	CLA	1	612	-	1/1/14/20	11/31/109/115	-
21	CLA	B	1231	-	1/1/14/20	13/31/109/115	-
21	CLA	H	1701	-	1/1/14/20	15/31/109/115	-
21	CLA	3	614	-	1/1/10/20	4/10/88/115	-
21	CLA	B	1236	-	1/1/13/20	10/25/103/115	-
33	PTY	3	808	-	-	13/22/22/53	-
21	CLA	A	1108	-	1/1/13/20	16/25/103/115	-
25	LHG	3	801	-	-	14/19/19/53	-
27	LMU	A	5005	-	-	11/21/61/61	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CLA	B	1212	-	1/1/13/20	13/25/103/115	-
21	CLA	1	607	-	1/1/11/20	8/15/93/115	-
21	CLA	B	1207	-	1/1/15/20	18/37/115/115	-
21	CLA	2	603	-	1/1/15/20	16/37/115/115	-
35	XAT	4	502	-	2/2/12/26	0/31/93/93	0/4/4/4
24	BCR	L	4001	-	-	11/29/63/63	0/2/2/2
21	CLA	B	1206	2	1/1/15/20	17/37/115/115	-
24	BCR	A	4003	-	-	6/29/63/63	0/2/2/2
24	BCR	B	4004	-	-	9/29/63/63	0/2/2/2
34	LUT	6	501	-	1/1/12/27	4/29/67/67	0/2/2/2
24	BCR	B	4003	-	-	15/29/63/63	0/2/2/2
24	BCR	A	4005	-	-	7/29/63/63	0/2/2/2
37	SQD	3	806	-	-	12/30/50/69	0/1/1/1
21	CLA	G	1603	-	1/1/11/20	6/13/91/115	-
31	LMG	4	802	-	-	16/41/61/70	0/1/1/1
21	CLA	6	605	-	1/1/15/20	20/37/115/115	-
21	CLA	B	1021	-	1/1/15/20	15/37/115/115	-
24	BCR	B	4001	-	-	9/29/63/63	0/2/2/2
29	3PH	5	804	-	-	12/29/29/49	-
21	CLA	5	604	18	1/1/15/20	16/37/115/115	-
21	CLA	5	614	-	1/1/15/20	21/37/115/115	-
34	LUT	2	501	-	-	2/29/67/67	0/2/2/2
21	CLA	A	1137	-	1/1/14/20	12/31/109/115	-
21	CLA	1	606	-	1/1/12/20	8/19/97/115	-
21	CLA	B	1217	-	1/1/15/20	14/37/115/115	-
24	BCR	J	4002	-	-	14/29/63/63	0/2/2/2
33	PTY	L	5003	-	-	7/22/22/53	-
21	CLA	4	601	-	1/1/14/20	17/31/109/115	-
37	SQD	2	805	-	-	17/34/54/69	0/1/1/1
21	CLA	L	1504	-	1/1/12/20	10/19/97/115	-
21	CLA	A	1121	-	1/1/14/20	17/31/109/115	-
21	CLA	1	611	-	1/1/15/20	19/37/115/115	-
36	CHL	2	609	15	4/4/20/26	3/39/137/137	-
21	CLA	A	1114	-	1/1/13/20	8/25/103/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CLA	3	613	-	1/1/11/20	11/15/93/115	-
21	CLA	A	1128	-	1/1/15/20	12/37/115/115	-
21	CLA	A	1130	-	1/1/13/20	5/25/103/115	-
21	CLA	3	615	-	1/1/13/20	8/27/105/115	-
24	BCR	A	4002	-	-	16/29/63/63	0/2/2/2
35	XAT	3	502	-	2/2/12/26	4/31/93/93	0/4/4/4
24	BCR	F	4002	-	-	14/29/63/63	0/2/2/2
25	LHG	A	5002	-	-	37/53/53/53	-
21	CLA	1	608	-	1/1/13/20	11/25/103/115	-
34	LUT	3	501	-	-	4/29/67/67	0/2/2/2
21	CLA	3	606	-	1/1/13/20	10/25/103/115	-
38	LMK	4	805	-	-	6/41/41/60	-
21	CLA	A	1129	-	1/1/13/20	12/25/103/115	-
25	LHG	1	802	-	-	18/30/30/53	-
21	CLA	A	1125	-	1/1/15/20	19/37/115/115	-
34	LUT	5	503	-	-	8/29/67/67	0/2/2/2
21	CLA	O	1802	-	1/1/10/20	1/4/80/115	-
21	CLA	A	1138	-	1/1/15/20	15/37/115/115	-
24	BCR	A	4006	-	-	20/29/63/63	0/2/2/2
24	BCR	B	4006	-	-	8/29/63/63	0/2/2/2
21	CLA	B	1238	-	1/1/15/20	12/37/115/115	-
21	CLA	B	1220	-	1/1/13/20	15/25/103/115	-
21	CLA	O	1803	-	1/1/14/20	13/31/109/115	-
25	LHG	A	5001	21	-	24/53/53/53	-
21	CLA	B	1202	-	1/1/15/20	19/37/115/115	-
21	CLA	3	612	-	1/1/15/20	15/37/115/115	-
21	CLA	1	615	-	1/1/14/20	16/31/109/115	-
21	CLA	6	604	-	1/1/14/20	17/31/109/115	-
36	CHL	4	610	-	3/3/16/26	3/17/115/137	-
21	CLA	A	1136	-	1/1/15/20	15/37/115/115	-
36	CHL	2	613	-	3/3/16/26	3/15/113/137	-
31	LMG	4	803	-	-	12/34/54/70	0/1/1/1
21	CLA	A	1122	-	1/1/15/20	13/37/115/115	-
21	CLA	B	1203	-	1/1/15/20	16/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CLA	B	1222	-	1/1/15/20	11/37/115/115	-
21	CLA	1	603	-	1/1/14/20	18/31/109/115	-
21	CLA	5	612	18	1/1/11/20	11/15/93/115	-
21	CLA	B	1228	-	1/1/14/20	13/31/109/115	-
21	CLA	B	1218	-	1/1/15/20	22/37/115/115	-
21	CLA	3	610	16	1/1/12/20	10/19/97/115	-
28	DGD	2	806	-	-	14/28/68/95	0/2/2/2
25	LHG	6	801	-	-	17/29/29/53	-
33	PTY	1	805	-	-	18/43/43/53	-
21	CLA	5	607	-	1/1/14/20	16/31/109/115	-
21	CLA	A	1103	-	1/1/15/20	15/37/115/115	-
37	SQD	6	803	-	-	3/27/47/69	0/1/1/1
23	SF4	C	3003	3	-	-	0/6/5/5
21	CLA	B	1209	-	1/1/11/20	4/15/93/115	-
22	PQN	A	2001	-	-	6/23/43/43	0/2/2/2
33	PTY	O	5002	-	-	10/24/24/53	-
24	BCR	J	4001	-	-	11/29/63/63	0/2/2/2
21	CLA	1	604	-	1/1/15/20	18/37/115/115	-
21	CLA	A	1115	-	1/1/14/20	14/31/109/115	-
34	LUT	5	504	-	1/1/12/27	7/29/67/67	0/2/2/2
21	CLA	A	1111	-	1/1/15/20	11/37/115/115	-
21	CLA	A	1109	-	1/1/15/20	16/37/115/115	-
21	CLA	A	1123	-	1/1/15/20	15/37/115/115	-
21	CLA	1	601	-	1/1/15/20	14/37/115/115	-
34	LUT	4	501	-	1/1/12/27	5/29/67/67	0/2/2/2
25	LHG	B	5001	-	-	34/46/46/53	-
21	CLA	3	603	-	1/1/15/20	17/37/115/115	-
24	BCR	H	4001	-	-	19/29/63/63	0/2/2/2
25	LHG	1	801	-	-	32/53/53/53	-
21	CLA	4	607	-	1/1/14/20	16/31/109/115	-
38	LMK	2	807	-	-	5/37/37/60	-
21	CLA	B	1237	-	1/1/15/20	20/37/115/115	-
21	CLA	A	1117	-	1/1/15/20	21/37/115/115	-
21	CLA	6	608	-	1/1/11/20	10/15/93/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	DGD	3	804	-	-	11/28/68/95	0/2/2/2
21	CLA	A	1131	-	1/1/15/20	14/37/115/115	-
27	LMU	6	805	-	-	12/21/61/61	0/2/2/2
36	CHL	5	609	-	4/4/20/26	6/39/137/137	-
21	CLA	3	608	-	1/1/15/20	14/37/115/115	-
21	CLA	6	612	-	1/1/15/20	15/37/115/115	-
21	CLA	6	613	-	1/1/11/20	9/13/91/115	-
35	XAT	2	502	-	2/2/12/26	2/31/93/93	0/4/4/4
24	BCR	B	4005	-	-	13/29/63/63	0/2/2/2
24	BCR	I	4002	-	-	12/29/63/63	0/2/2/2
21	CLA	F	1301	-	1/1/11/20	9/16/94/115	-
21	CLA	5	608	-	1/1/13/20	12/25/103/115	-
33	PTY	3	807	-	-	8/29/29/53	-
24	BCR	L	4002	-	-	8/29/63/63	0/2/2/2
21	CLA	J	1901	-	1/1/11/20	8/18/96/115	-
36	CHL	1	610	-	3/3/16/26	1/17/115/137	-
21	CLA	B	1204	-	1/1/15/20	15/37/115/115	-
21	CLA	4	603	-	1/1/15/20	11/37/115/115	-
36	CHL	1	609	14	4/4/20/26	6/39/137/137	-
35	XAT	1	502	-	2/2/12/26	6/31/93/93	0/4/4/4
24	BCR	A	4004	-	-	12/29/63/63	0/2/2/2
33	PTY	4	804	-	-	23/38/38/53	-
34	LUT	5	502	-	-	5/29/67/67	0/2/2/2
21	CLA	A	1127	-	1/1/15/20	16/37/115/115	-
32	4RF	5	805	-	-	16/34/34/59	-
21	CLA	A	1106	-	1/1/15/20	13/37/115/115	-
33	PTY	6	804	-	-	8/26/26/53	-
23	SF4	A	3001	1,2	-	-	0/6/5/5
21	CLA	4	605	-	1/1/15/20	13/37/115/115	-
21	CLA	F	1302	-	1/1/11/20	6/18/96/115	-
39	P3H	2	808	-	-	20/44/68/68	0/1/1/1
21	CLA	O	1801	-	1/1/9/20	2/4/78/115	-
21	CLA	L	1502	-	1/1/15/20	16/37/115/115	-
21	CLA	B	1023	-	1/1/15/20	22/37/115/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
21	CLA	3	601	-	1/1/14/20	16/31/109/115	-
21	CLA	5	606	-	1/1/12/20	8/19/97/115	-
24	BCR	A	4007	-	-	11/29/63/63	0/2/2/2
21	CLA	2	605	-	1/1/15/20	16/37/115/115	-
21	CLA	A	1110	-	1/1/13/20	7/25/103/115	-
25	LHG	2	802	-	-	26/47/47/53	-
29	3PH	5	807	-	-	11/30/30/49	-
24	BCR	B	4002	-	-	13/29/63/63	0/2/2/2
21	CLA	1	602	-	1/1/11/20	7/15/93/115	-
21	CLA	B	1216	-	1/1/15/20	11/37/115/115	-
21	CLA	3	611	-	1/1/15/20	14/37/115/115	-
21	CLA	G	1601	-	1/1/11/20	11/16/94/115	-
22	PQN	B	2002	-	-	11/23/43/43	0/2/2/2
31	LMG	2	804	-	-	16/45/65/70	0/1/1/1
21	CLA	6	603	-	1/1/13/20	10/25/103/115	-
25	LHG	2	801	21	-	25/39/39/53	-
24	BCR	3	504	-	-	12/29/63/63	0/2/2/2
21	CLA	A	1140	-	1/1/14/20	14/33/111/115	-
21	CLA	6	602	-	1/1/12/20	8/19/97/115	-
31	LMG	3	803	-	-	20/45/65/70	0/1/1/1
27	LMU	A	5004	-	-	10/21/61/61	0/2/2/2
21	CLA	2	601	-	1/1/15/20	20/37/115/115	-
21	CLA	A	1013	-	1/1/15/20	15/37/115/115	-
21	CLA	H	1702	-	1/1/11/20	11/15/93/115	-
31	LMG	6	802	-	-	11/32/52/70	0/1/1/1
20	CL0	A	1011	-	3/3/20/25	12/37/135/135	-
21	CLA	5	601	-	1/1/11/20	7/13/91/115	-
21	CLA	B	1229	-	1/1/15/20	15/37/115/115	-
21	CLA	B	1201	-	1/1/11/20	11/17/95/115	-
31	LMG	3	802	-	-	7/26/46/70	0/1/1/1
36	CHL	4	611	-	3/3/17/26	1/21/119/137	-
21	CLA	1	613	-	1/1/11/20	6/13/91/115	-
31	LMG	F	5002	-	-	17/45/65/70	0/1/1/1
21	CLA	5	602	-	1/1/11/20	10/15/93/115	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
24	BCR	4	503	-	-	11/29/63/63	0/2/2/2
21	CLA	A	1107	-	1/1/15/20	16/37/115/115	-
21	CLA	A	1116	-	1/1/13/20	15/27/105/115	-
21	CLA	L	1501	-	1/1/15/20	21/37/115/115	-
21	CLA	L	1503	-	1/1/12/20	4/19/97/115	-
21	CLA	B	1230	-	1/1/15/20	15/37/115/115	-
21	CLA	B	1211	-	1/1/15/20	15/37/115/115	-
35	XAT	6	502	-	2/2/12/26	0/31/93/93	0/4/4/4
36	CHL	2	611	-	3/3/16/26	0/18/116/137	-
21	CLA	B	1232	-	1/1/13/20	12/25/103/115	-
21	CLA	A	1119	-	1/1/15/20	16/37/115/115	-
21	CLA	3	605	-	1/1/15/20	17/37/115/115	-
21	CLA	6	606	-	1/1/12/20	9/19/97/115	-
25	LHG	2	803	-	-	24/40/40/53	-
27	LMU	B	5004	-	-	16/21/61/61	0/2/2/2
34	LUT	5	501	-	1/1/12/27	4/29/67/67	0/2/2/2
21	CLA	A	1139	-	1/1/15/20	16/37/115/115	-
21	CLA	B	1221	-	1/1/15/20	12/37/115/115	-
21	CLA	K	1404	-	1/1/11/20	6/13/91/115	-
21	CLA	3	607	-	1/1/14/20	11/31/109/115	-
21	CLA	4	615	17	1/1/12/20	11/21/99/115	-
24	BCR	F	4001	-	-	9/29/63/63	0/2/2/2
21	CLA	B	1215	-	1/1/15/20	14/37/115/115	-
21	CLA	4	606	-	1/1/12/20	10/19/97/115	-
21	CLA	A	1105	-	1/1/14/20	13/31/109/115	-
21	CLA	B	1225	-	1/1/15/20	19/37/115/115	-
21	CLA	G	1602	-	1/1/11/20	10/15/93/115	-
21	CLA	2	606	-	1/1/12/20	5/19/97/115	-
21	CLA	A	1118	-	1/1/12/20	7/19/97/115	-
21	CLA	2	608	-	1/1/12/20	11/19/97/115	-
21	CLA	4	602	-	1/1/12/20	8/19/97/115	-
21	CLA	5	605	-	1/1/15/20	18/37/115/115	-
21	CLA	B	1213	-	1/1/14/20	15/31/109/115	-
21	CLA	1	605	-	1/1/15/20	13/37/115/115	-

The worst 5 of 1694 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	5	501	LUT	C24-C25	15.69	1.52	1.33
34	5	504	LUT	C24-C25	15.24	1.52	1.33
34	5	503	LUT	C24-C25	14.74	1.51	1.33
34	5	502	LUT	C24-C25	14.67	1.51	1.33
34	6	501	LUT	C24-C25	14.53	1.51	1.33

The worst 5 of 4145 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
35	6	504	XAT	C20-C13-C14	-31.64	78.60	122.92
35	6	504	XAT	C12-C13-C14	25.27	157.72	118.94
35	6	504	XAT	C20-C13-C12	-24.73	79.12	118.08
34	5	501	LUT	C37-C21-C36	-19.58	79.03	107.89
34	5	504	LUT	C37-C21-C36	-19.44	79.24	107.89

5 of 236 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
20	A	1011	CL0	NC
20	A	1011	CL0	ND
20	A	1011	CL0	NA
21	A	1012	CLA	ND
21	A	1013	CLA	ND

5 of 3645 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
20	A	1011	CL0	C2-C1-O2A-CGA
21	A	1013	CLA	CHA-CBD-CGD-O1D
21	A	1013	CLA	CHA-CBD-CGD-O2D
21	A	1013	CLA	C4-C3-C5-C6
21	A	1101	CLA	C1A-C2A-CAA-CBA

There are no ring outliers.

254 monomers are involved in 1175 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
24	I	4001	BCR	9	0
21	A	1120	CLA	11	0
28	3	805	DGD	4	0
21	5	613	CLA	6	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
36	3	604	CHL	3	0
24	A	4001	BCR	9	0
24	2	503	BCR	1	0
21	6	601	CLA	27	0
24	O	4001	BCR	7	0
25	F	5001	LHG	2	0
21	B	1022	CLA	16	0
21	B	1205	CLA	5	0
21	K	1402	CLA	14	0
36	5	610	CHL	6	0
39	5	806	P3H	1	0
21	B	1234	CLA	2	0
21	B	1223	CLA	6	0
33	5	803	PTY	10	0
21	6	607	CLA	4	0
21	B	1235	CLA	8	0
24	G	4001	BCR	22	0
24	K	4001	BCR	8	0
21	2	612	CLA	2	0
36	6	610	CHL	8	0
21	6	609	CLA	1	0
21	A	1102	CLA	7	0
25	5	801	LHG	11	0
21	4	609	CLA	4	0
28	B	5002	DGD	5	0
35	6	504	XAT	9	0
24	3	506	BCR	4	0
21	B	1226	CLA	6	0
21	B	1224	CLA	3	0
21	A	1134	CLA	7	0
21	A	1101	CLA	4	0
21	B	1219	CLA	5	0
21	A	1141	CLA	3	0
21	K	1403	CLA	6	0
32	L	5002	4RF	2	0
21	A	1135	CLA	7	0
21	B	1239	CLA	9	0
21	B	1214	CLA	3	0
34	1	501	LUT	7	0
21	A	1012	CLA	16	0
31	1	804	LMG	1	0
36	2	611	CHL	3	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
24	1	504	BCR	5	0
21	A	1132	CLA	20	0
21	A	1112	CLA	14	0
21	A	1133	CLA	3	0
21	B	1208	CLA	20	0
21	B	1210	CLA	5	0
21	3	602	CLA	2	0
21	5	603	CLA	7	0
21	A	1104	CLA	3	0
25	1	803	LHG	1	0
36	2	610	CHL	2	0
21	A	1126	CLA	10	0
21	B	1227	CLA	4	0
36	4	613	CHL	1	0
24	3	503	BCR	2	0
21	K	1401	CLA	9	0
21	B	1240	CLA	4	0
21	2	604	CLA	6	0
21	A	1113	CLA	12	0
21	4	604	CLA	13	0
21	A	1124	CLA	3	0
21	1	612	CLA	3	0
21	B	1231	CLA	6	0
21	H	1701	CLA	4	0
21	B	1236	CLA	2	0
21	A	1108	CLA	3	0
27	A	5005	LMU	1	0
21	B	1212	CLA	16	0
21	1	607	CLA	1	0
21	B	1207	CLA	17	0
21	2	603	CLA	2	0
35	4	502	XAT	3	0
24	L	4001	BCR	3	0
21	B	1206	CLA	12	0
24	A	4003	BCR	7	0
24	B	4004	BCR	3	0
24	B	4003	BCR	5	0
34	6	501	LUT	22	0
24	A	4005	BCR	2	0
37	3	806	SQD	2	0
21	G	1603	CLA	2	0
31	4	802	LMG	2	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
21	6	605	CLA	10	0
21	B	1021	CLA	4	0
24	B	4001	BCR	19	0
29	5	804	3PH	3	0
21	5	604	CLA	25	0
21	5	614	CLA	8	0
34	2	501	LUT	6	0
36	2	609	CHL	4	0
21	A	1137	CLA	2	0
21	1	606	CLA	3	0
21	B	1217	CLA	8	0
24	J	4002	BCR	4	0
21	4	601	CLA	3	0
37	2	805	SQD	2	0
21	L	1504	CLA	9	0
21	A	1121	CLA	33	0
21	1	611	CLA	15	0
24	A	4002	BCR	7	0
21	A	1114	CLA	15	0
21	3	613	CLA	1	0
21	A	1128	CLA	5	0
21	A	1130	CLA	4	0
24	F	4002	BCR	5	0
34	3	501	LUT	9	0
35	3	502	XAT	6	0
25	A	5002	LHG	3	0
21	1	608	CLA	1	0
21	3	606	CLA	3	0
21	A	1129	CLA	2	0
21	A	1125	CLA	4	0
34	5	503	LUT	7	0
21	A	1138	CLA	6	0
24	A	4006	BCR	3	0
24	B	4006	BCR	4	0
21	B	1238	CLA	3	0
21	B	1220	CLA	2	0
21	O	1803	CLA	1	0
25	A	5001	LHG	3	0
21	B	1202	CLA	1	0
21	3	612	CLA	6	0
21	6	604	CLA	5	0
21	A	1136	CLA	3	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
36	2	613	CHL	1	0
21	B	1203	CLA	6	0
21	B	1222	CLA	3	0
21	1	603	CLA	1	0
21	5	612	CLA	9	0
21	B	1228	CLA	2	0
21	B	1218	CLA	2	0
21	3	610	CLA	18	0
28	2	806	DGD	2	0
21	5	607	CLA	2	0
21	A	1103	CLA	5	0
37	6	803	SQD	1	0
21	B	1209	CLA	4	0
22	A	2001	PQN	3	0
33	O	5002	PTY	6	0
24	J	4001	BCR	2	0
21	1	604	CLA	6	0
21	A	1115	CLA	11	0
34	5	504	LUT	15	0
21	A	1111	CLA	3	0
21	A	1109	CLA	5	0
21	A	1123	CLA	1	0
21	1	601	CLA	23	0
34	4	501	LUT	4	0
25	B	5001	LHG	3	0
21	3	603	CLA	8	0
24	H	4001	BCR	5	0
25	1	801	LHG	4	0
21	4	607	CLA	3	0
21	B	1237	CLA	3	0
21	A	1117	CLA	1	0
21	6	608	CLA	4	0
28	3	804	DGD	1	0
21	A	1131	CLA	3	0
27	6	805	LMU	2	0
36	5	609	CHL	33	0
21	3	608	CLA	5	0
21	6	612	CLA	7	0
21	6	613	CLA	9	0
24	B	4005	BCR	2	0
24	I	4002	BCR	10	0
21	F	1301	CLA	2	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
21	5	608	CLA	12	0
24	L	4002	BCR	2	0
21	J	1901	CLA	4	0
35	2	502	XAT	4	0
36	1	610	CHL	4	0
21	B	1204	CLA	2	0
21	4	603	CLA	3	0
24	A	4004	BCR	8	0
34	5	502	LUT	13	0
35	1	502	XAT	2	0
36	1	609	CHL	3	0
21	A	1127	CLA	1	0
32	5	805	4RF	1	0
21	A	1106	CLA	5	0
33	6	804	PTY	1	0
21	4	605	CLA	1	0
21	O	1801	CLA	2	0
21	L	1502	CLA	13	0
21	B	1023	CLA	26	0
21	3	601	CLA	3	0
21	5	606	CLA	19	0
24	A	4007	BCR	9	0
21	2	605	CLA	1	0
21	A	1110	CLA	2	0
25	2	802	LHG	4	0
29	5	807	3PH	2	0
24	B	4002	BCR	4	0
21	1	602	CLA	3	0
21	B	1216	CLA	3	0
21	3	611	CLA	1	0
21	G	1601	CLA	9	0
22	B	2002	PQN	6	0
21	6	603	CLA	21	0
25	2	801	LHG	2	0
24	3	504	BCR	10	0
21	A	1140	CLA	7	0
21	6	602	CLA	10	0
31	3	803	LMG	18	0
27	A	5004	LMU	1	0
21	2	601	CLA	2	0
21	A	1013	CLA	10	0
21	H	1702	CLA	3	0

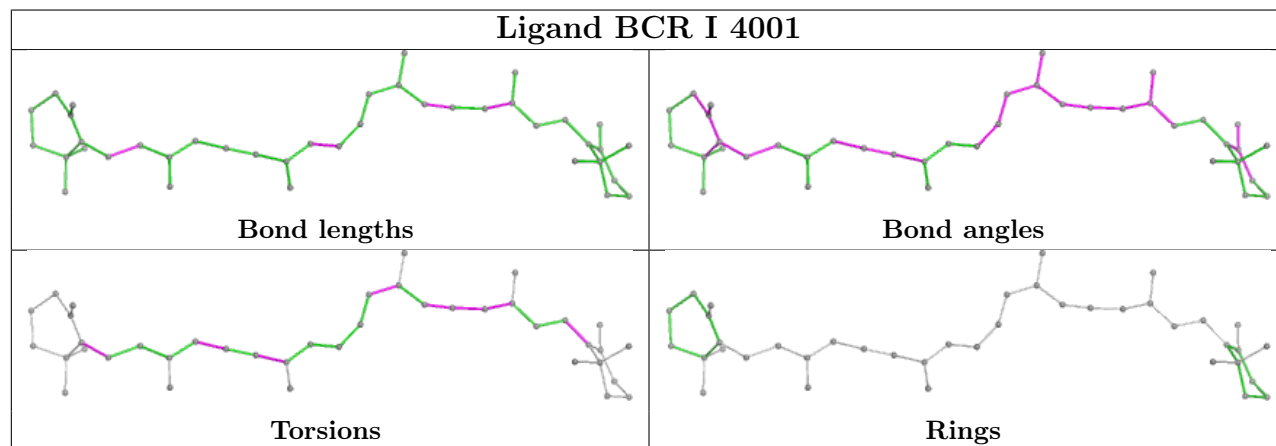
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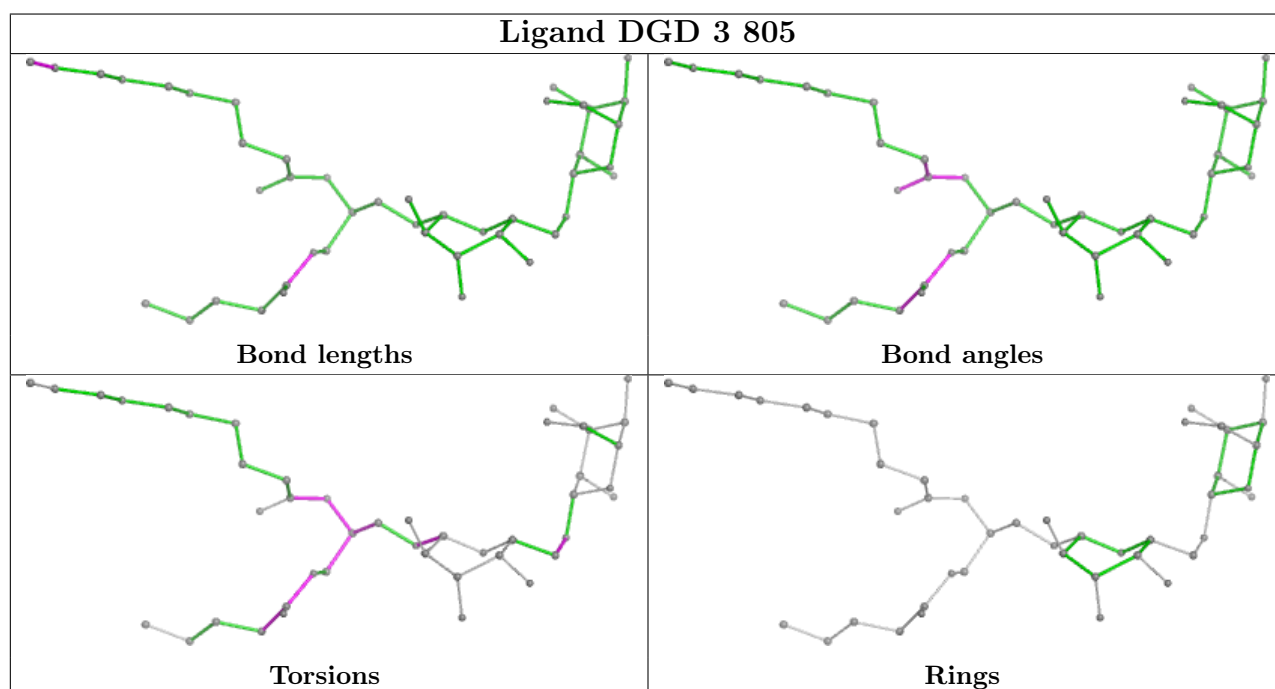
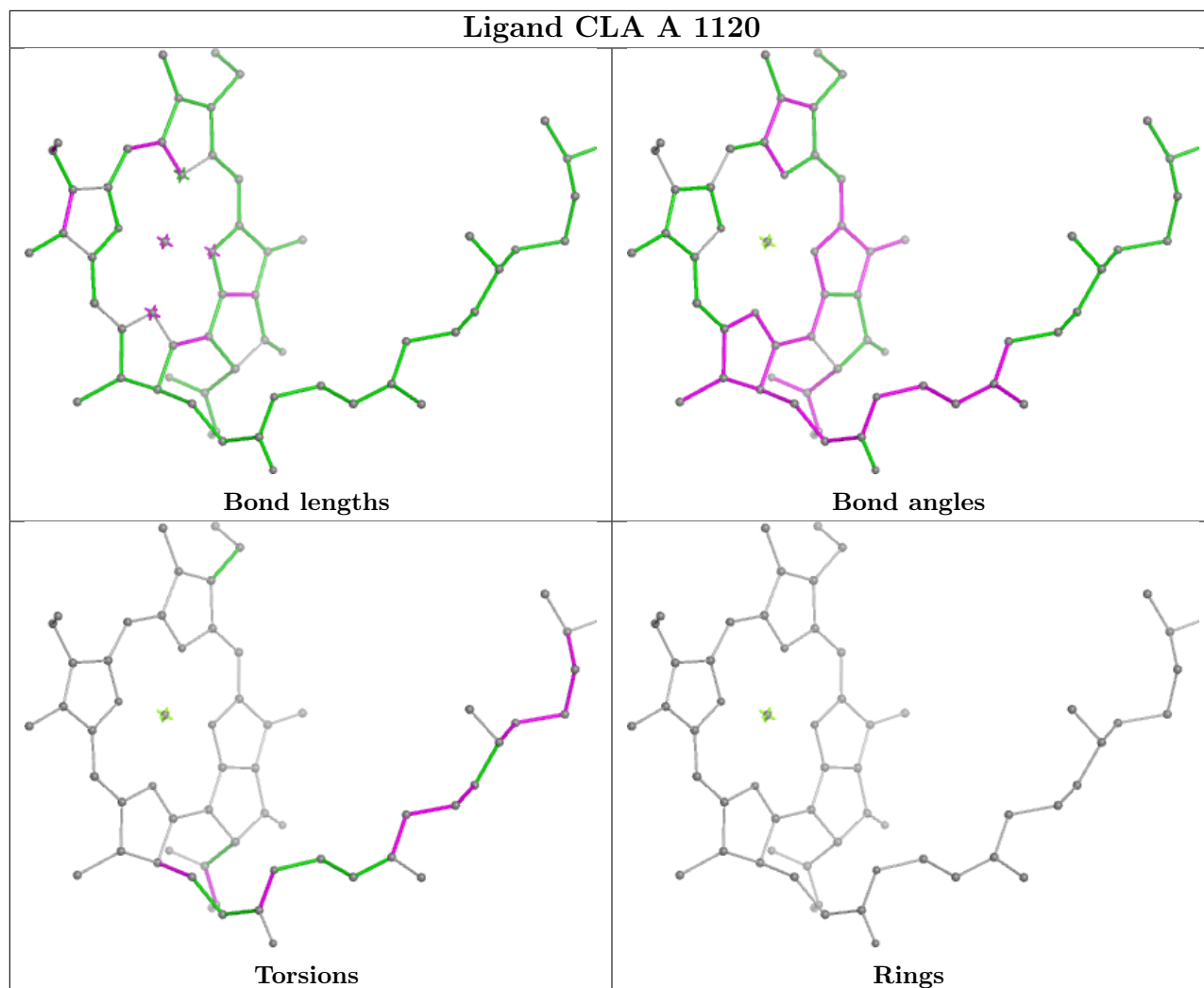
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Mol	Chain	Res	Type	Clashes	Symm-Clashes
31	6	802	LMG	12	0
20	A	1011	CL0	10	0
21	5	601	CLA	5	0
21	B	1229	CLA	6	0
31	3	802	LMG	2	0
36	4	611	CHL	2	0
21	1	613	CLA	1	0
31	F	5002	LMG	3	0
21	5	602	CLA	1	0
24	4	503	BCR	1	0
21	A	1107	CLA	5	0
21	A	1116	CLA	12	0
21	L	1501	CLA	3	0
21	L	1503	CLA	5	0
21	B	1230	CLA	7	0
21	B	1211	CLA	1	0
35	6	502	XAT	5	0
27	B	5004	LMU	2	0
21	B	1232	CLA	2	0
21	A	1119	CLA	10	0
21	3	605	CLA	4	0
21	6	606	CLA	12	0
25	2	803	LHG	2	0
29	B	5003	3PH	2	0
24	F	4001	BCR	19	0
21	A	1139	CLA	5	0
21	B	1221	CLA	3	0
21	K	1404	CLA	7	0
21	4	615	CLA	1	0
34	5	501	LUT	5	0
21	B	1215	CLA	6	0
21	A	1105	CLA	6	0
21	B	1225	CLA	6	0
21	G	1602	CLA	7	0
21	2	606	CLA	1	0
21	A	1118	CLA	1	0
21	4	602	CLA	2	0
21	5	605	CLA	16	0
21	B	1213	CLA	3	0
21	1	605	CLA	2	0

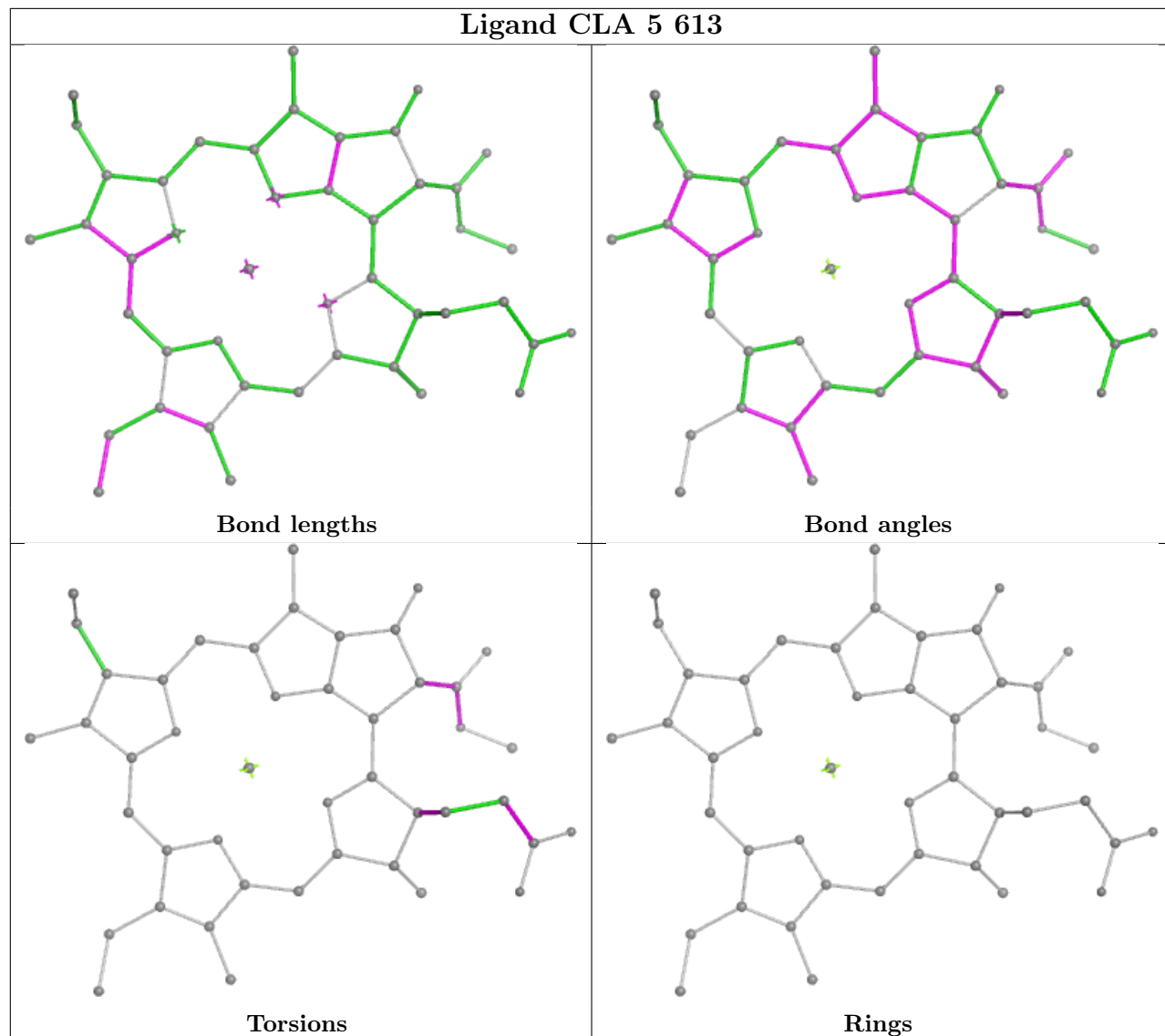
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

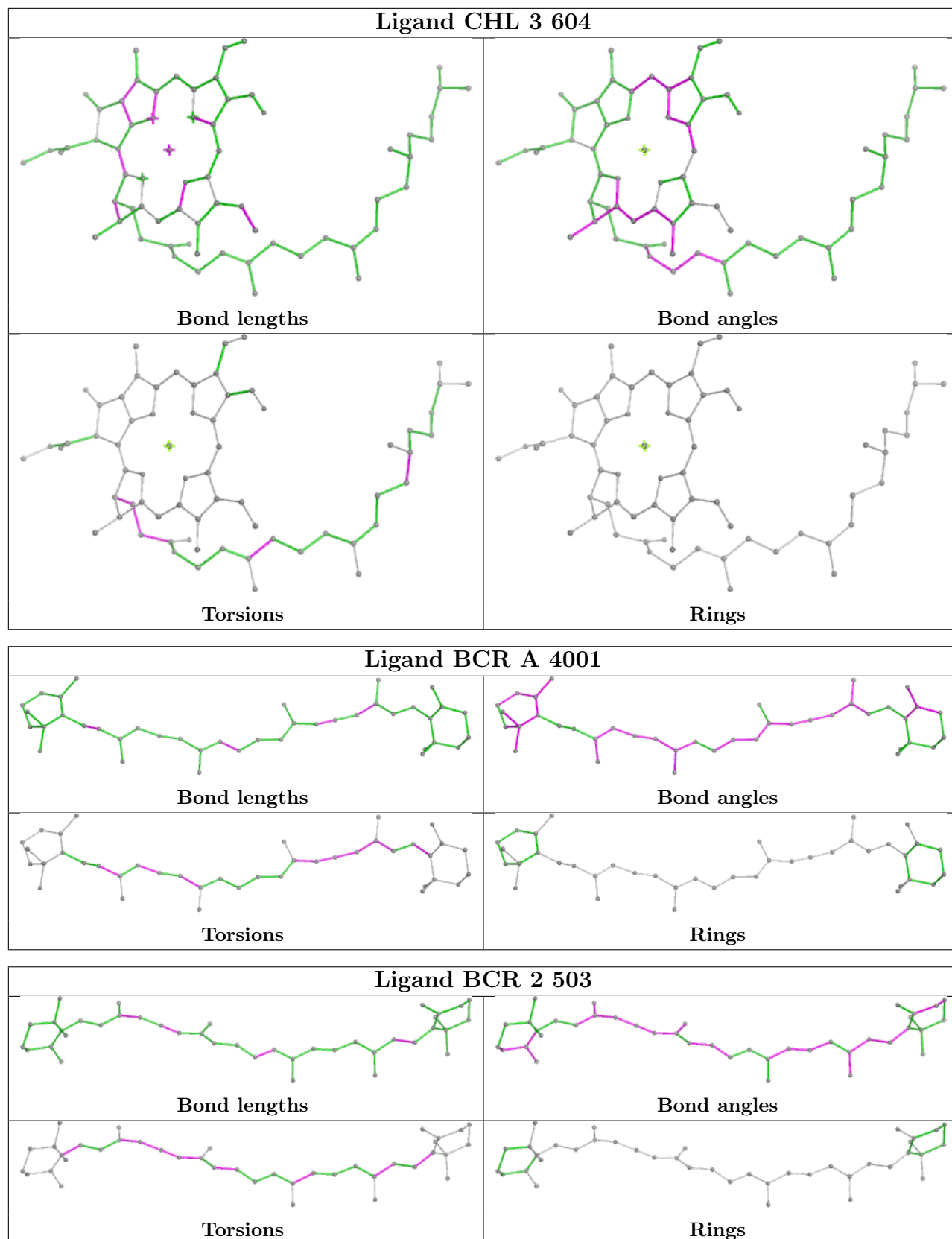
addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

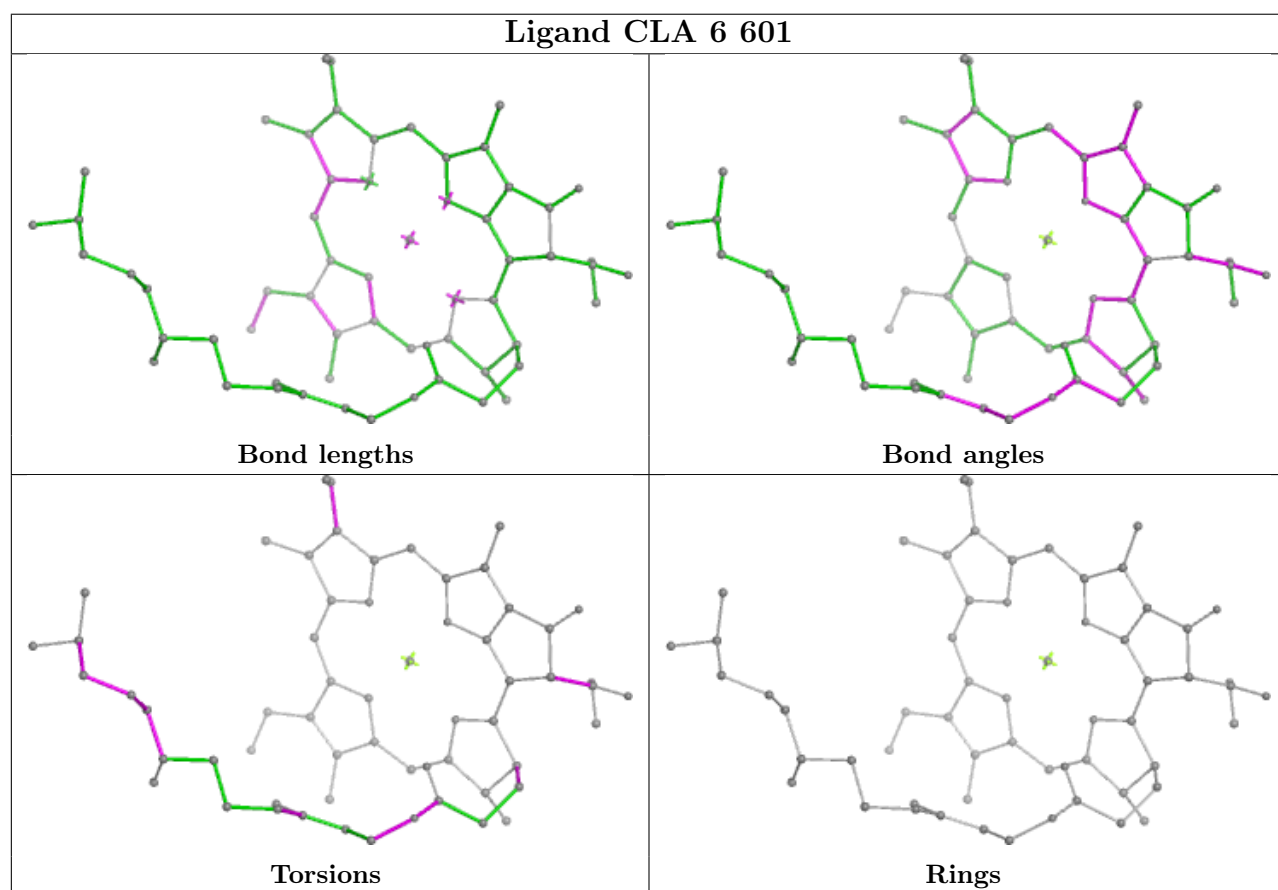
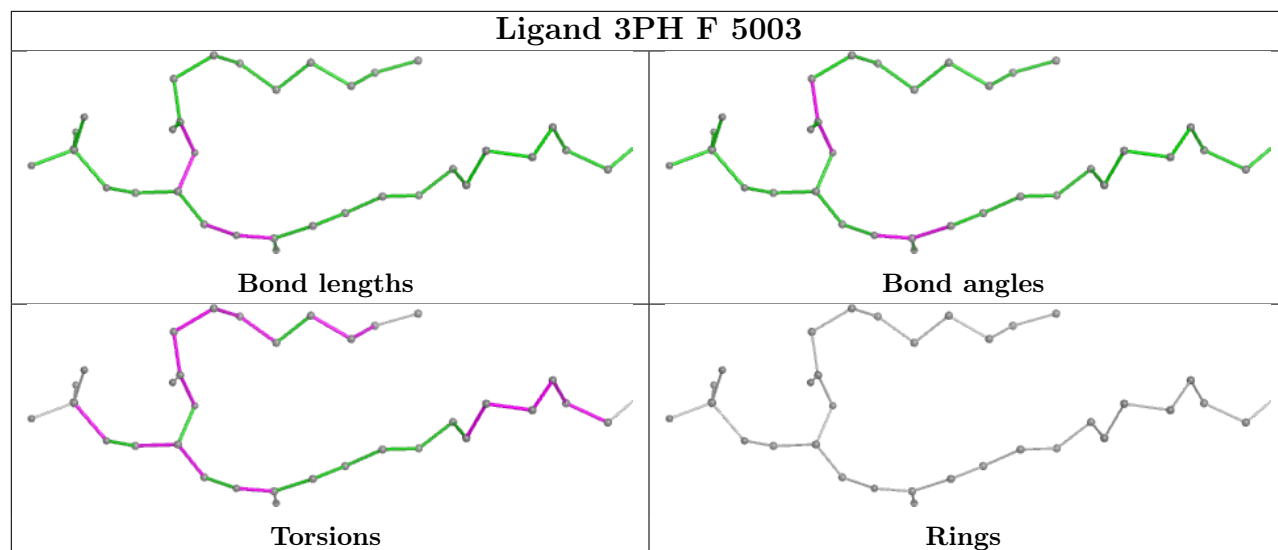


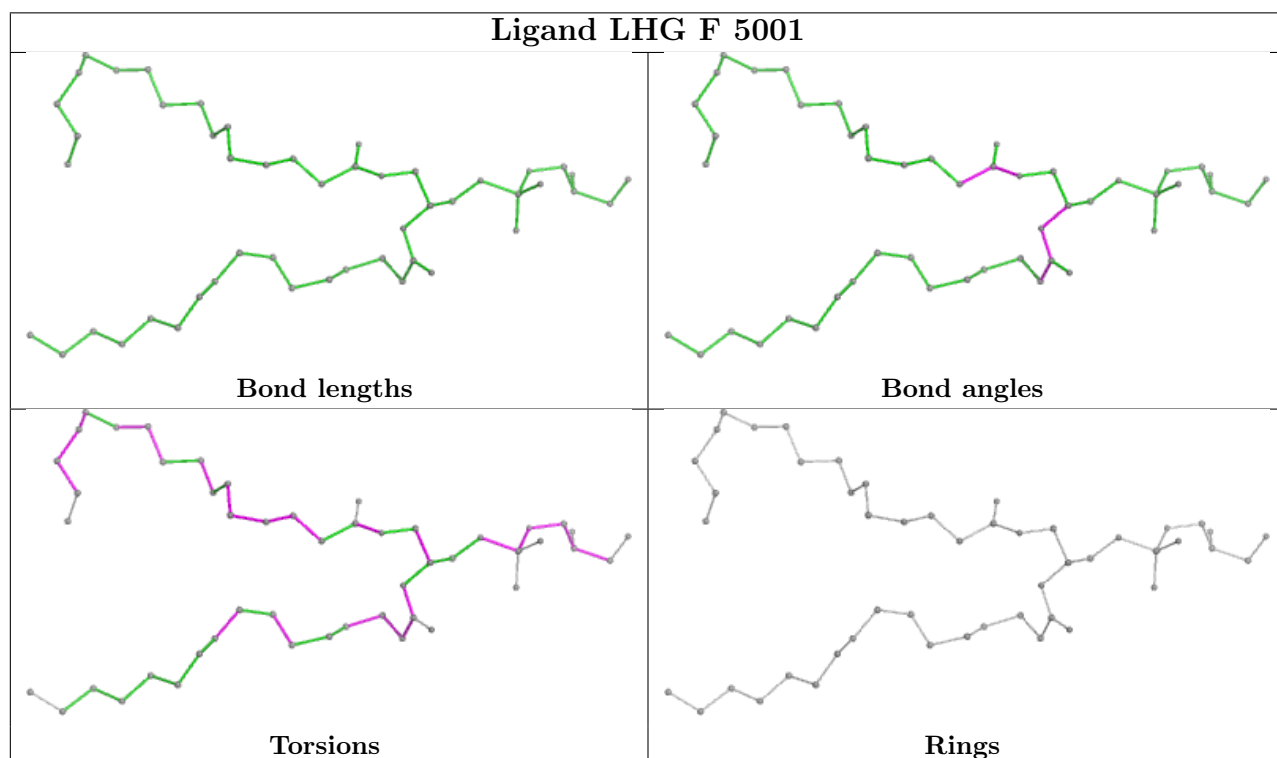
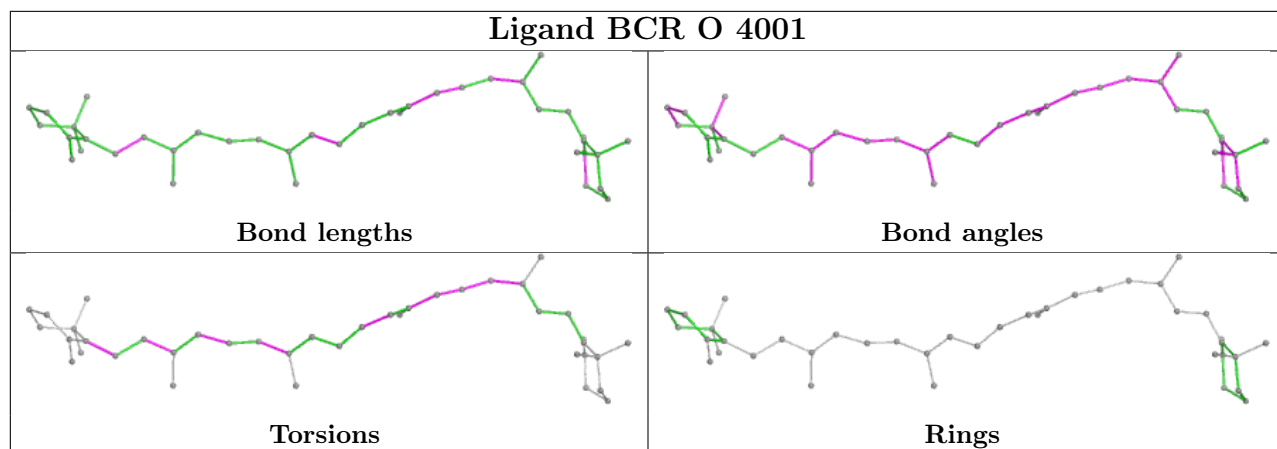


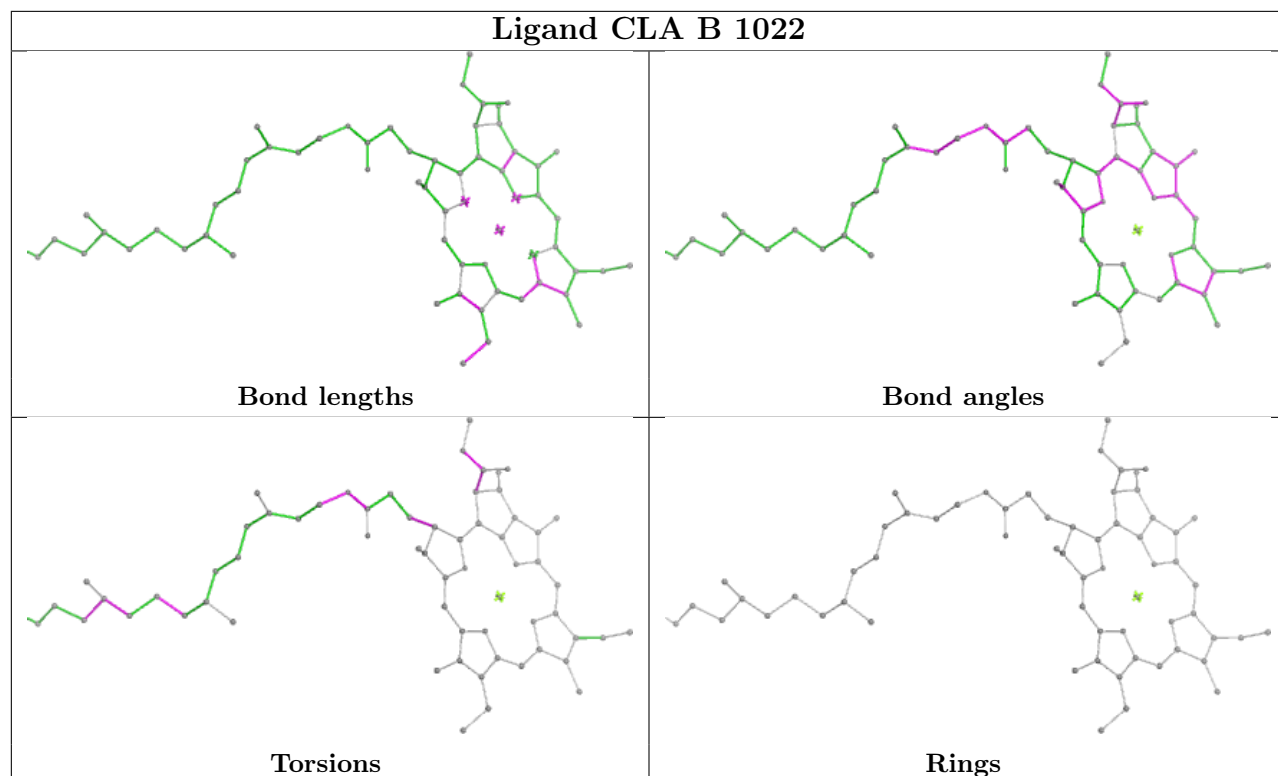
Ligand CLA 5 613

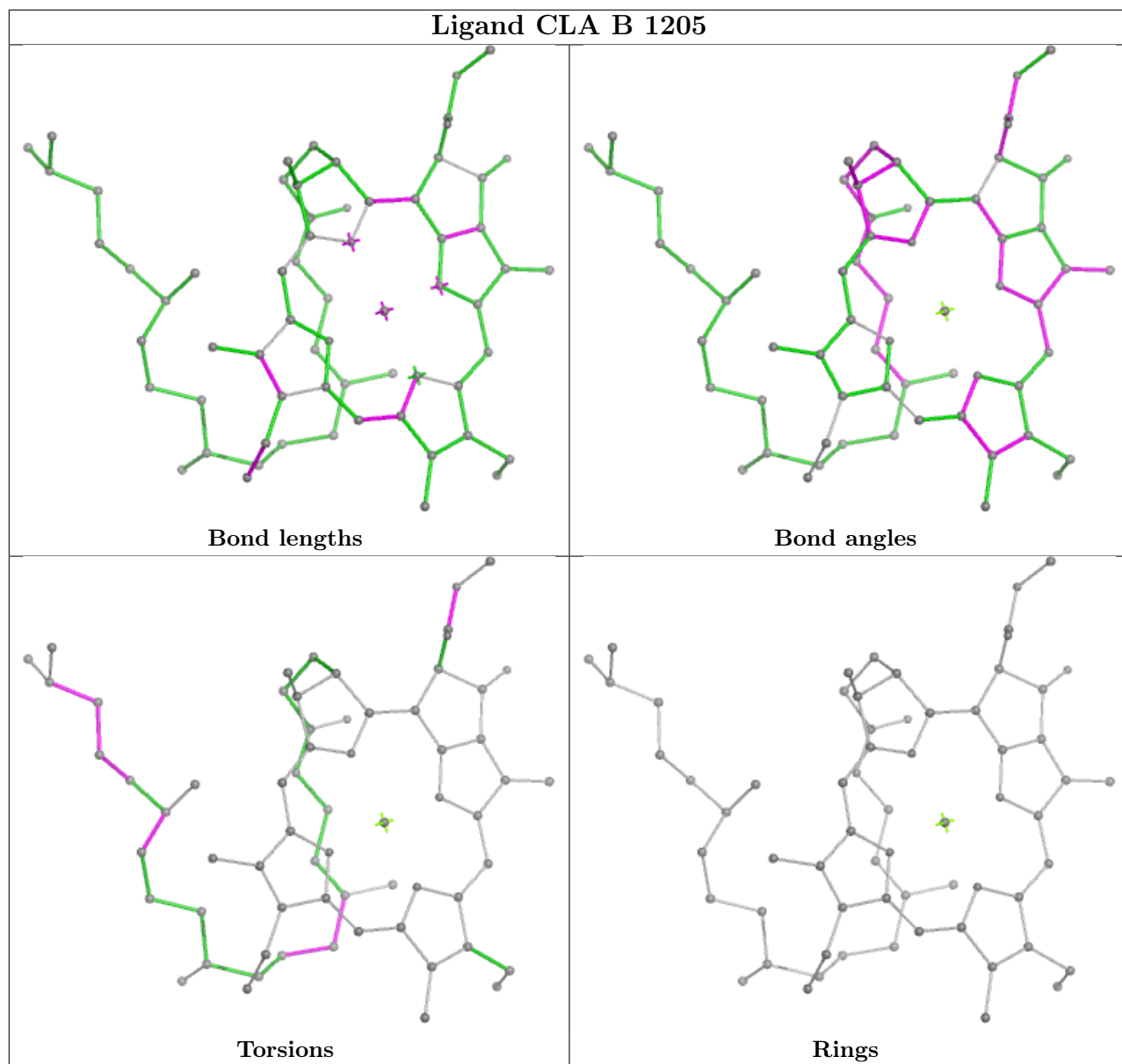


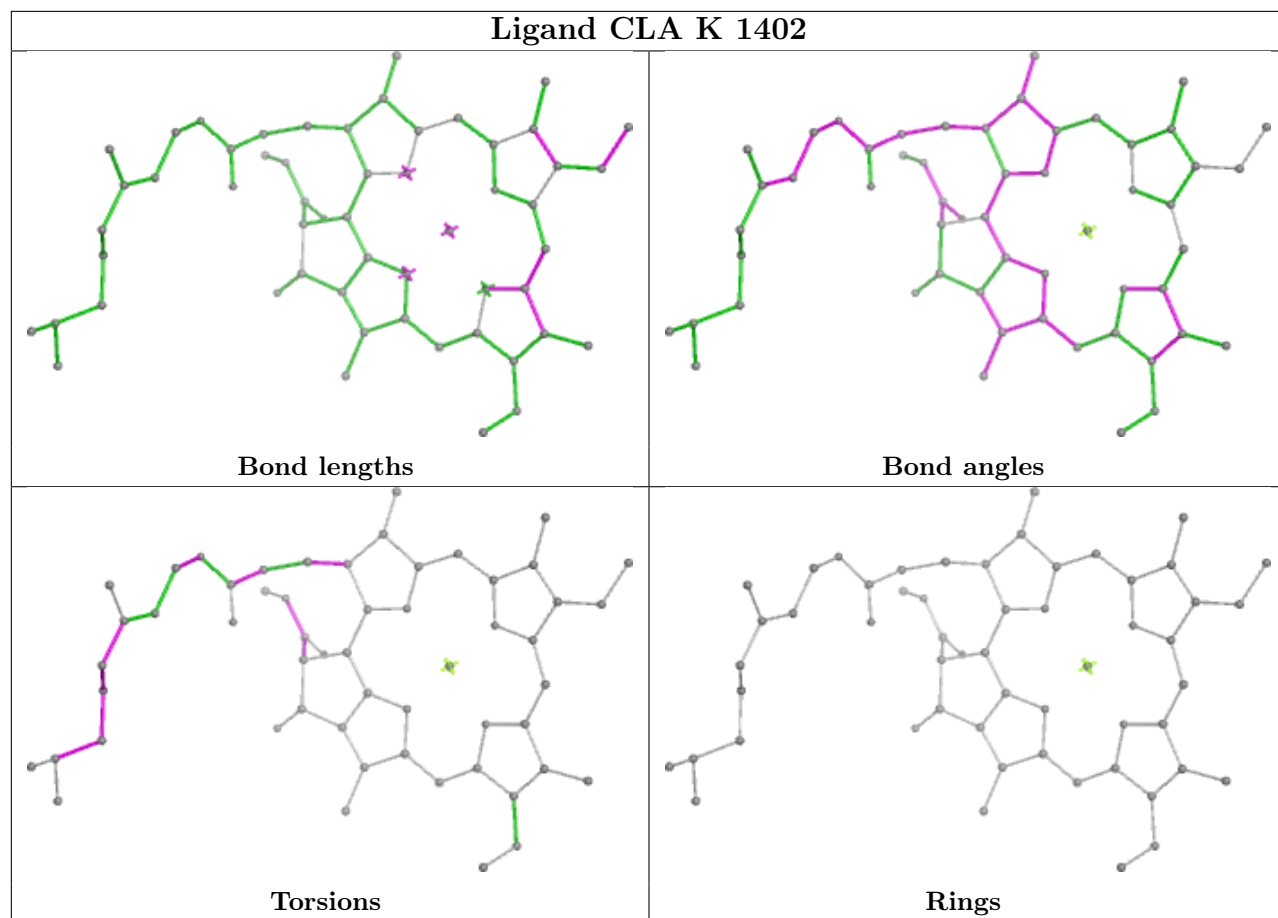


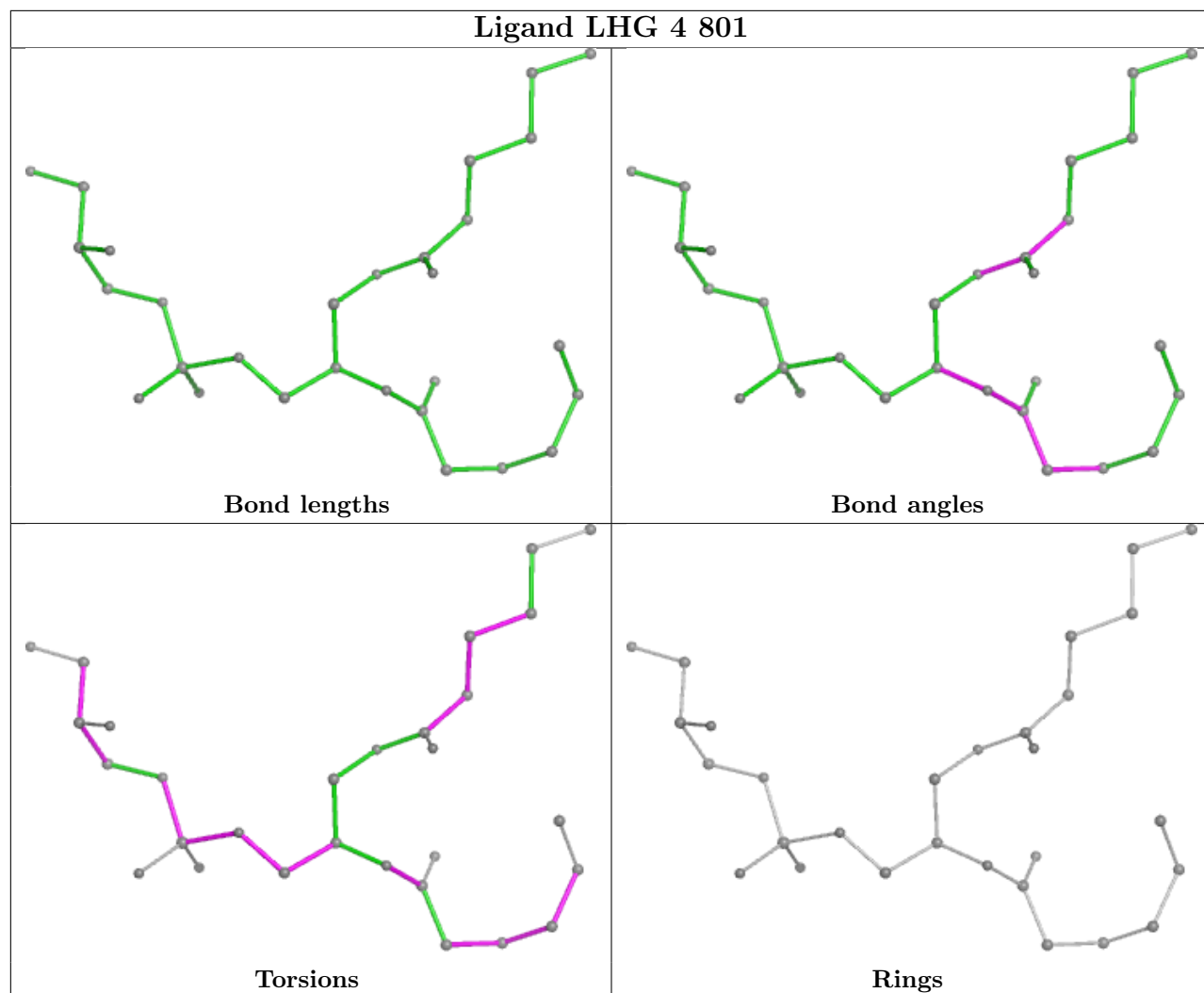


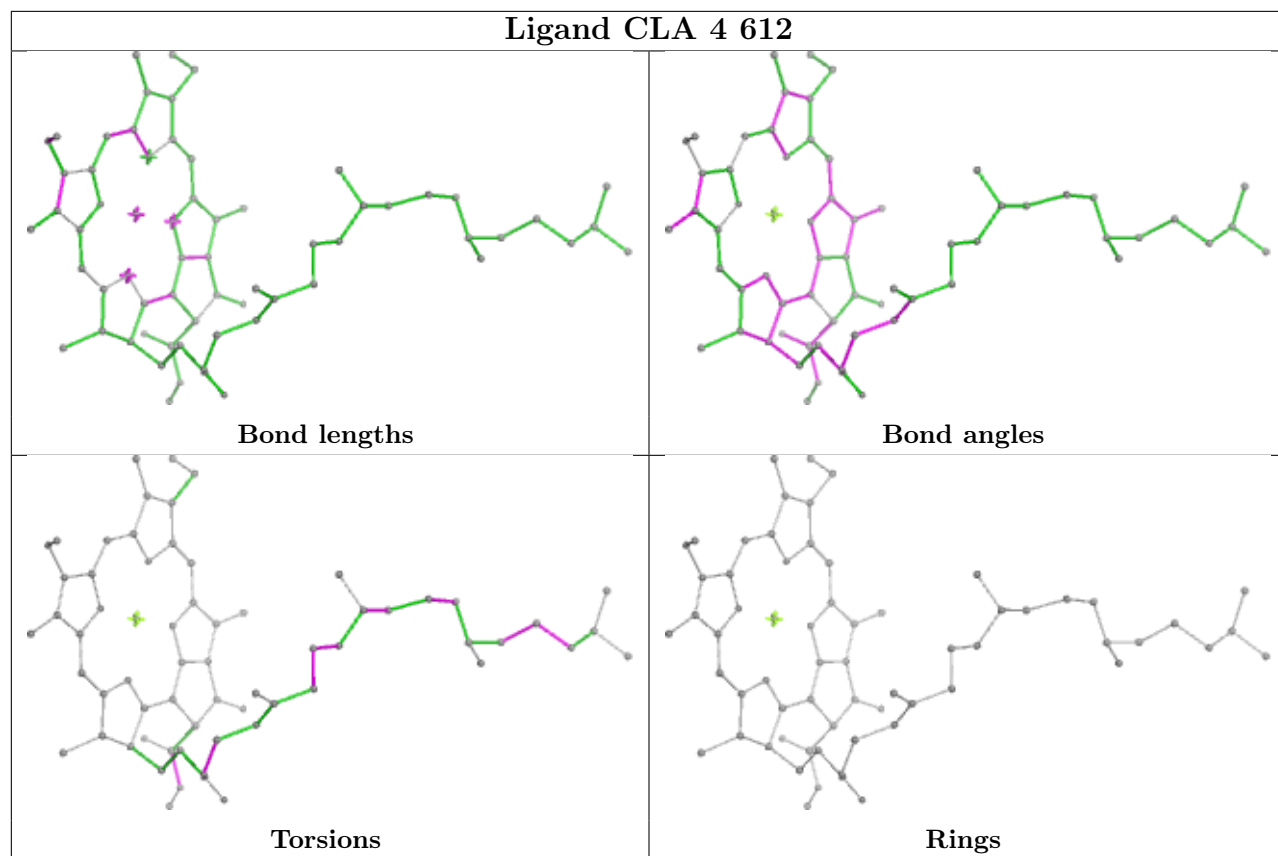


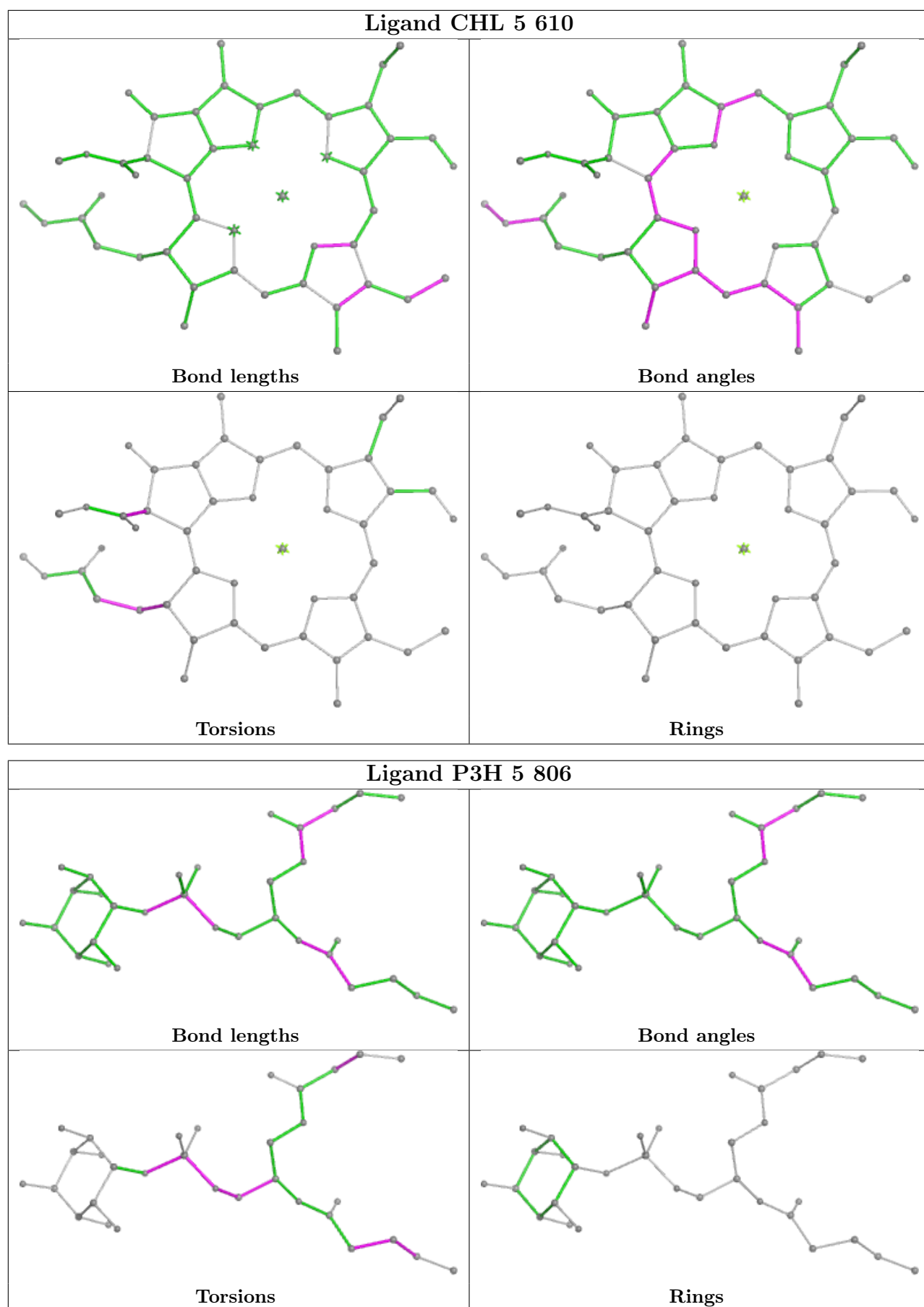


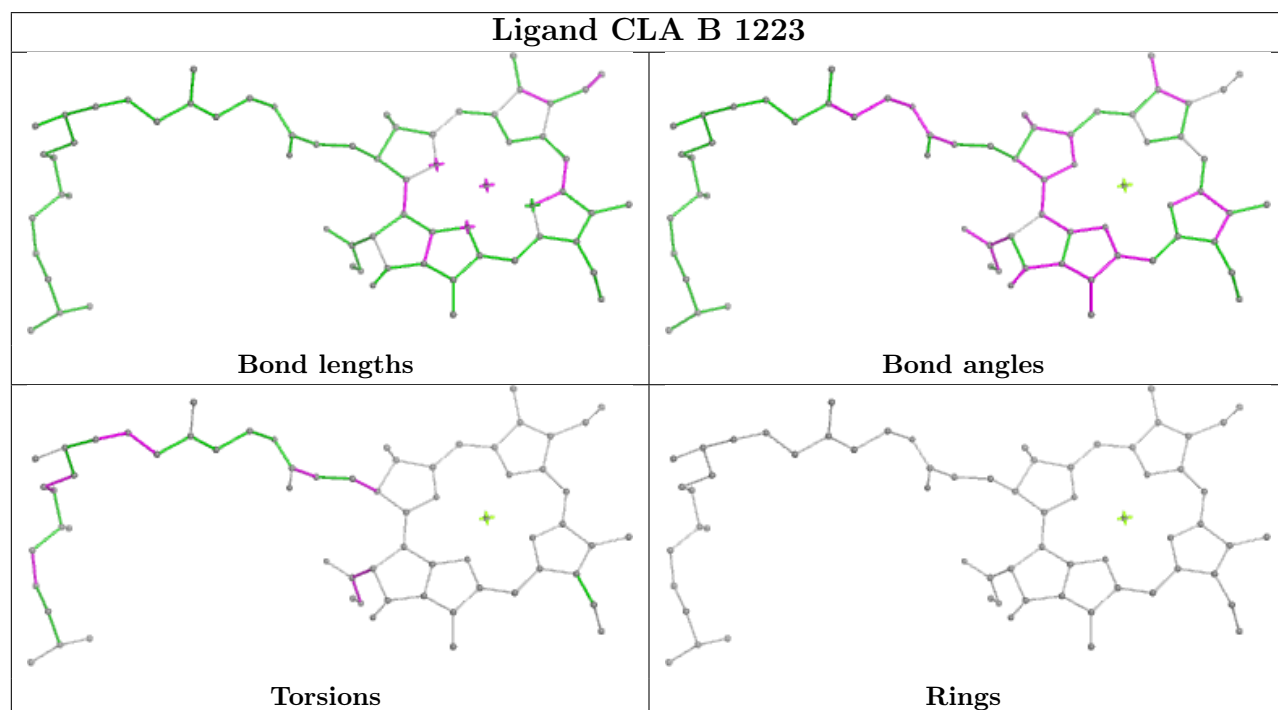
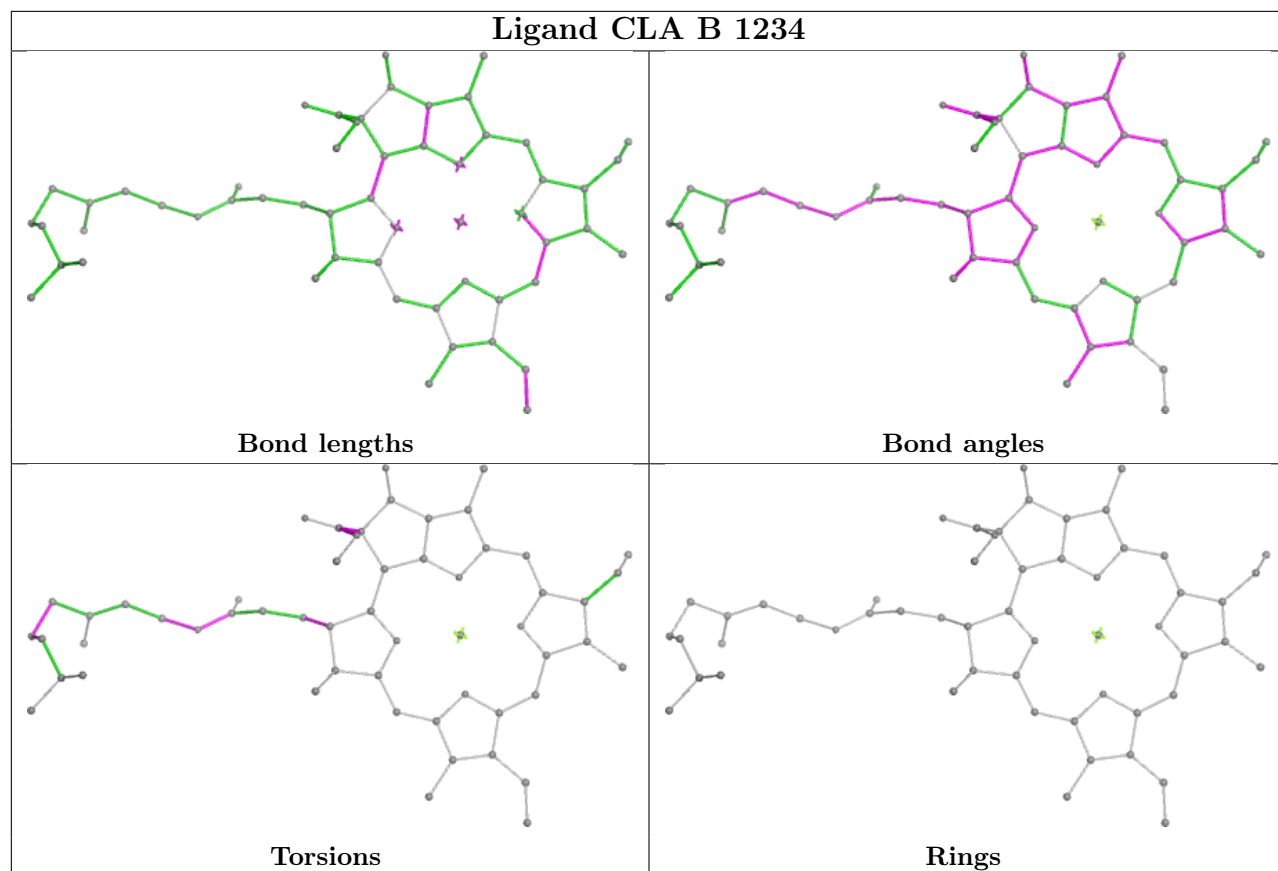


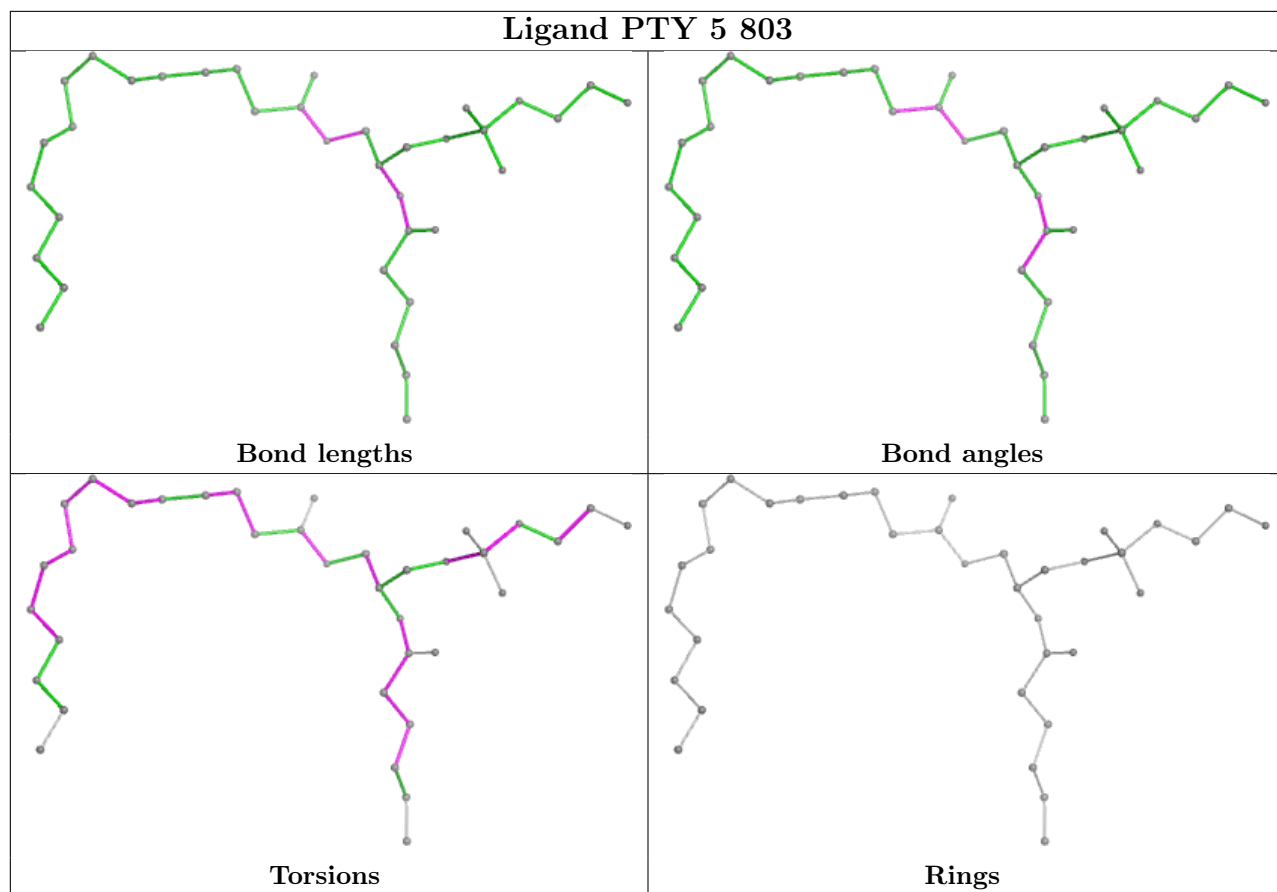


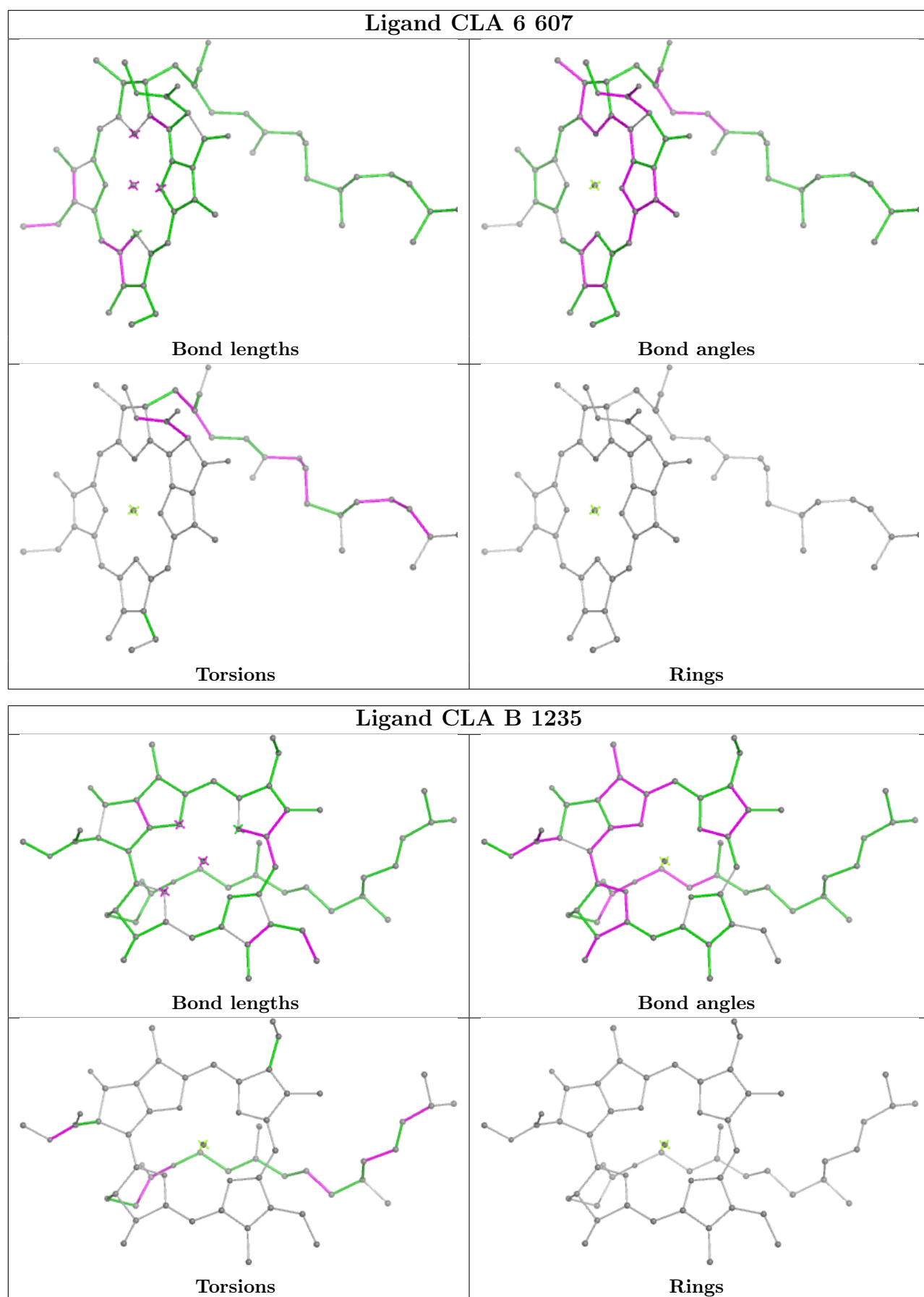


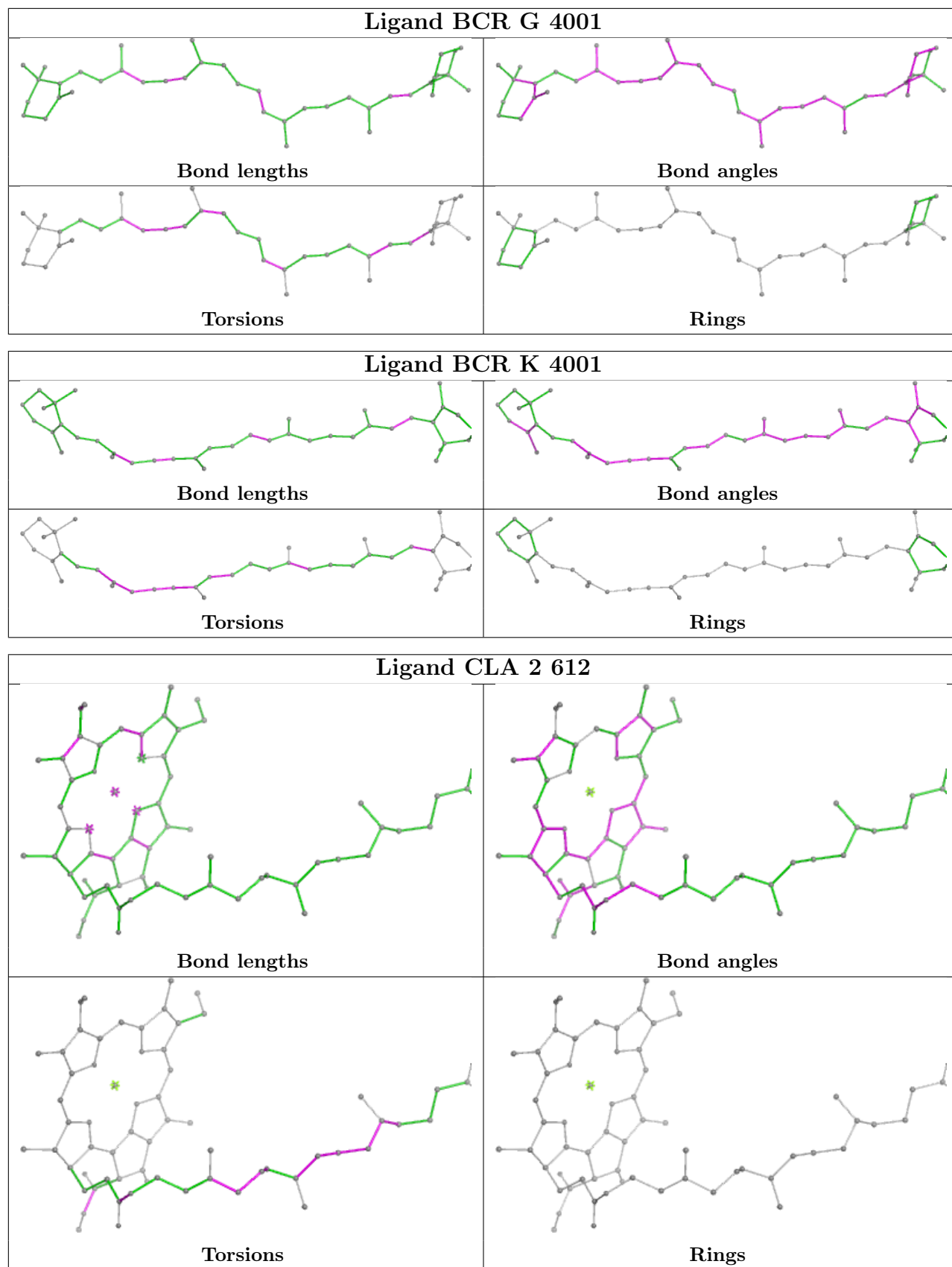


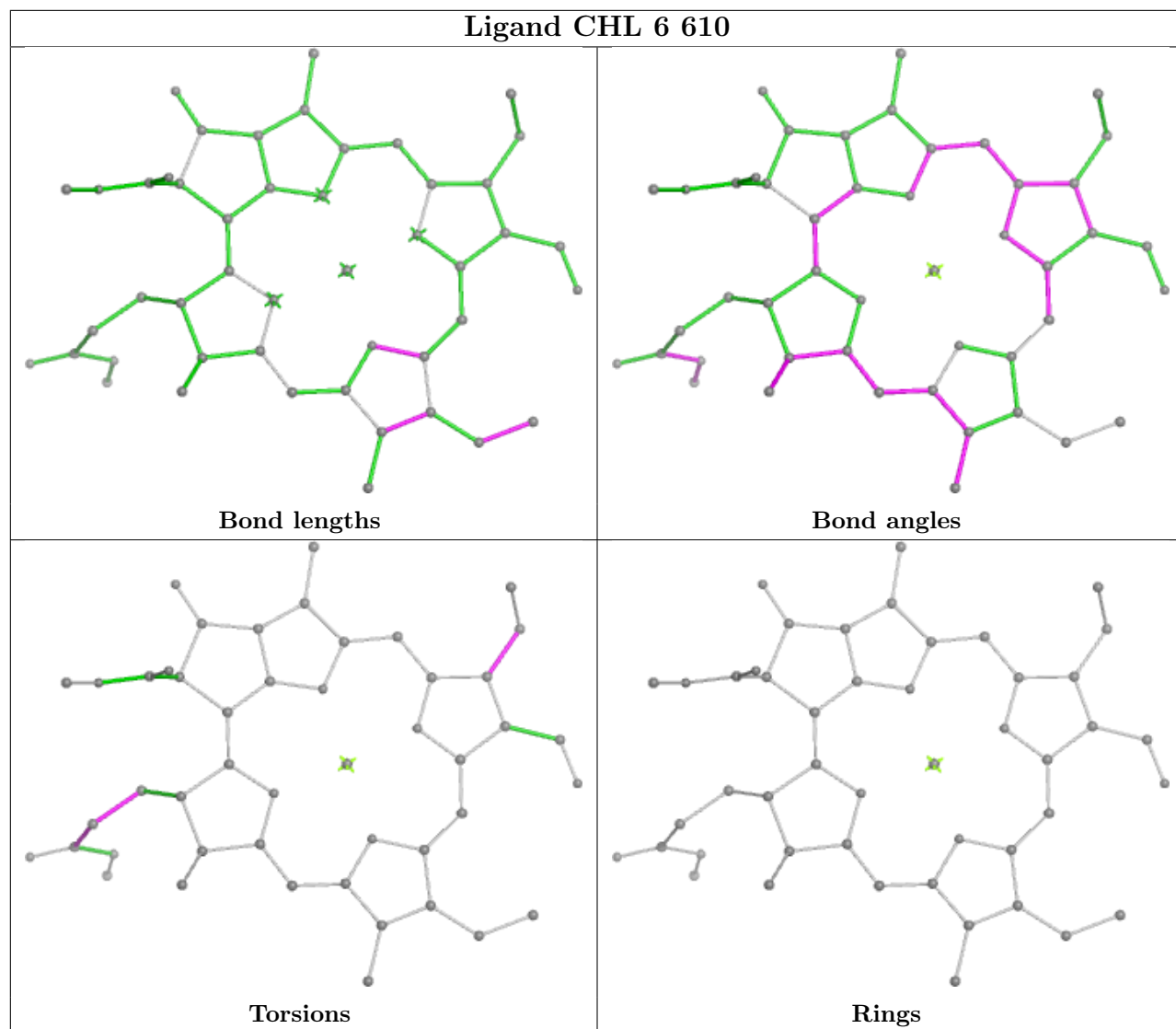


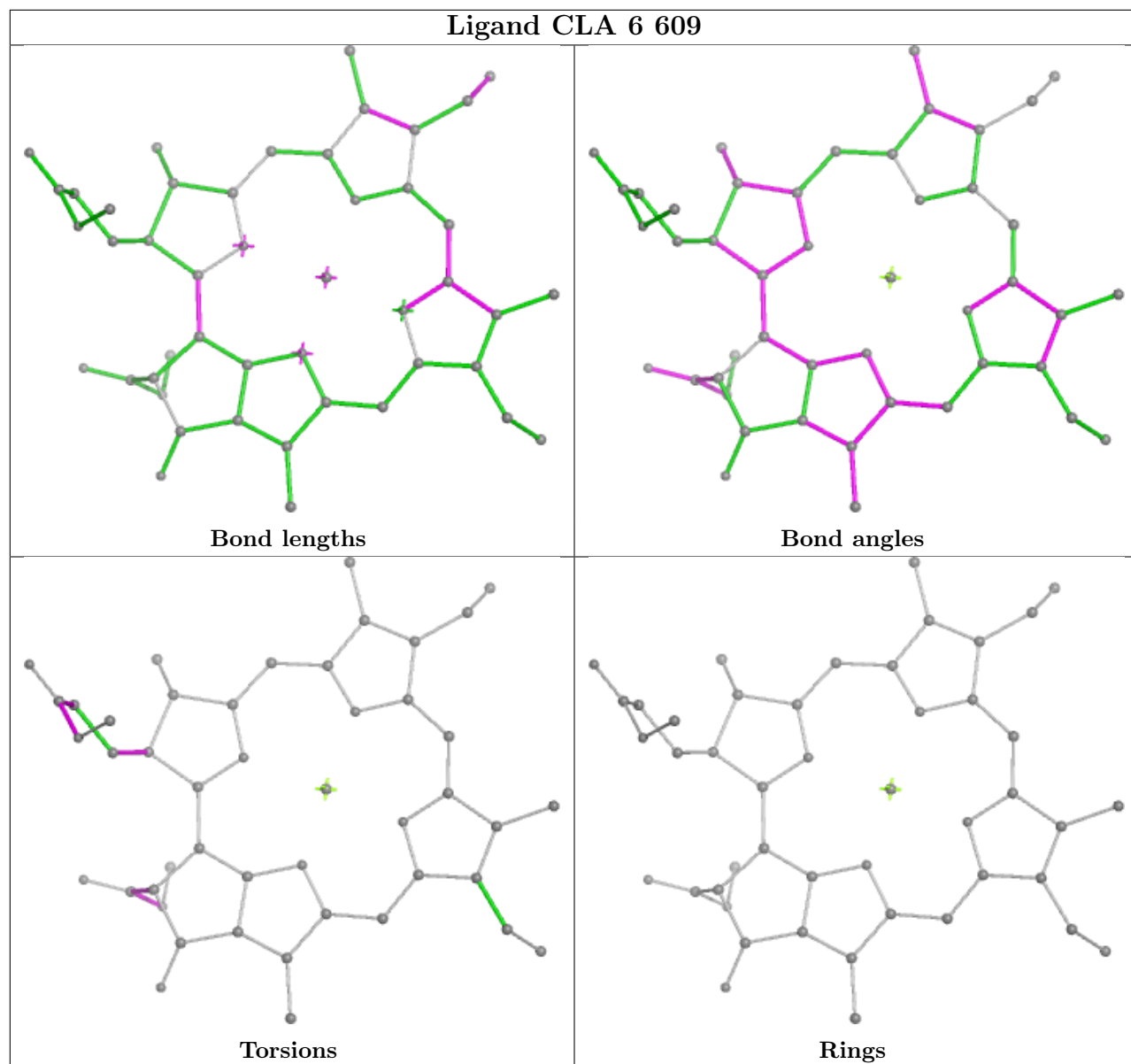


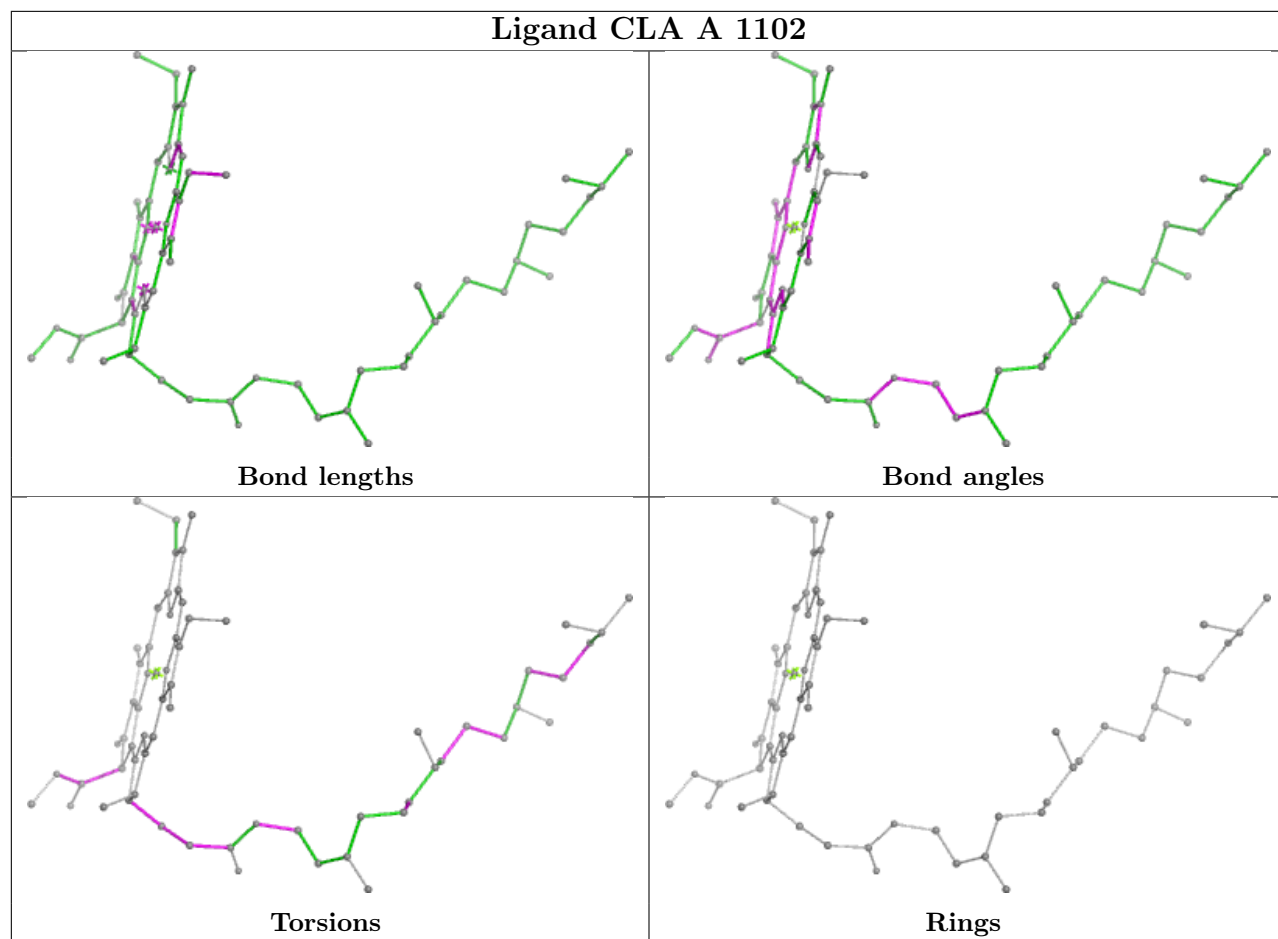


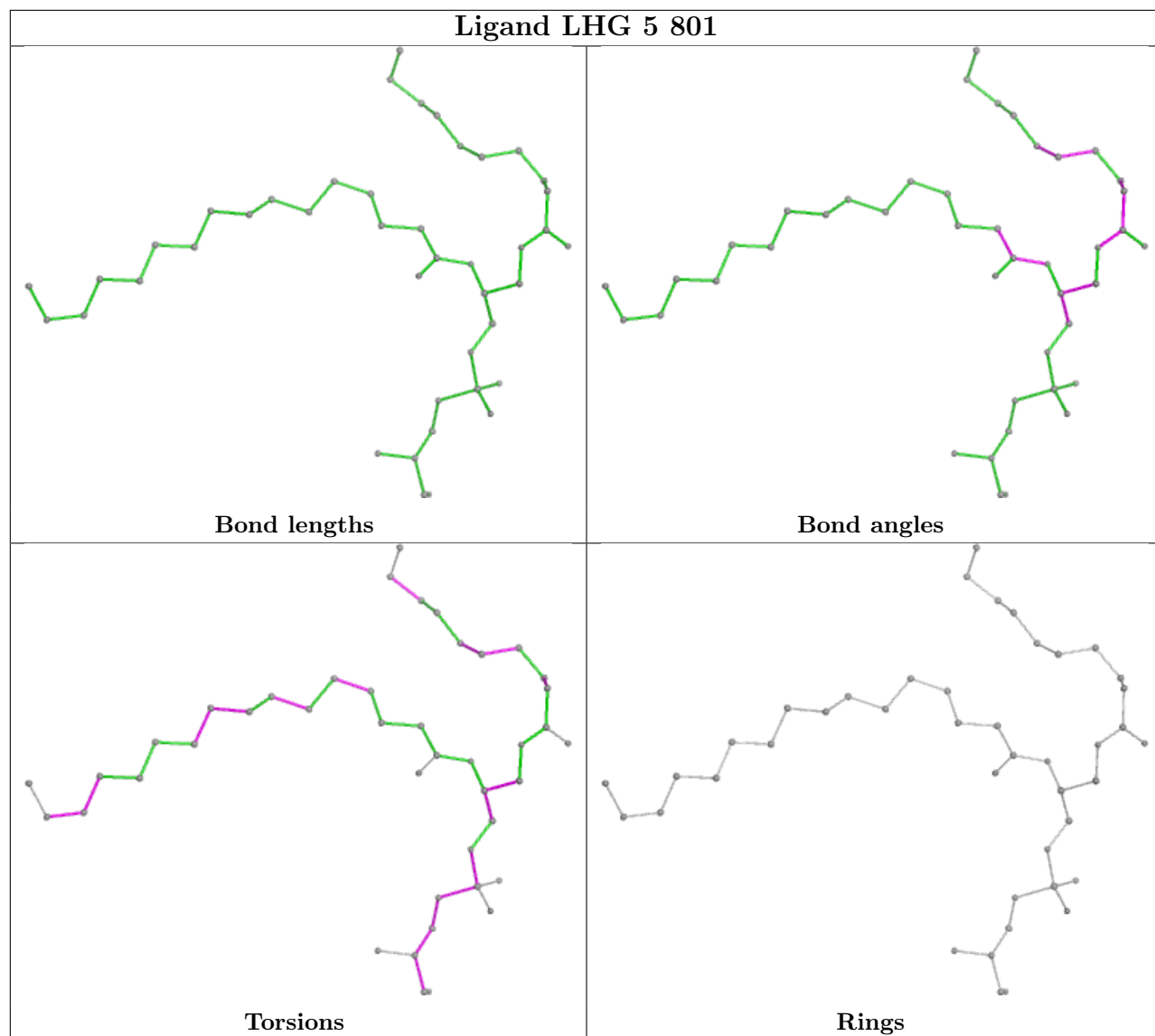


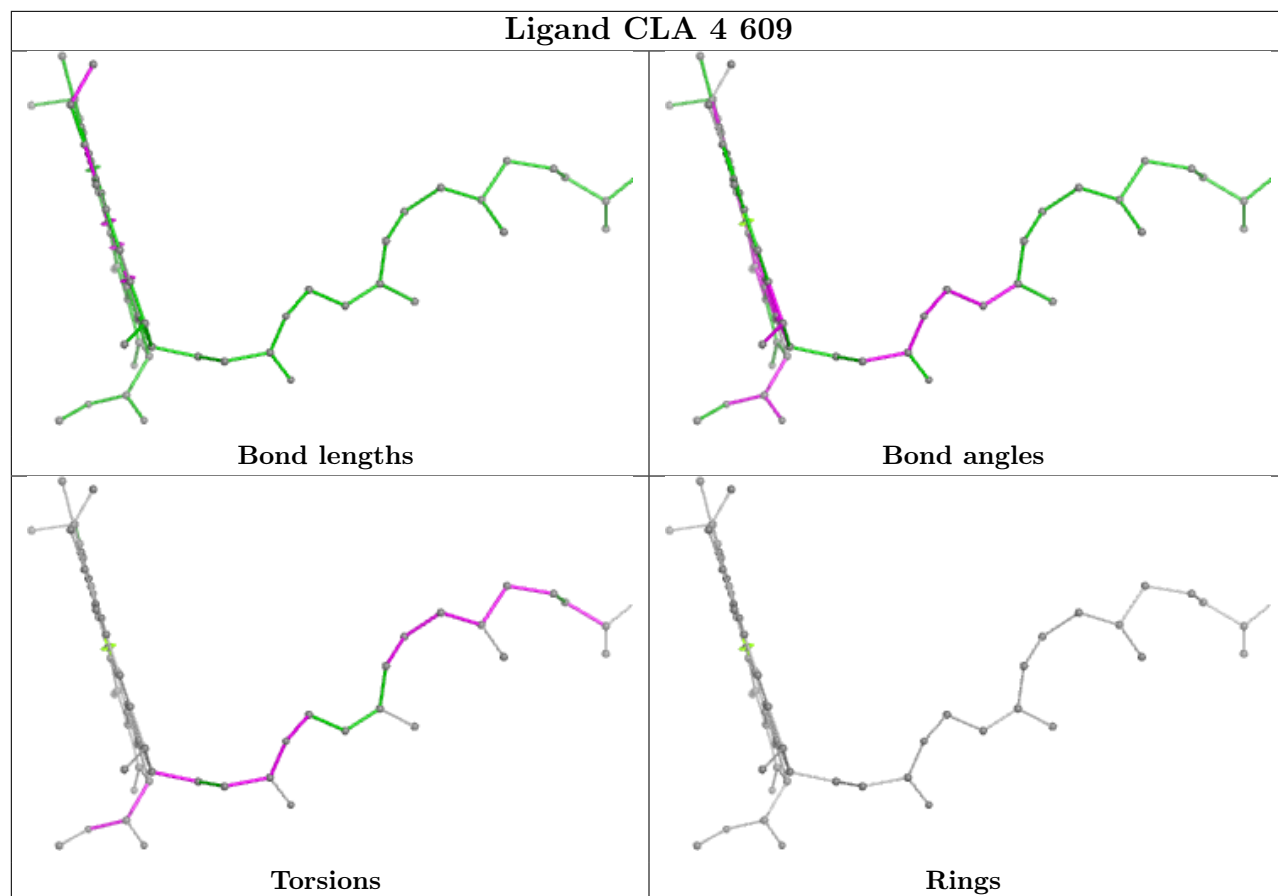


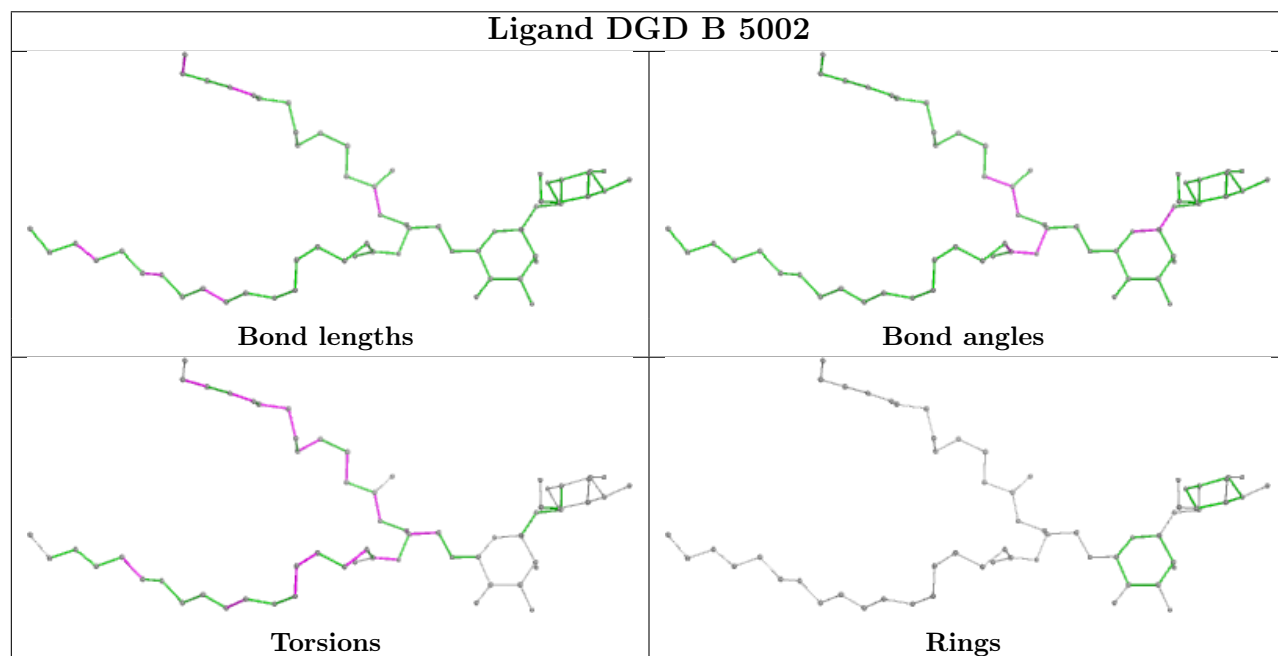
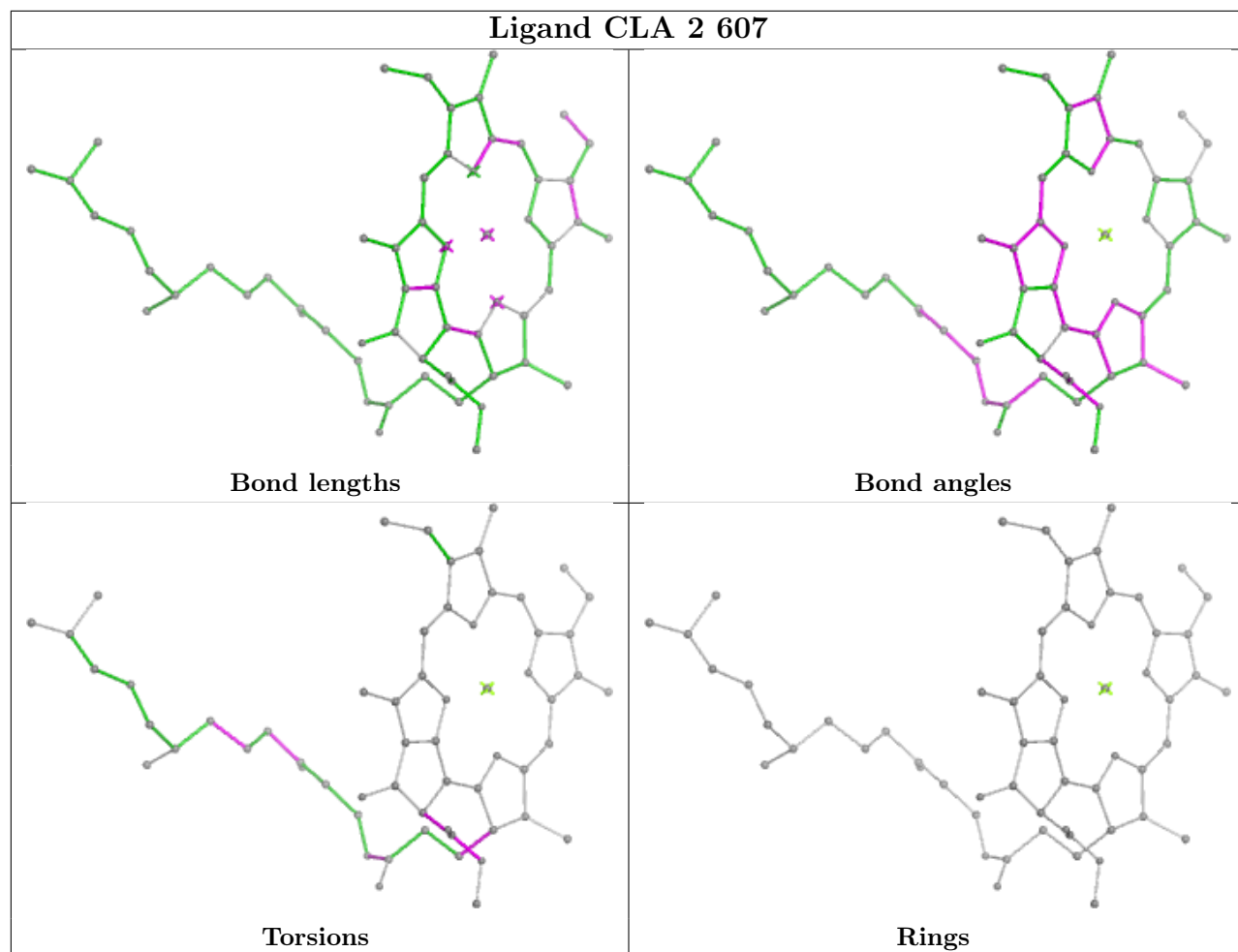


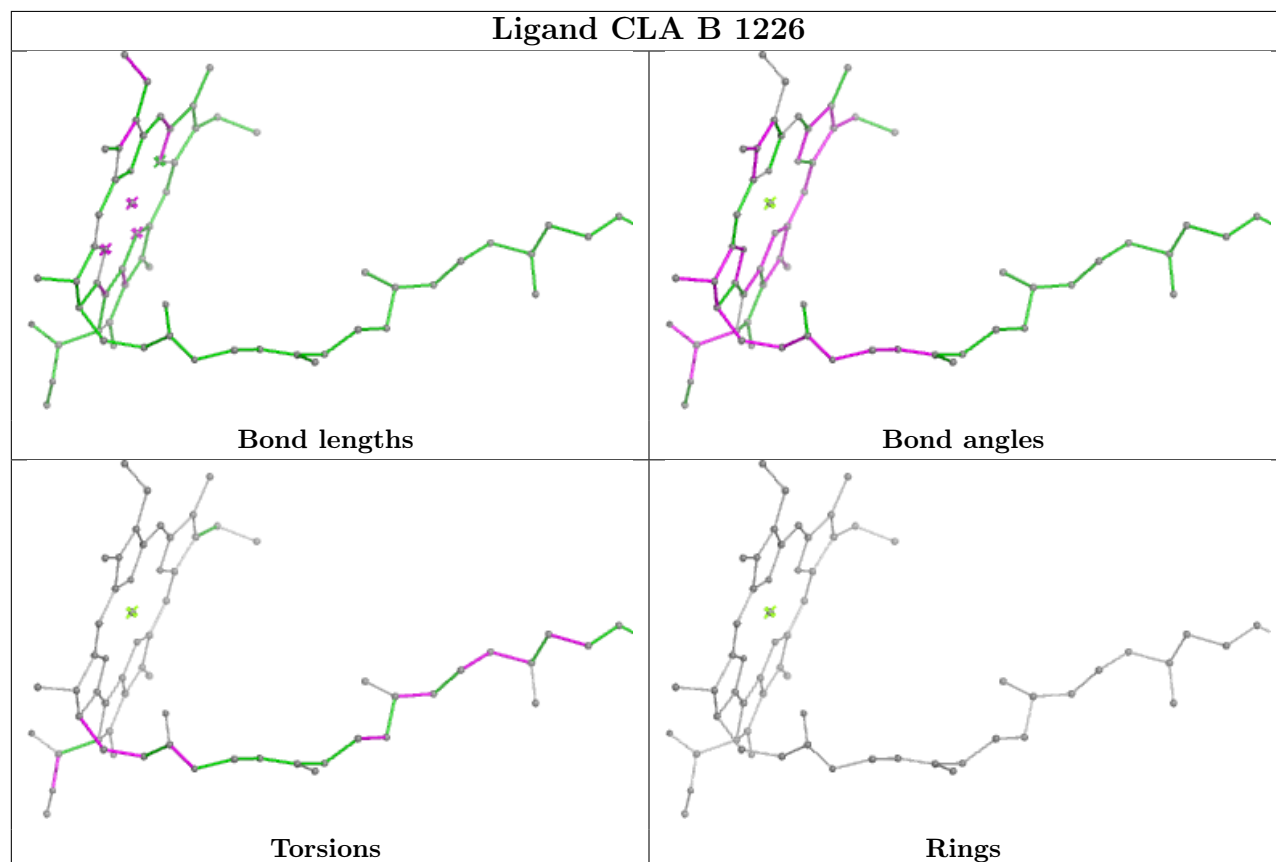
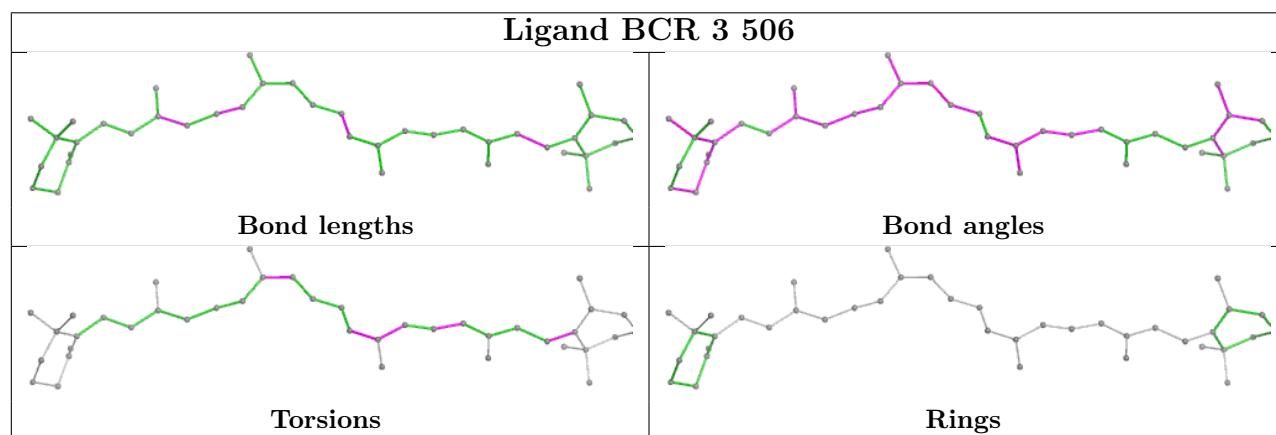
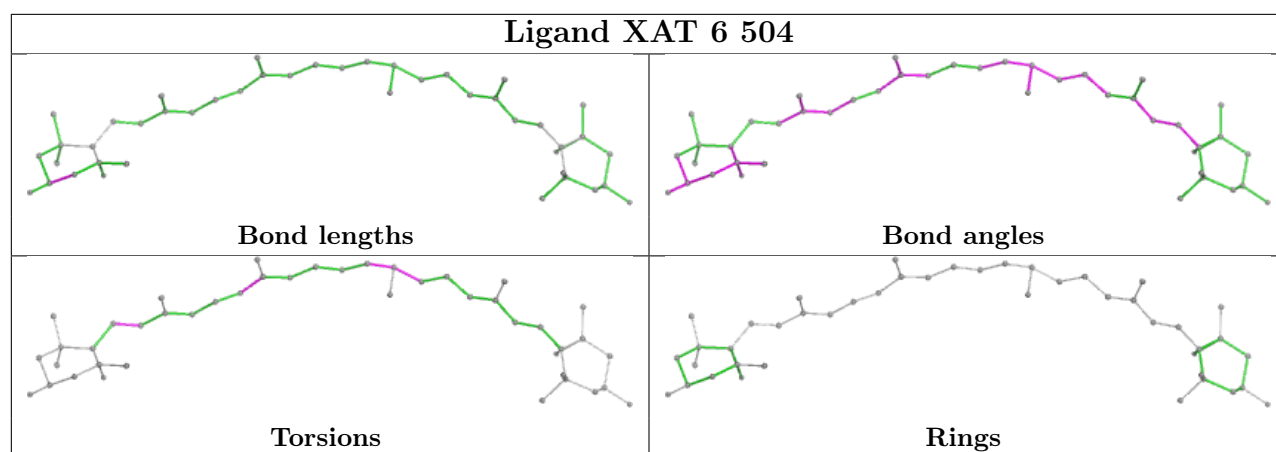


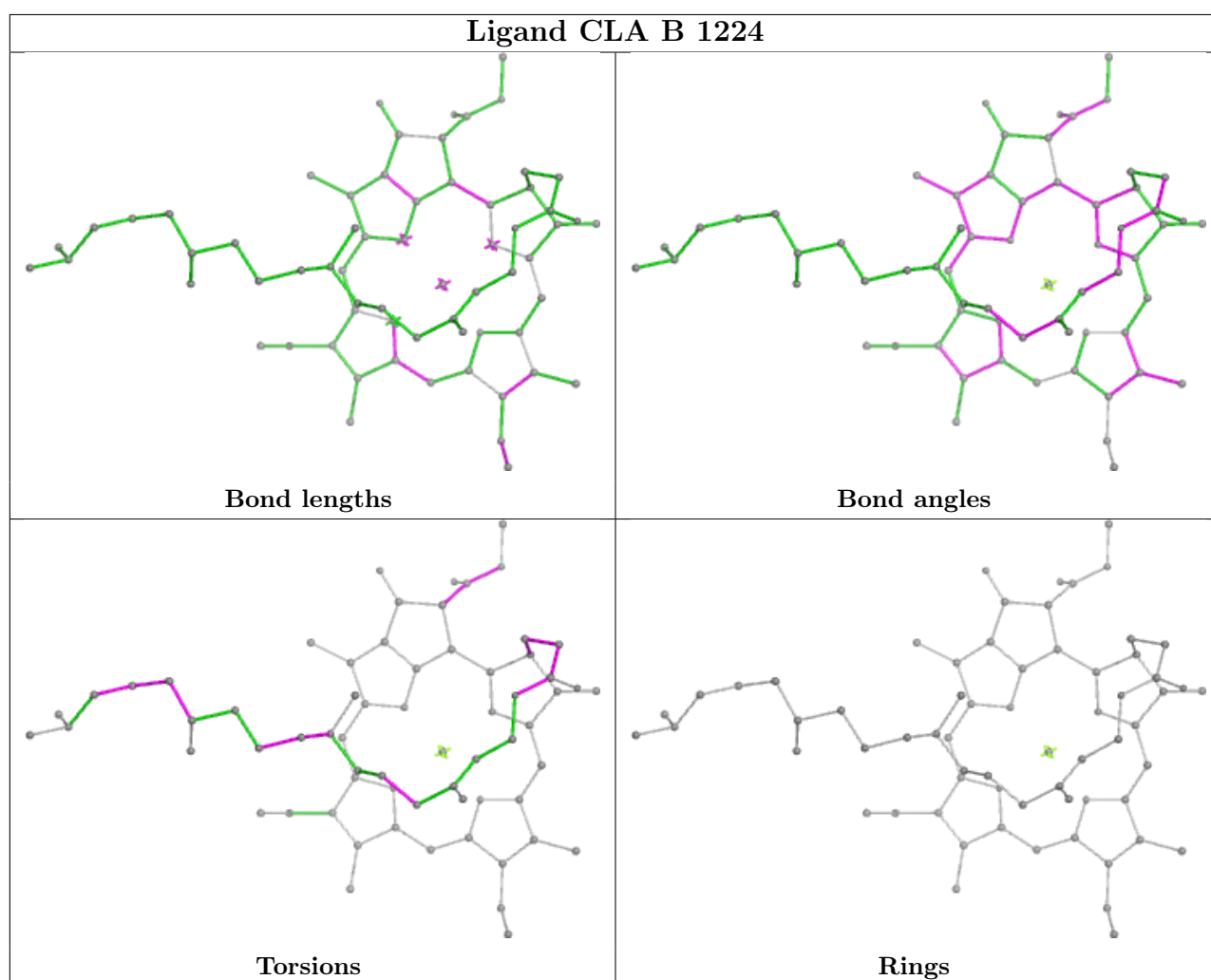
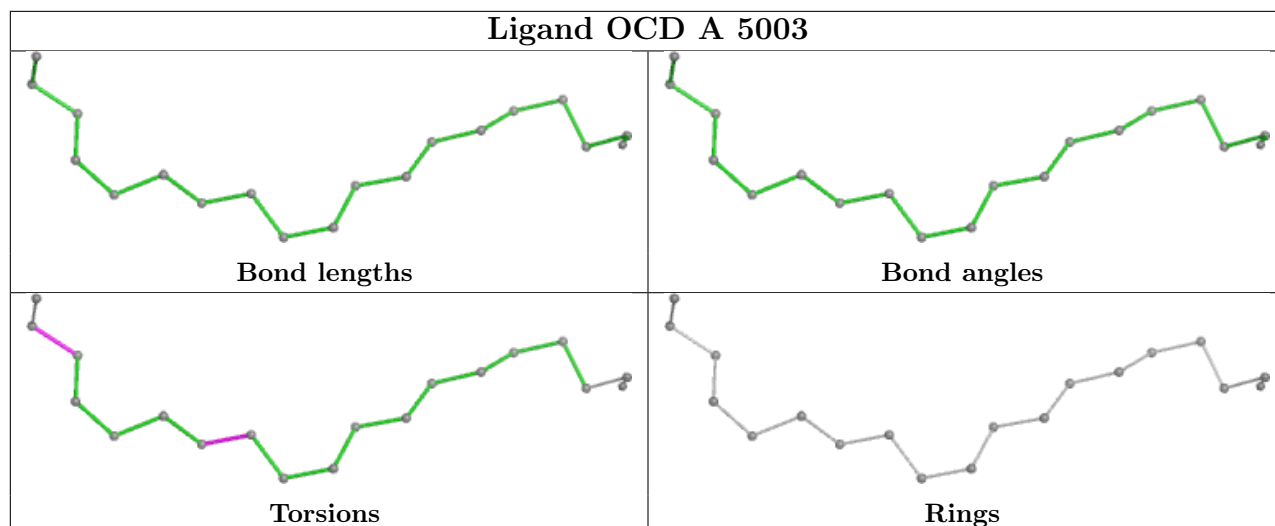


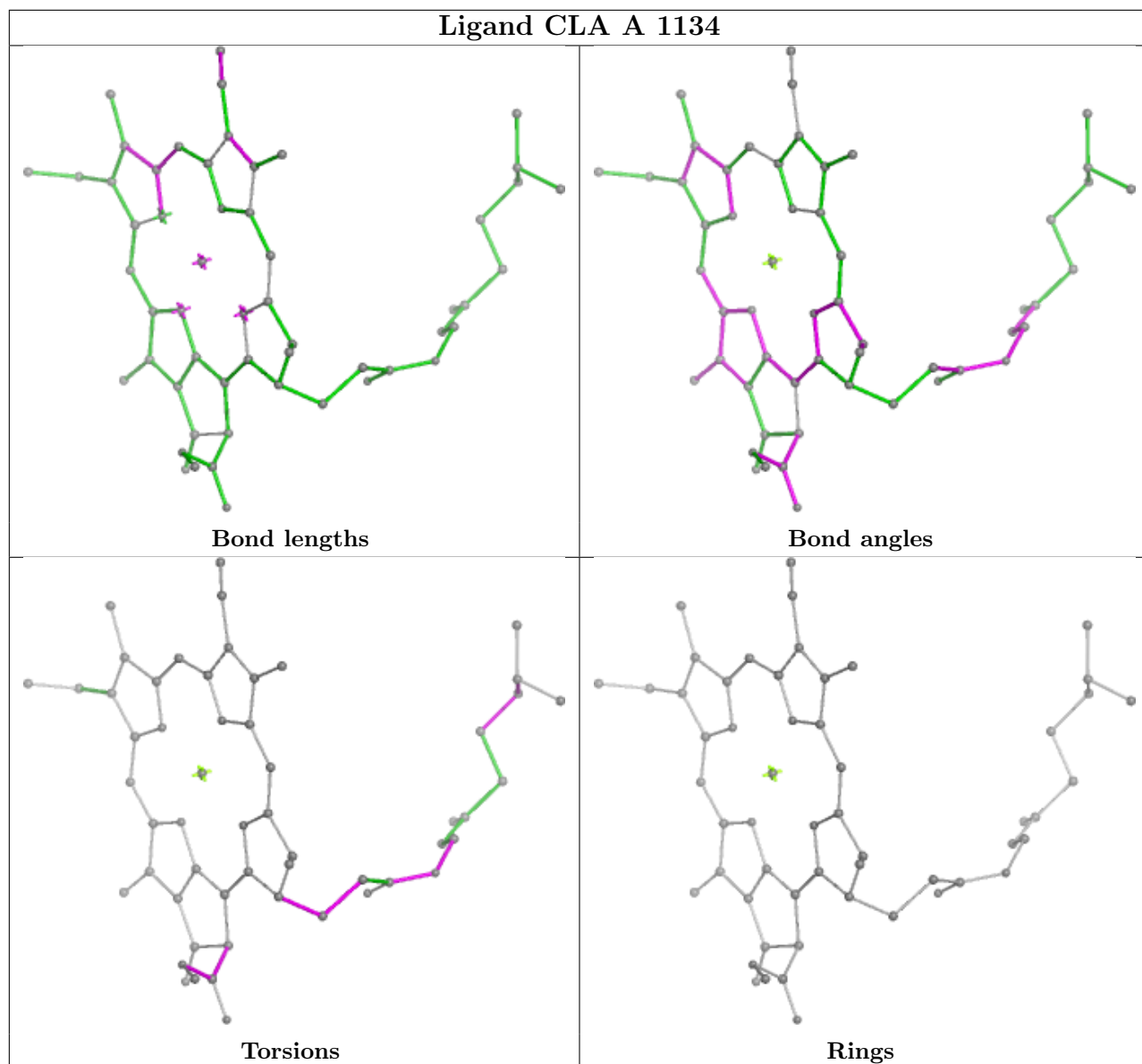


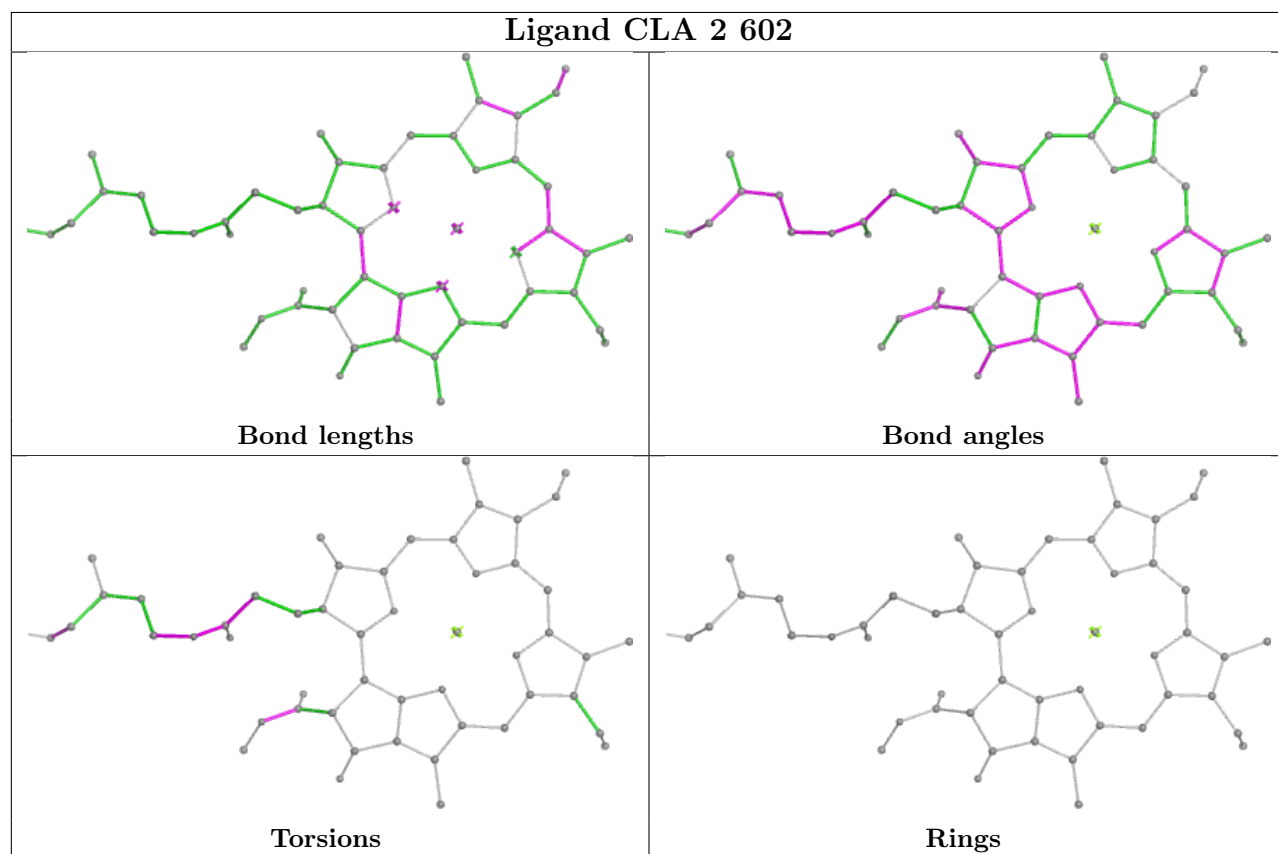
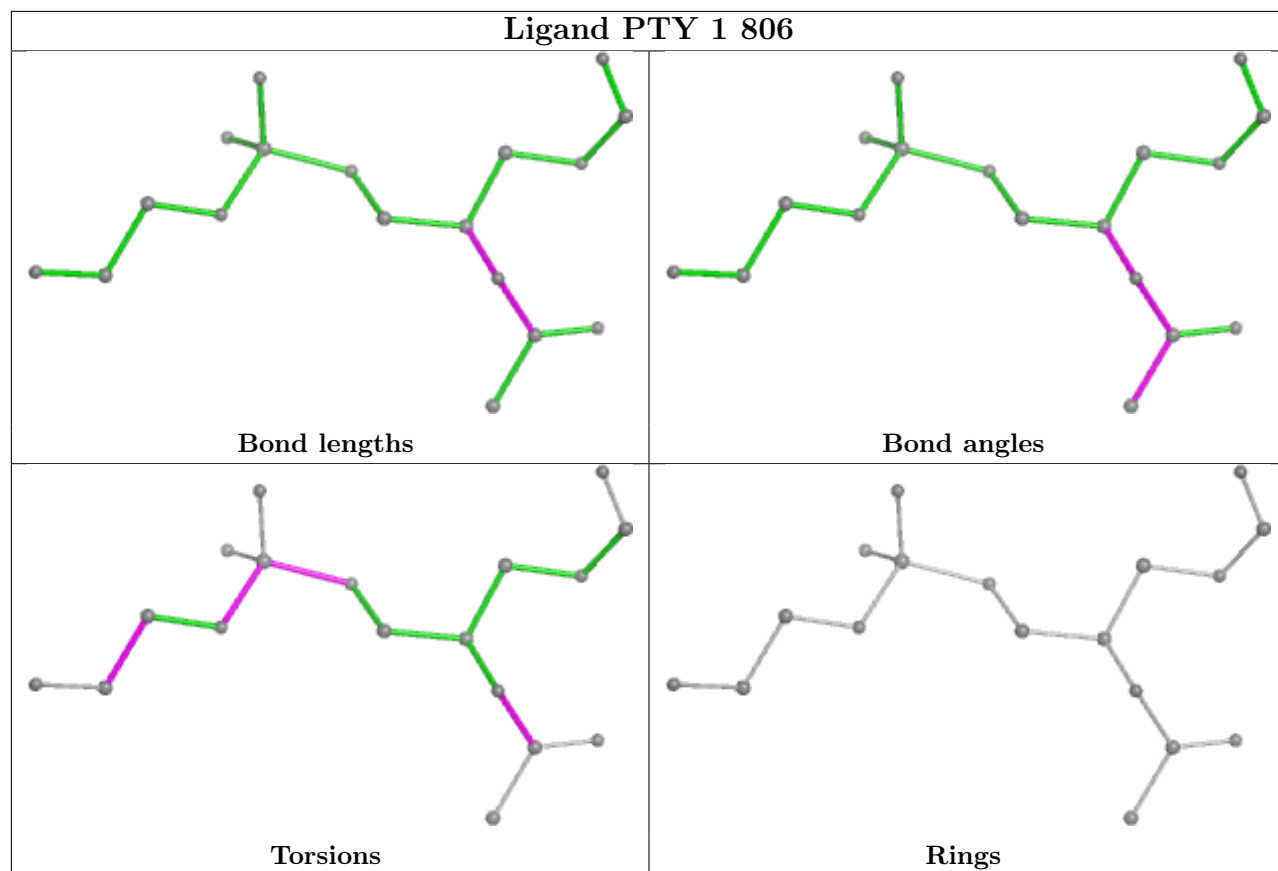


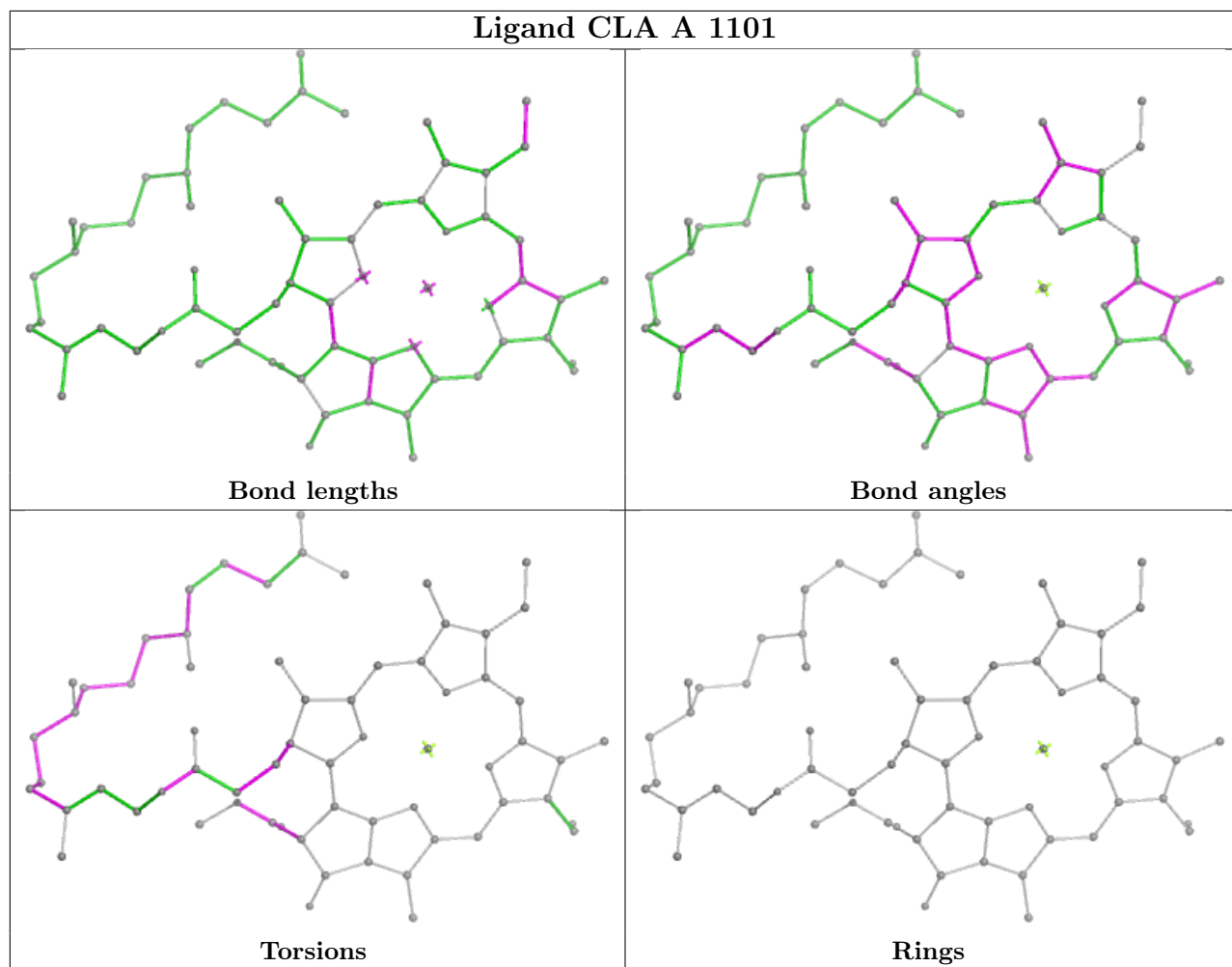


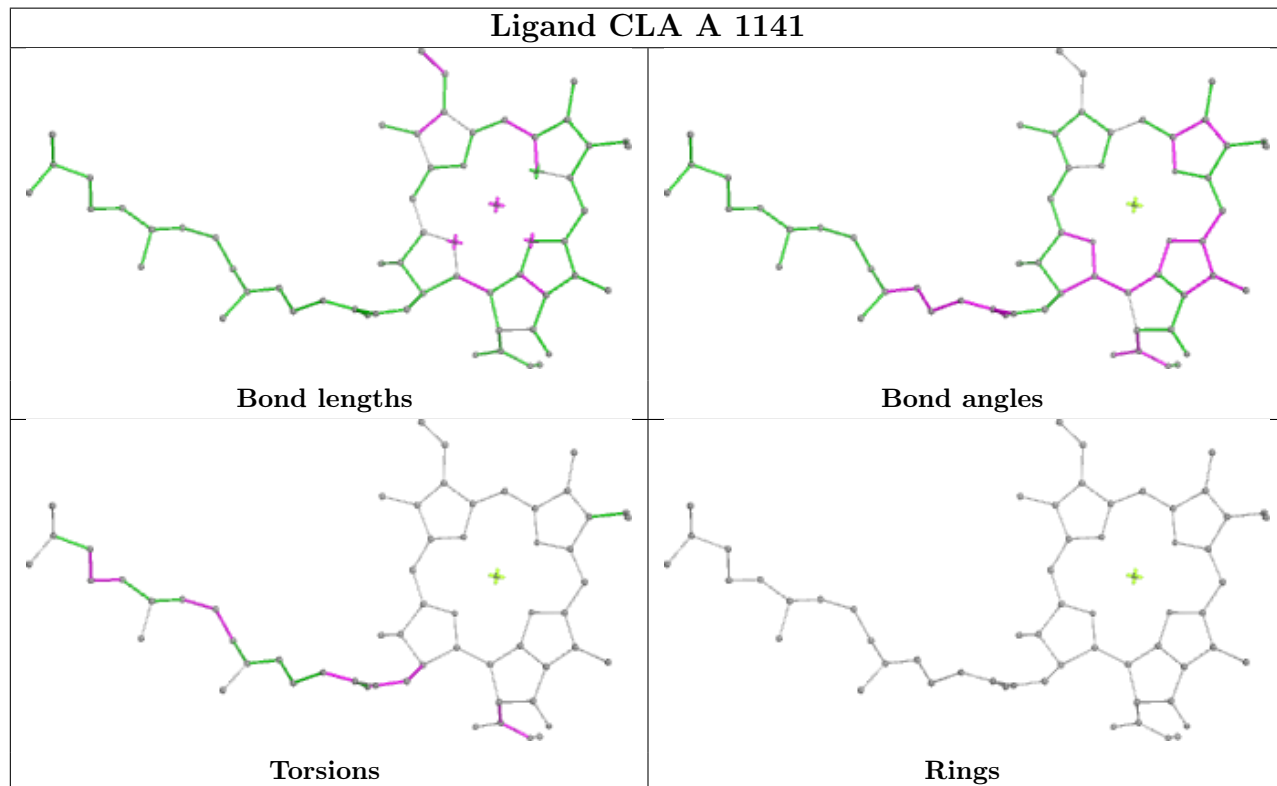
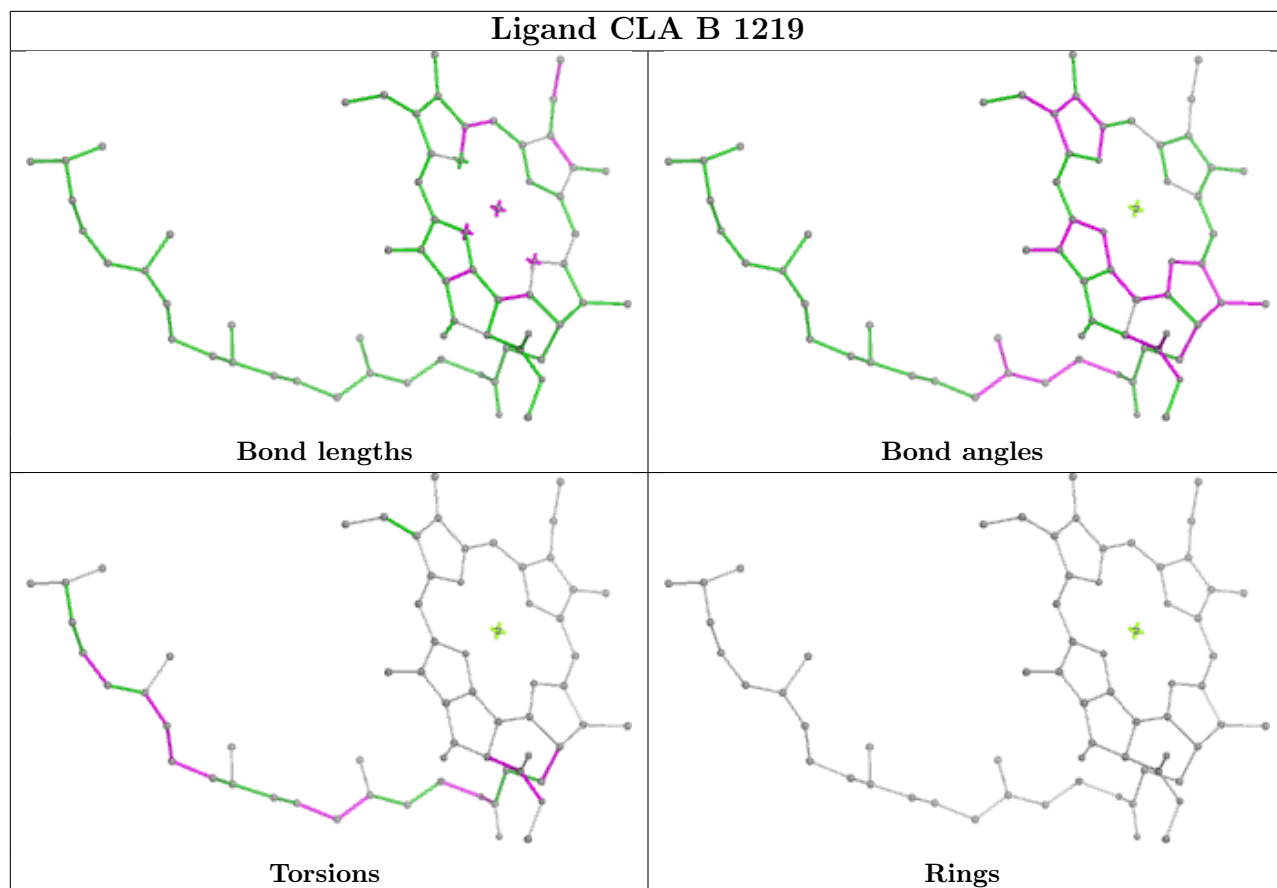


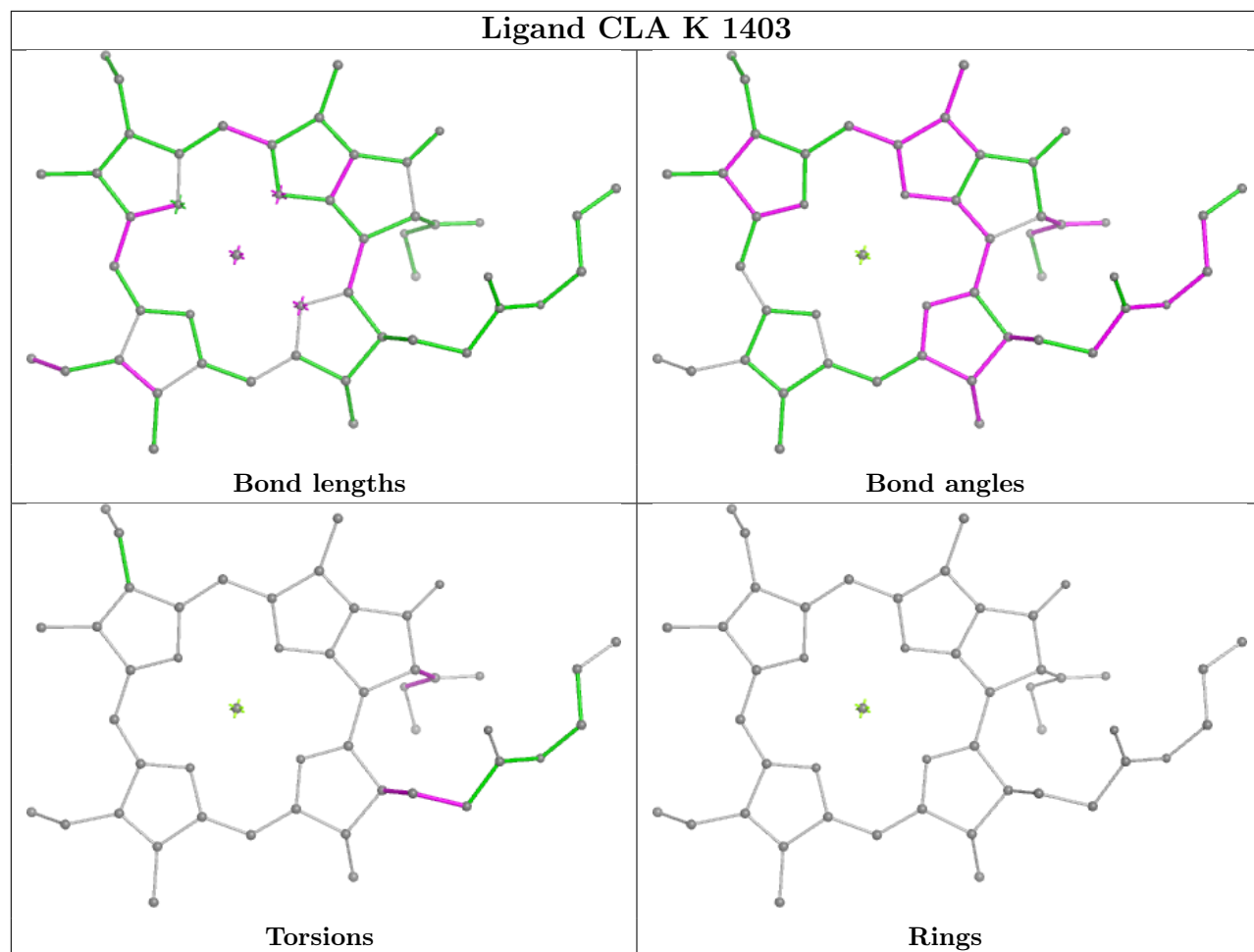


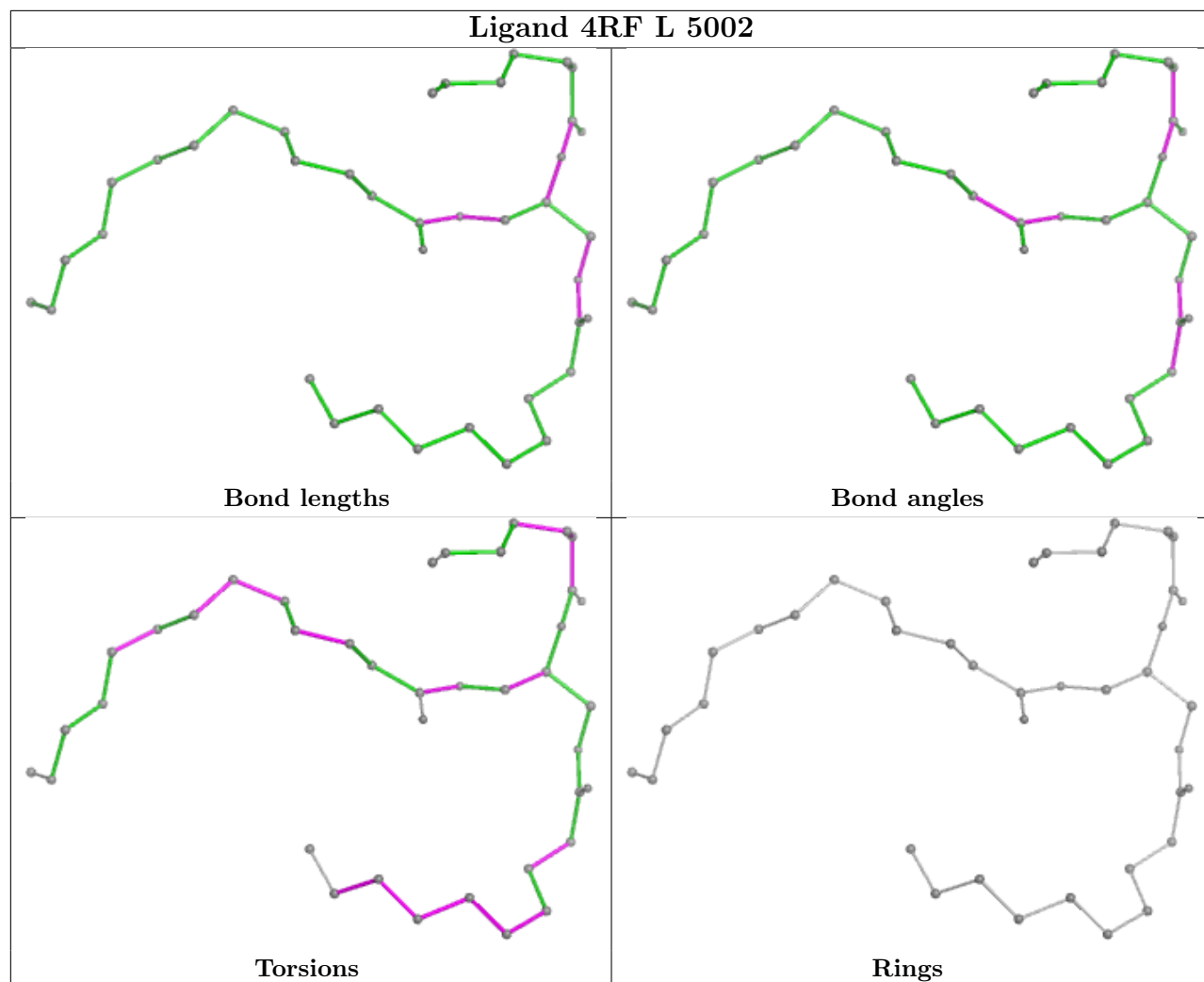


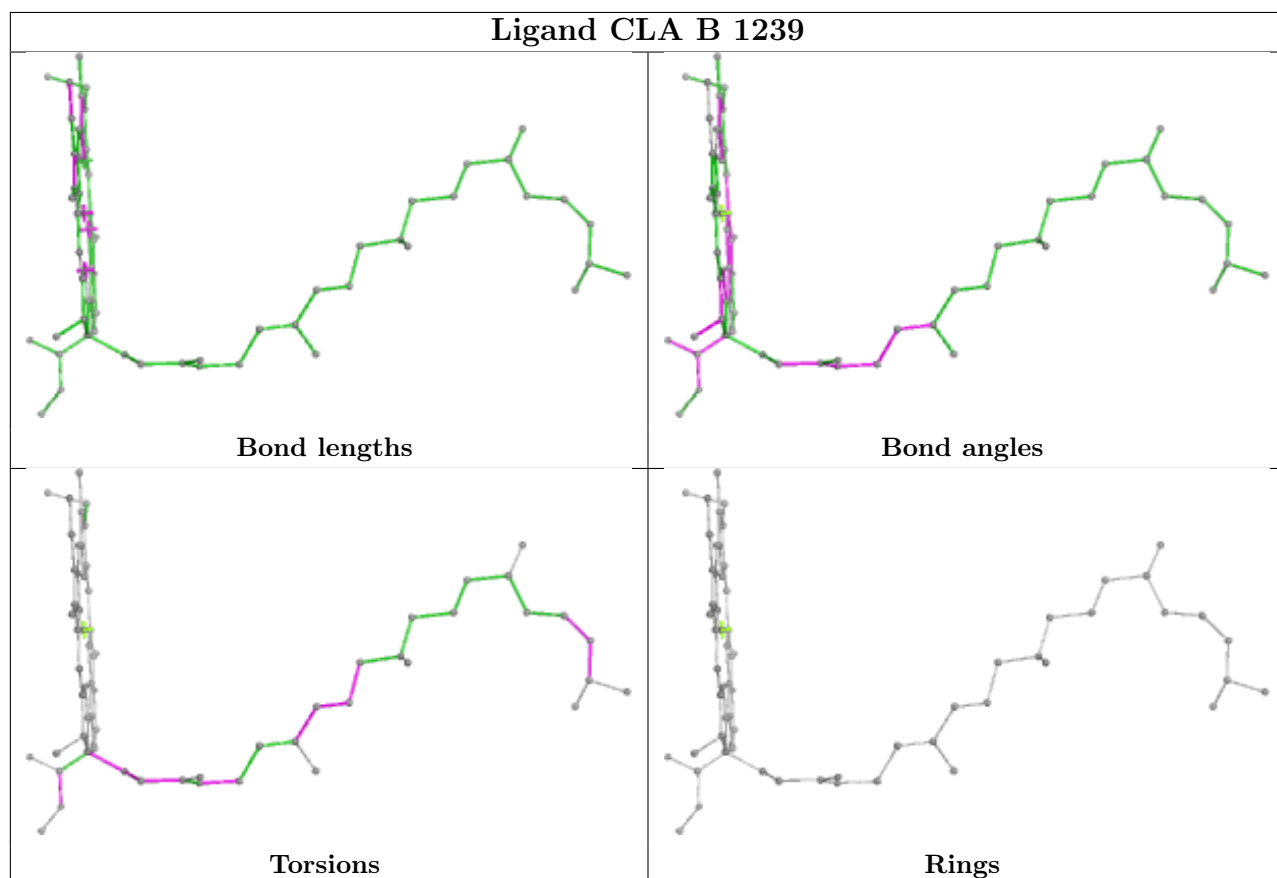
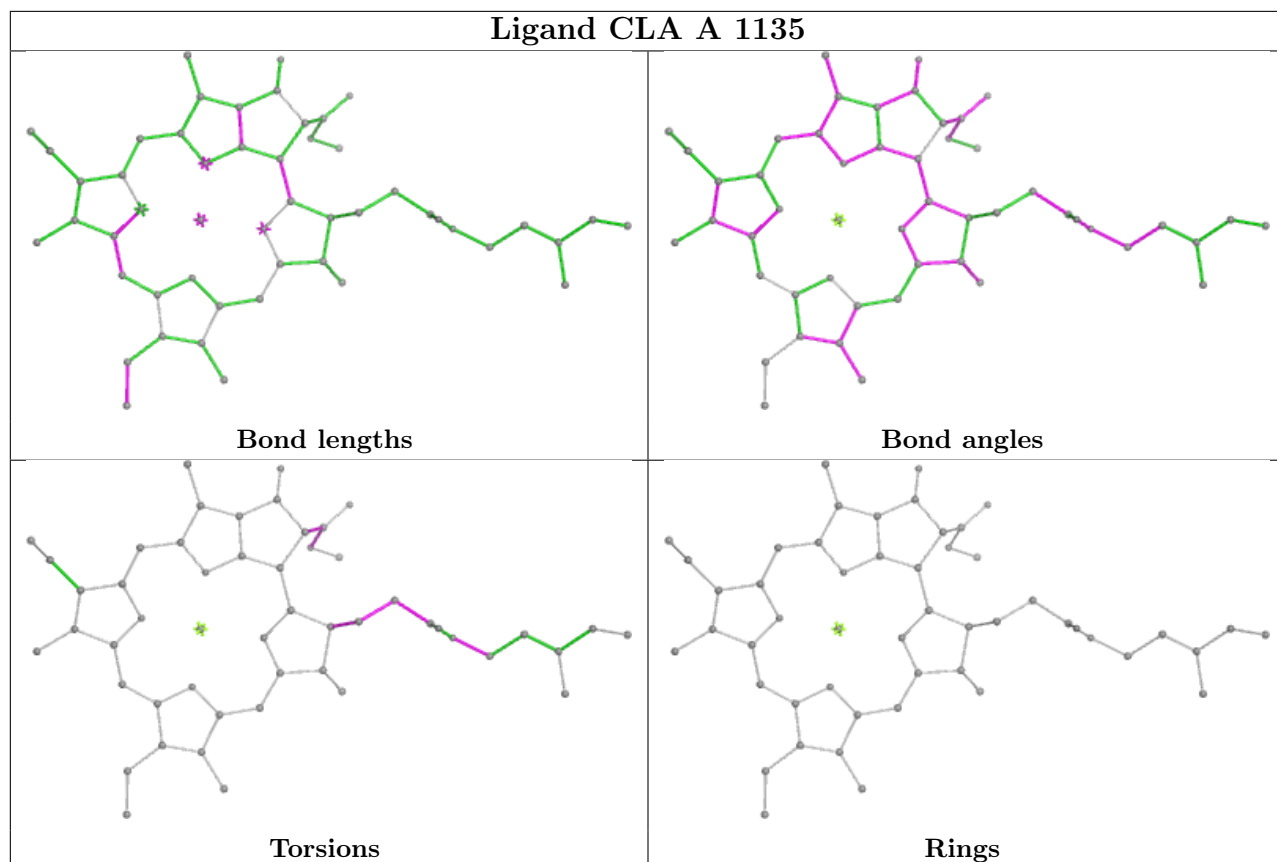


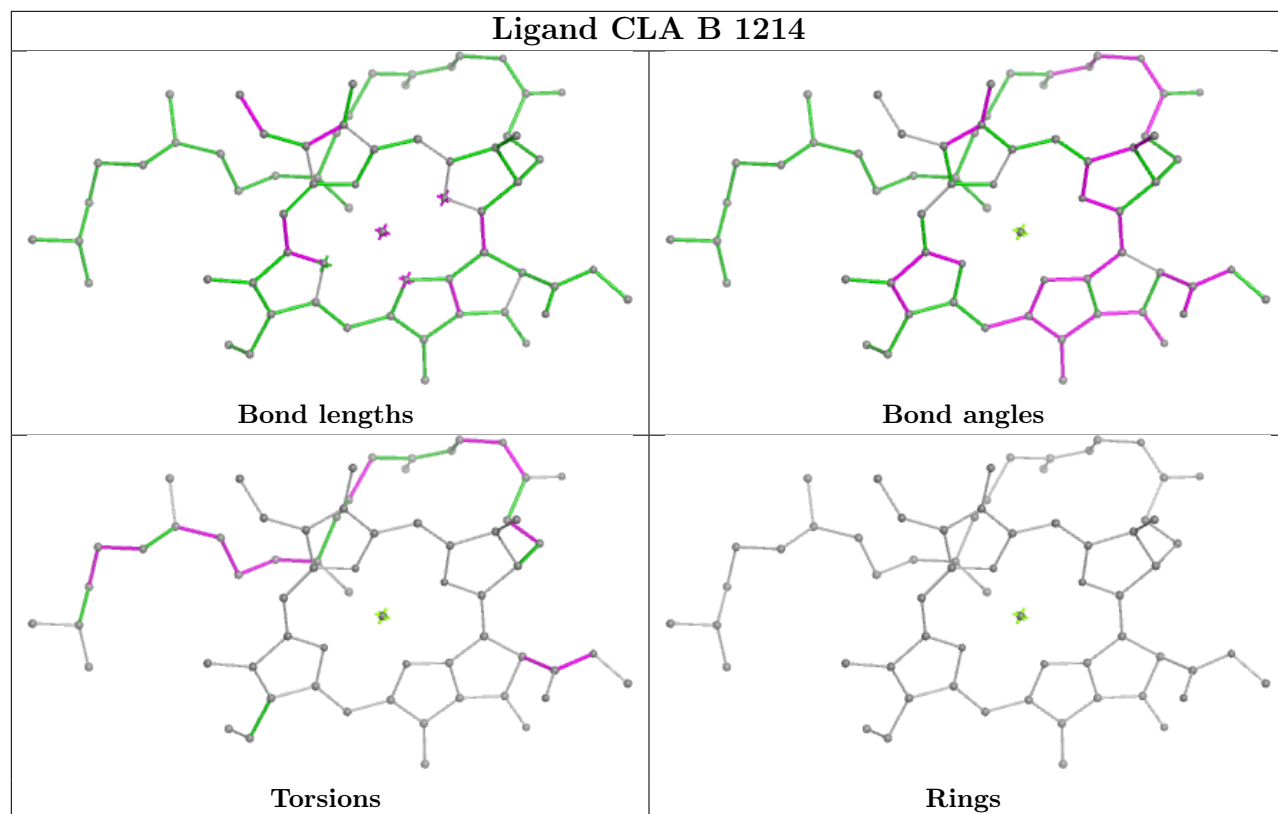


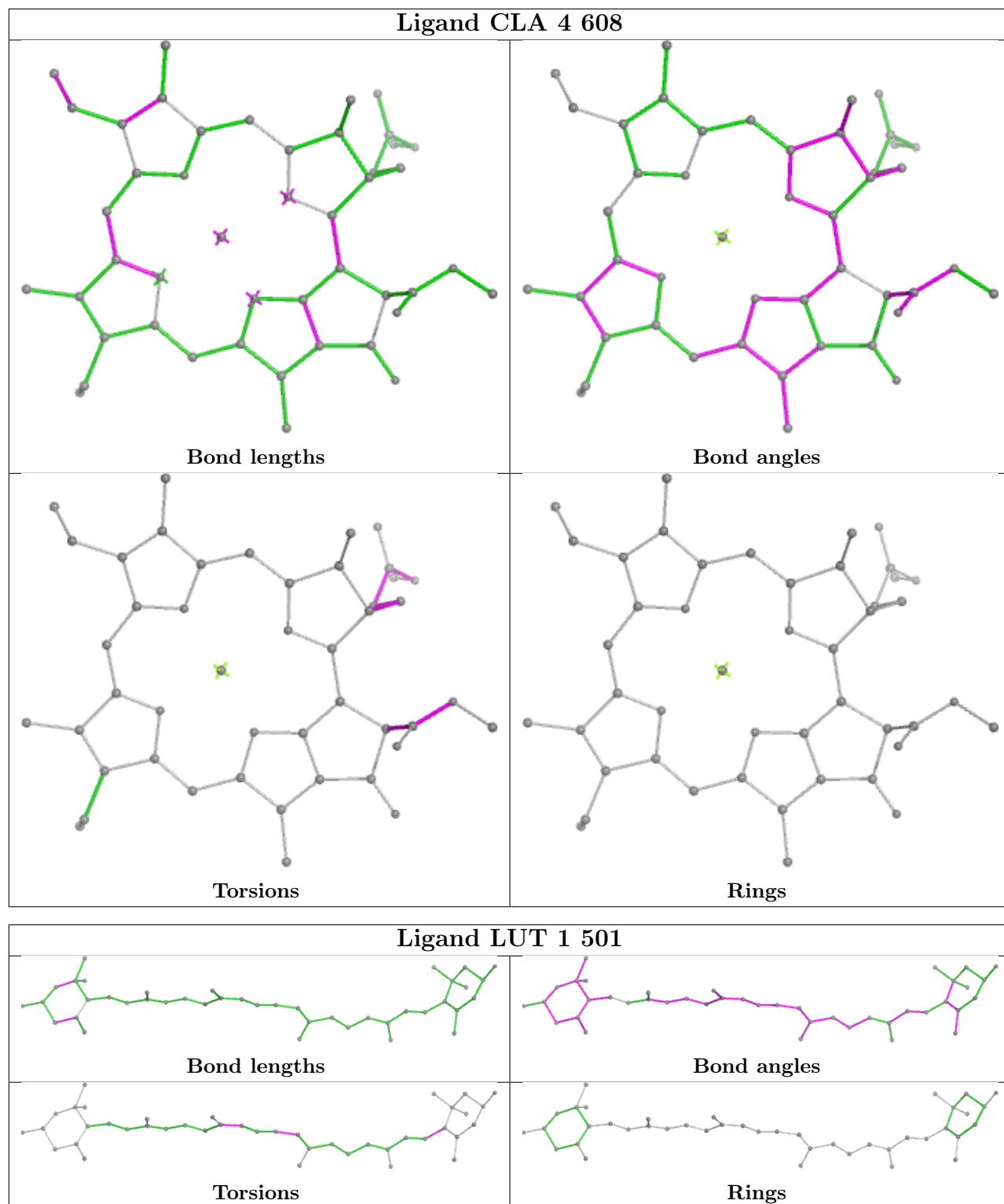


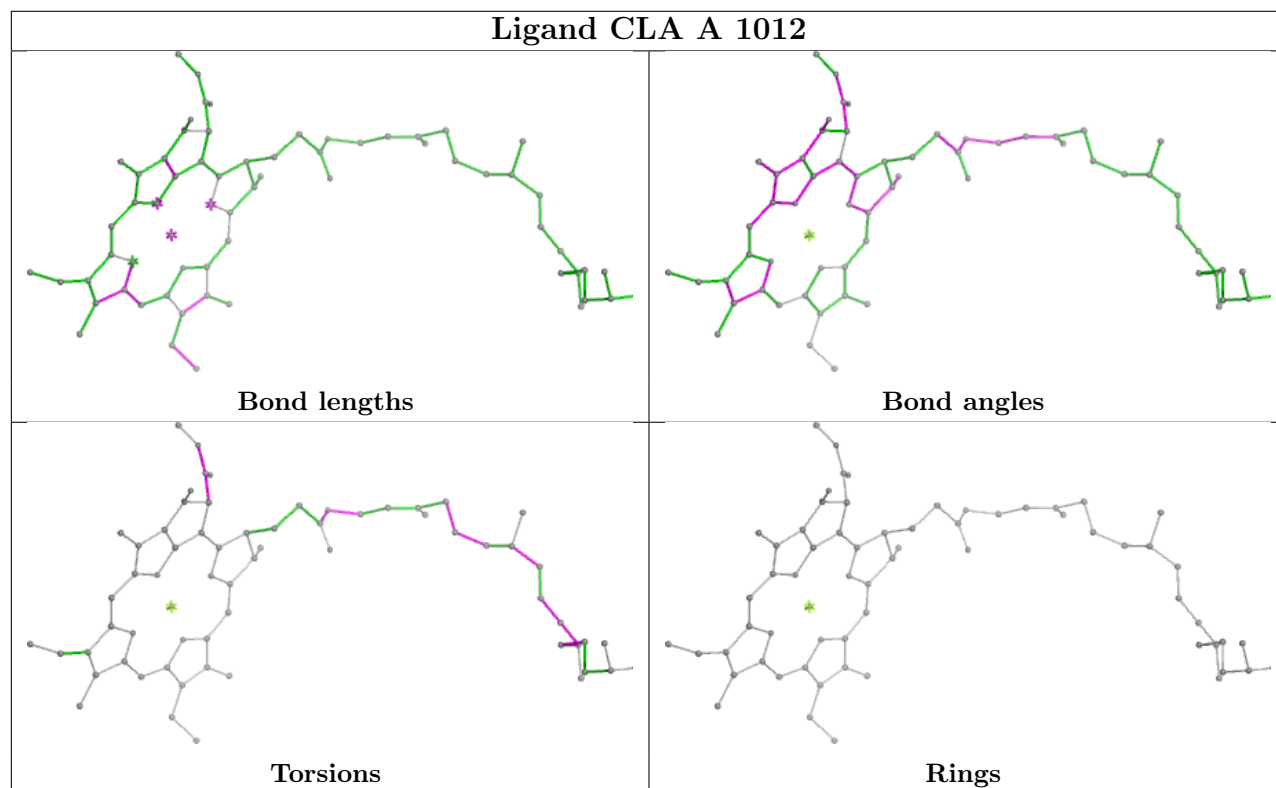
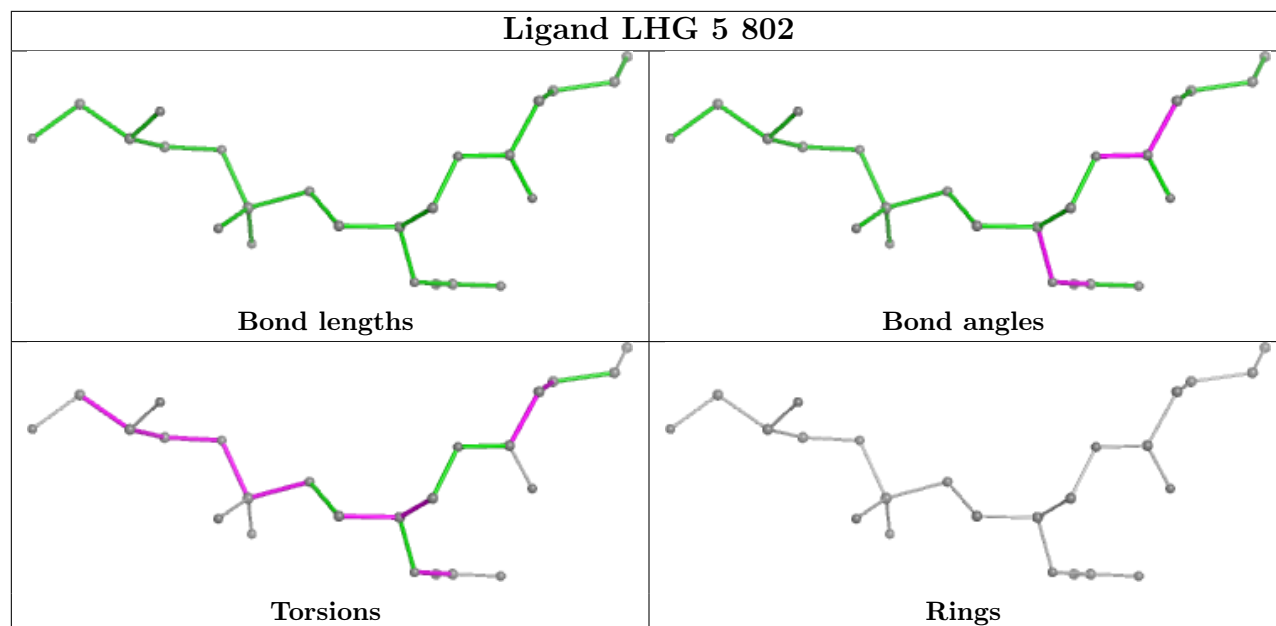


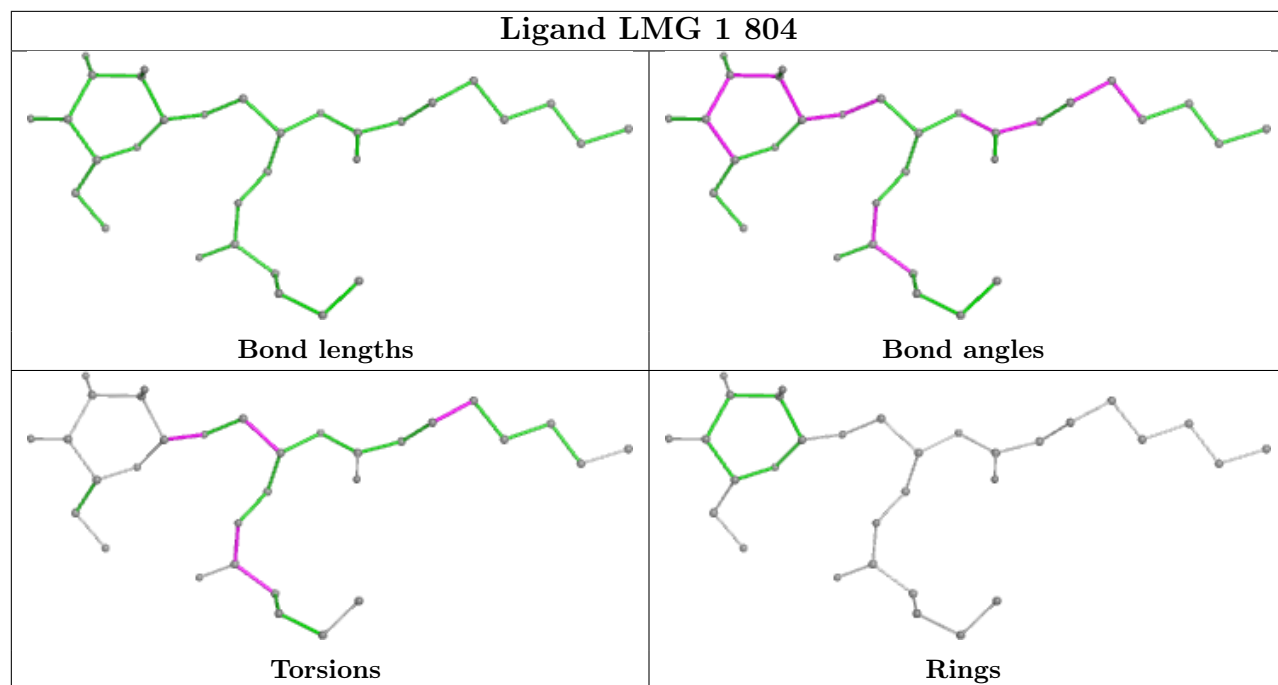


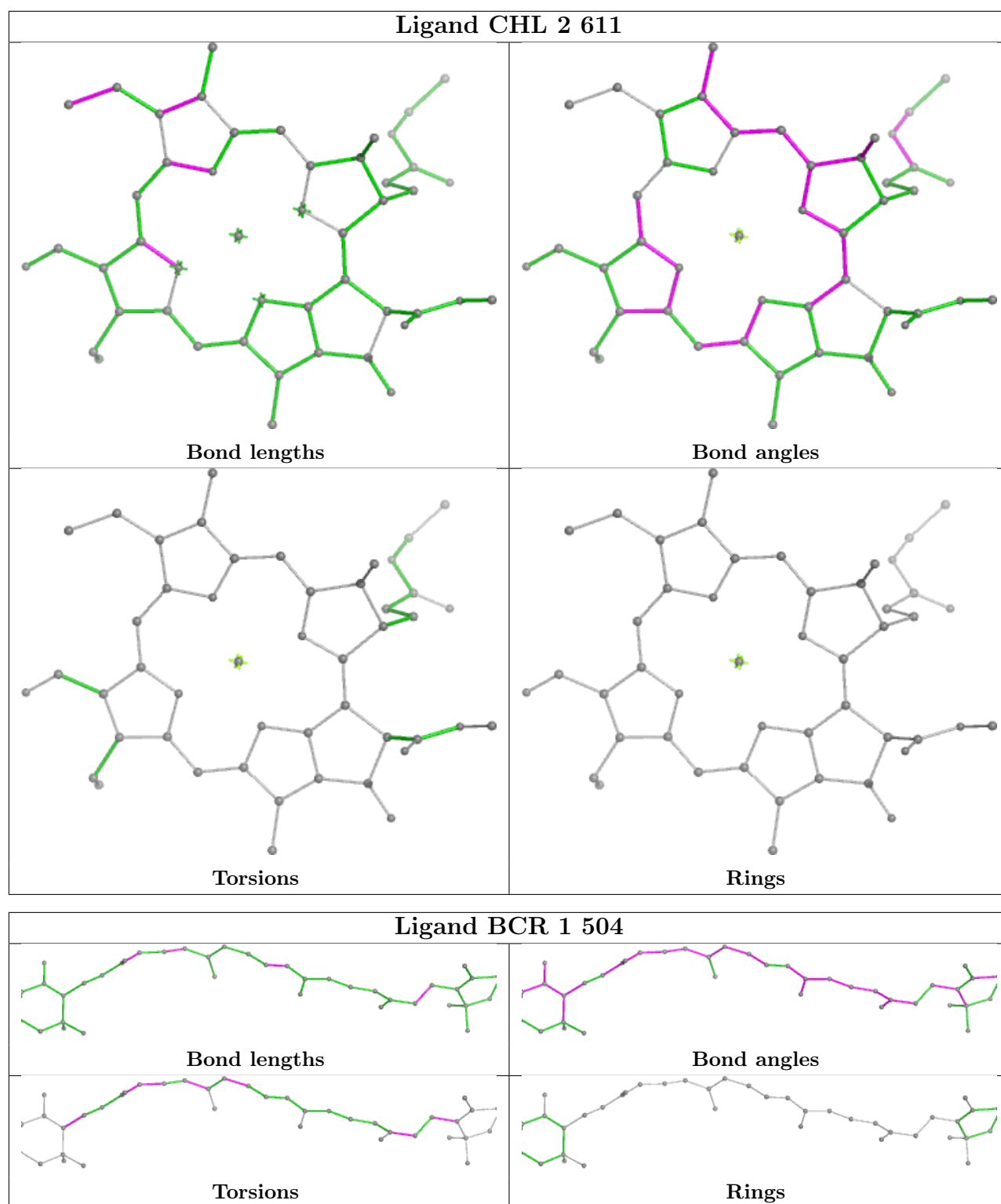


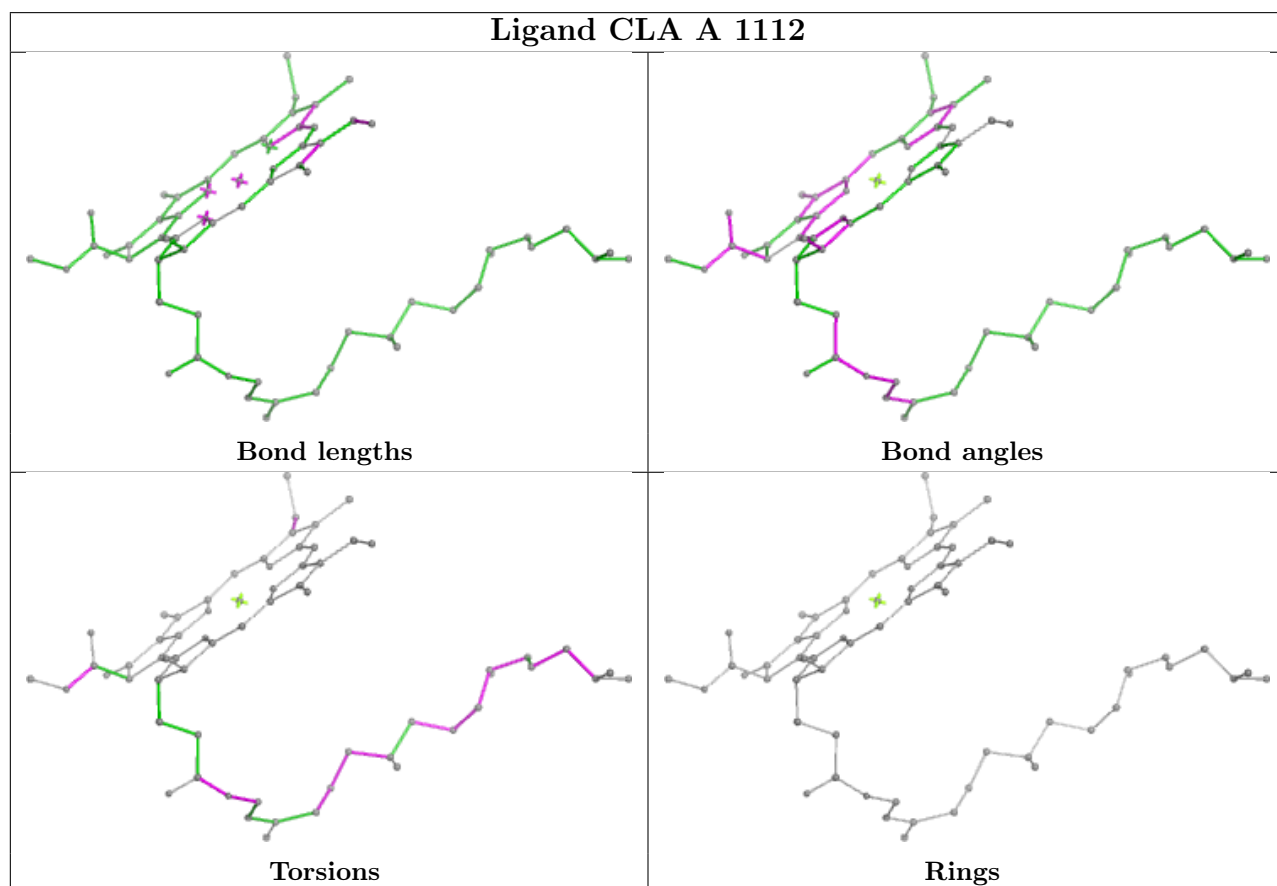
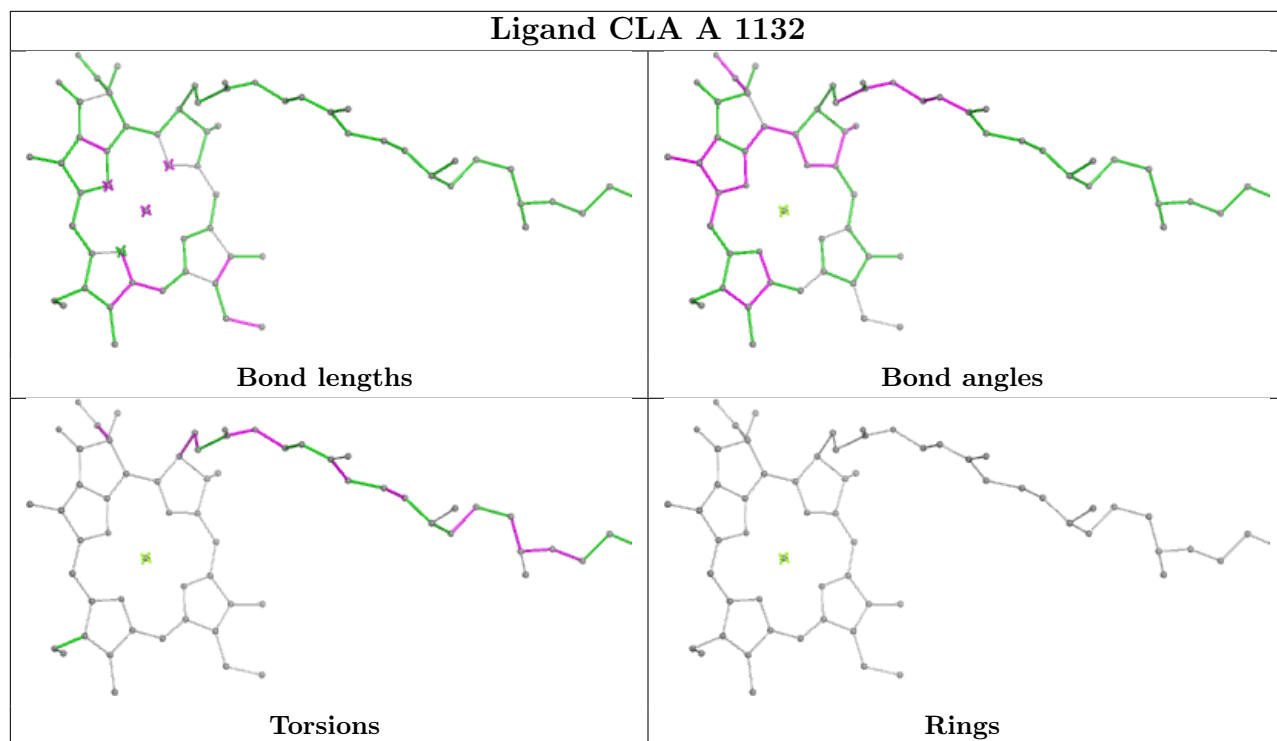


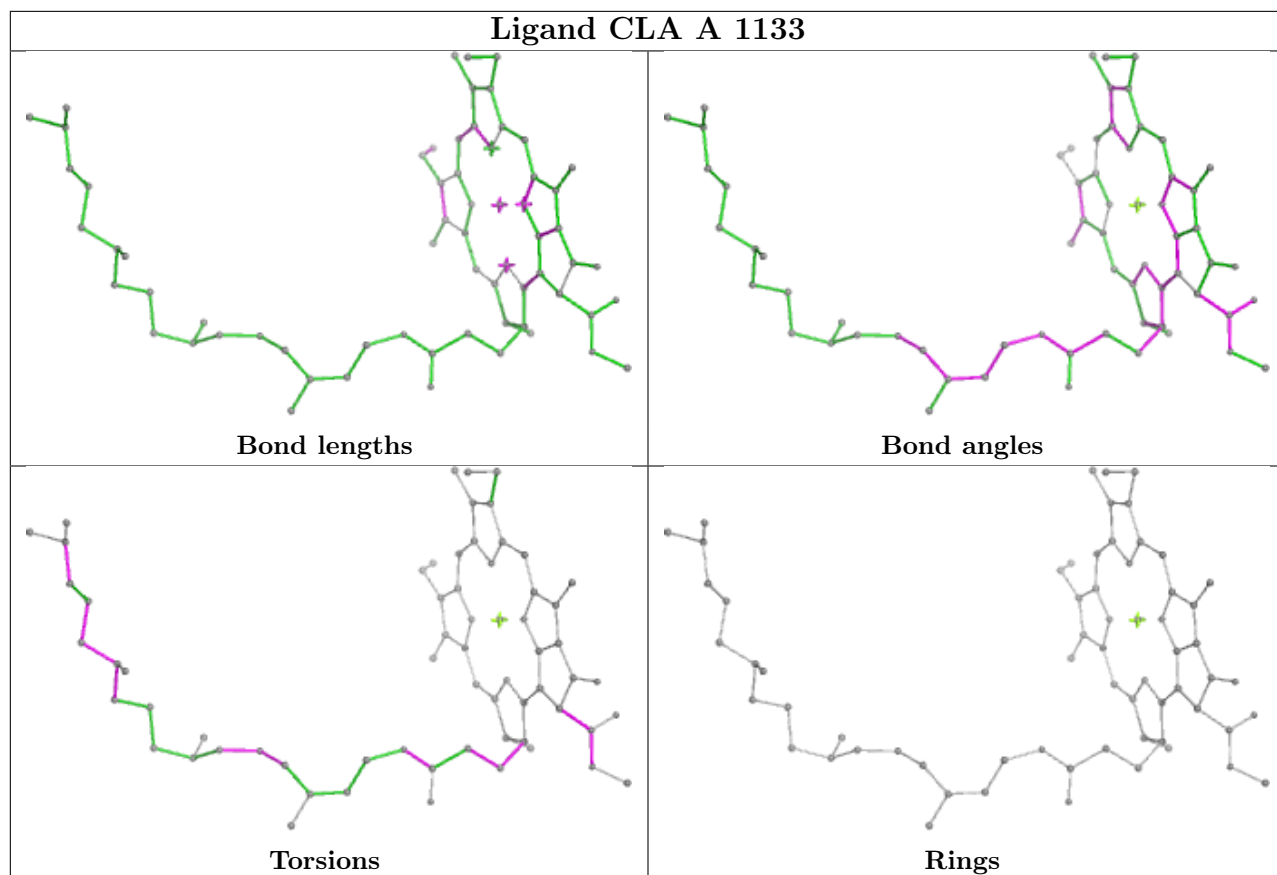


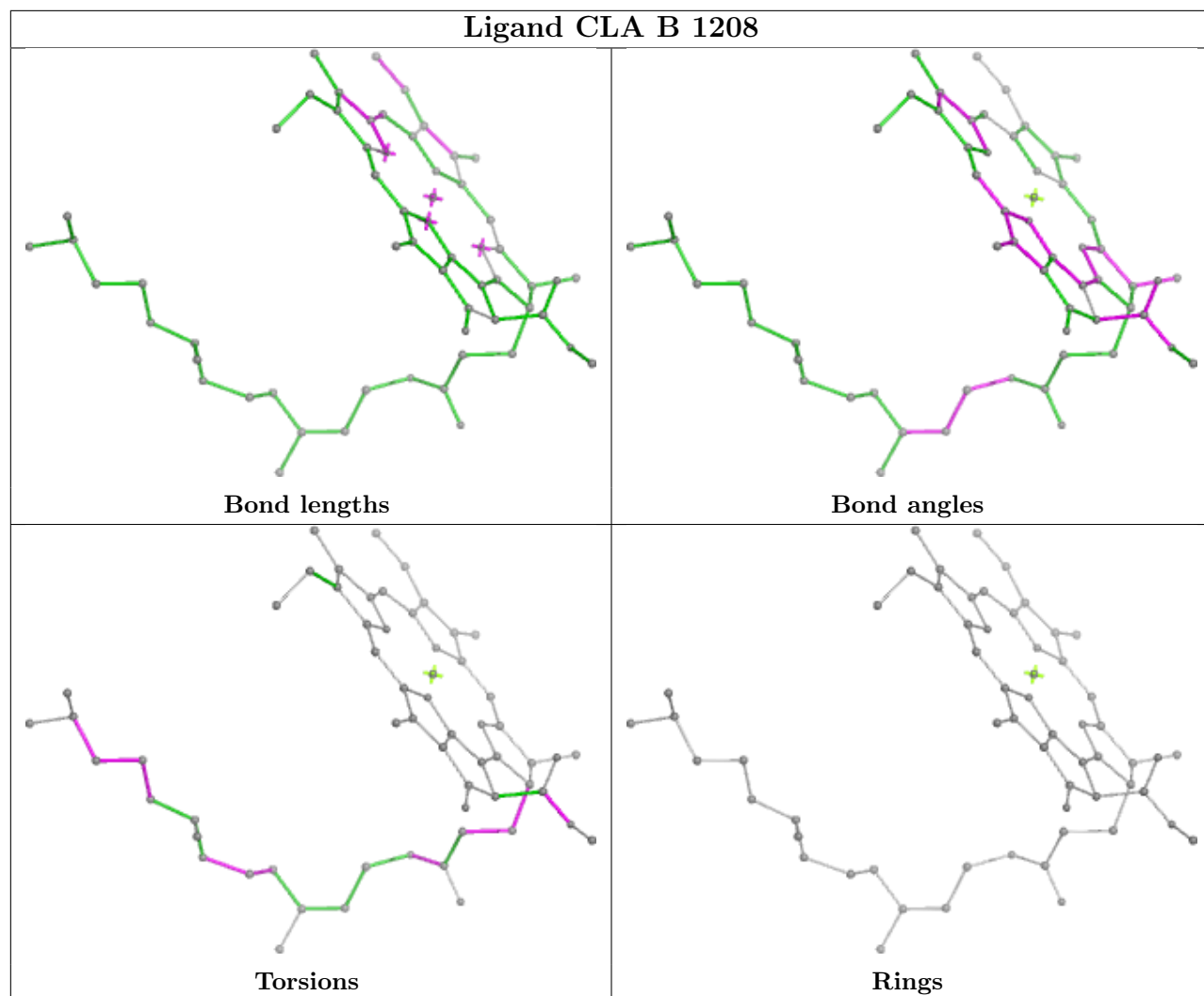


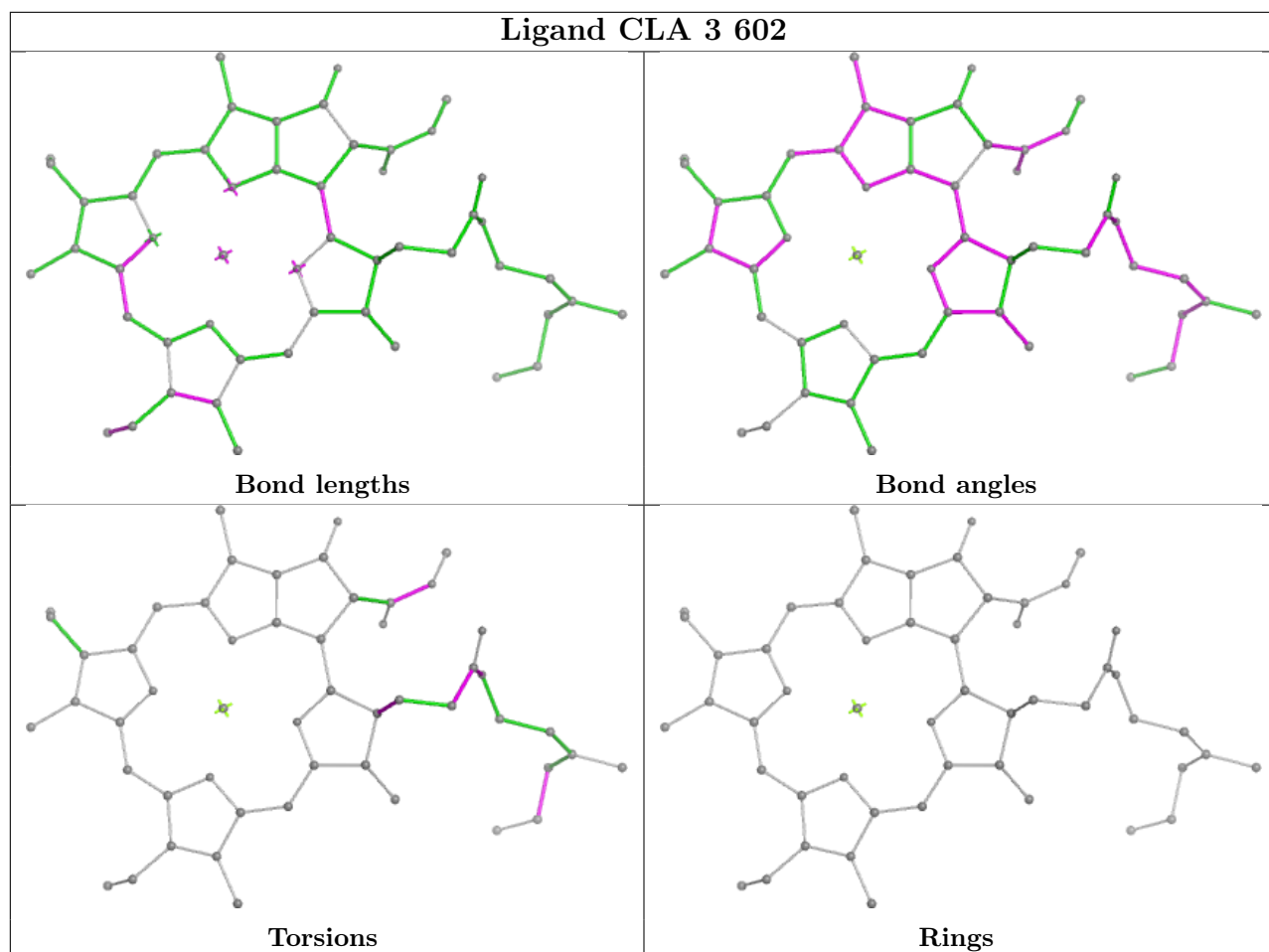
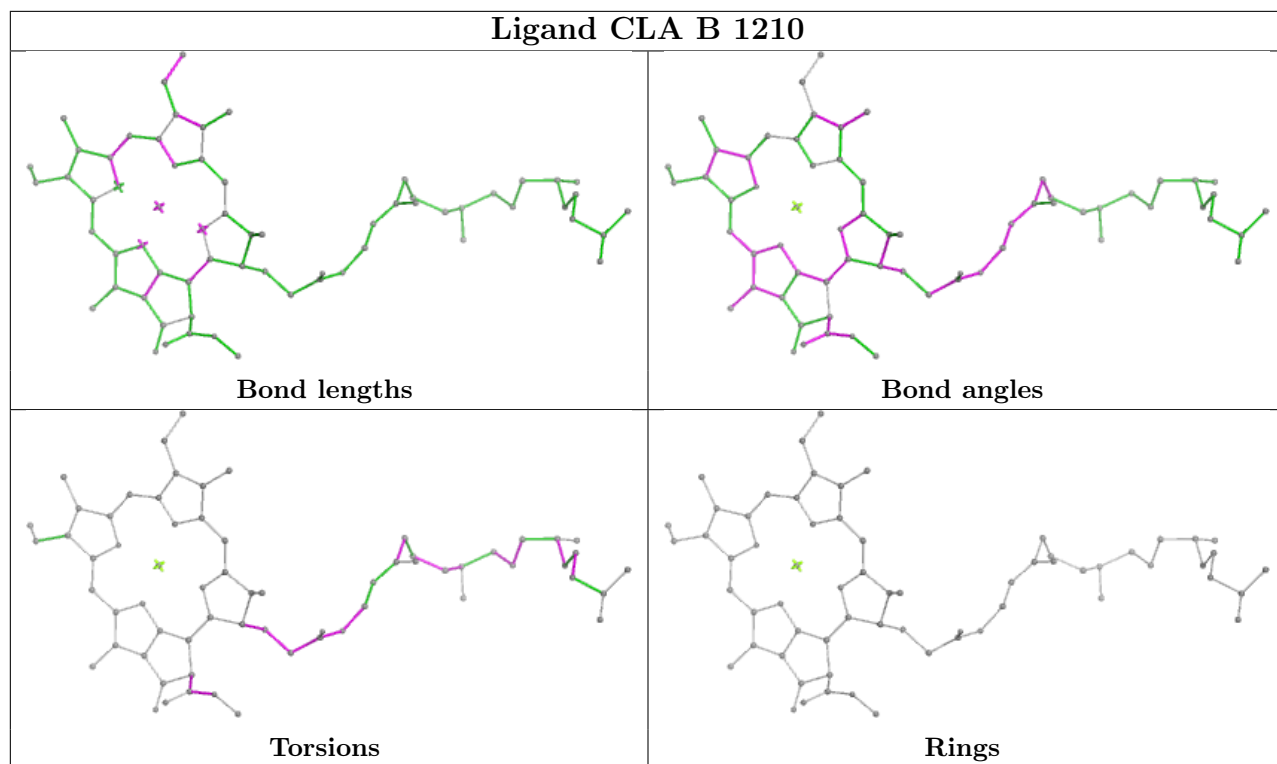


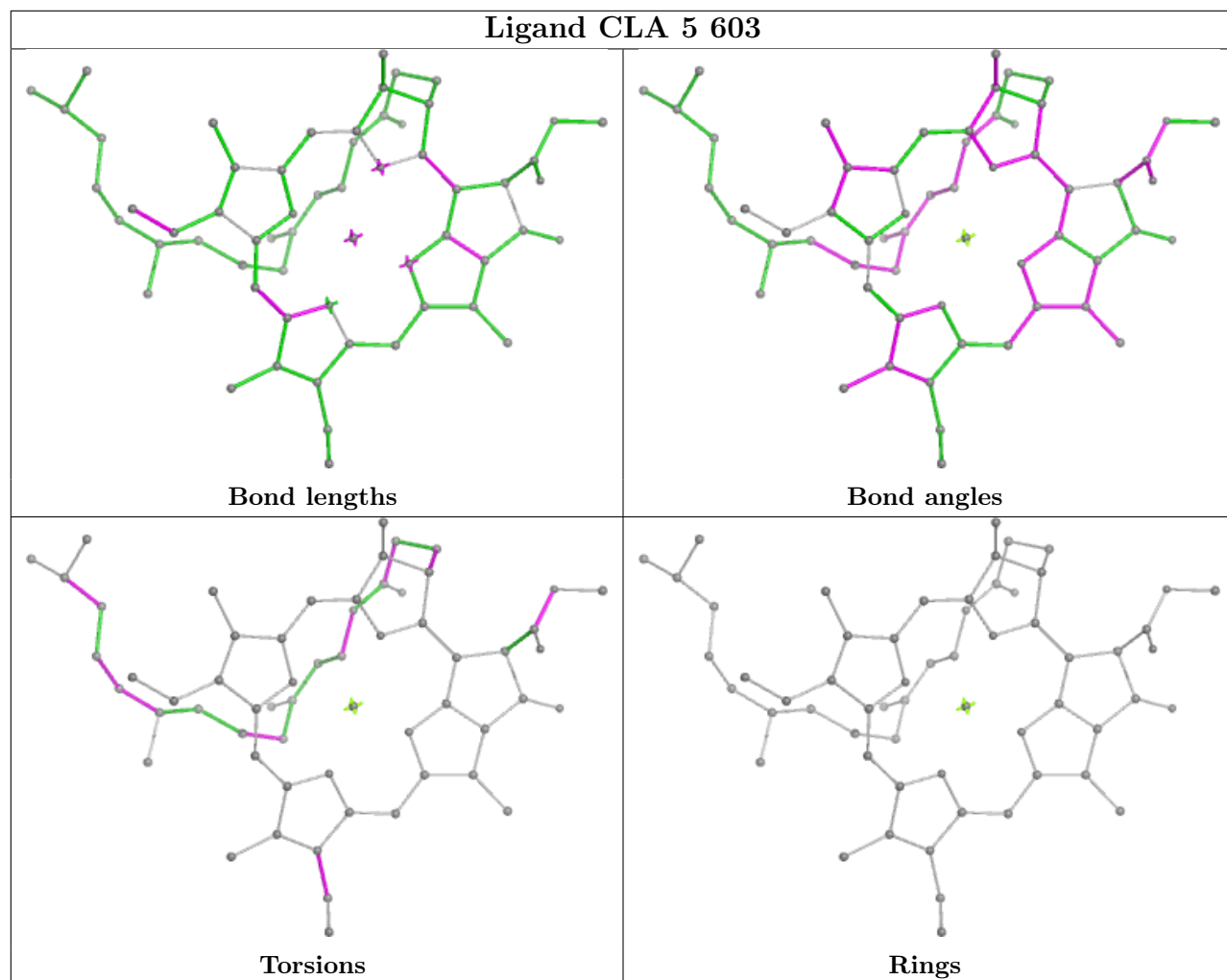


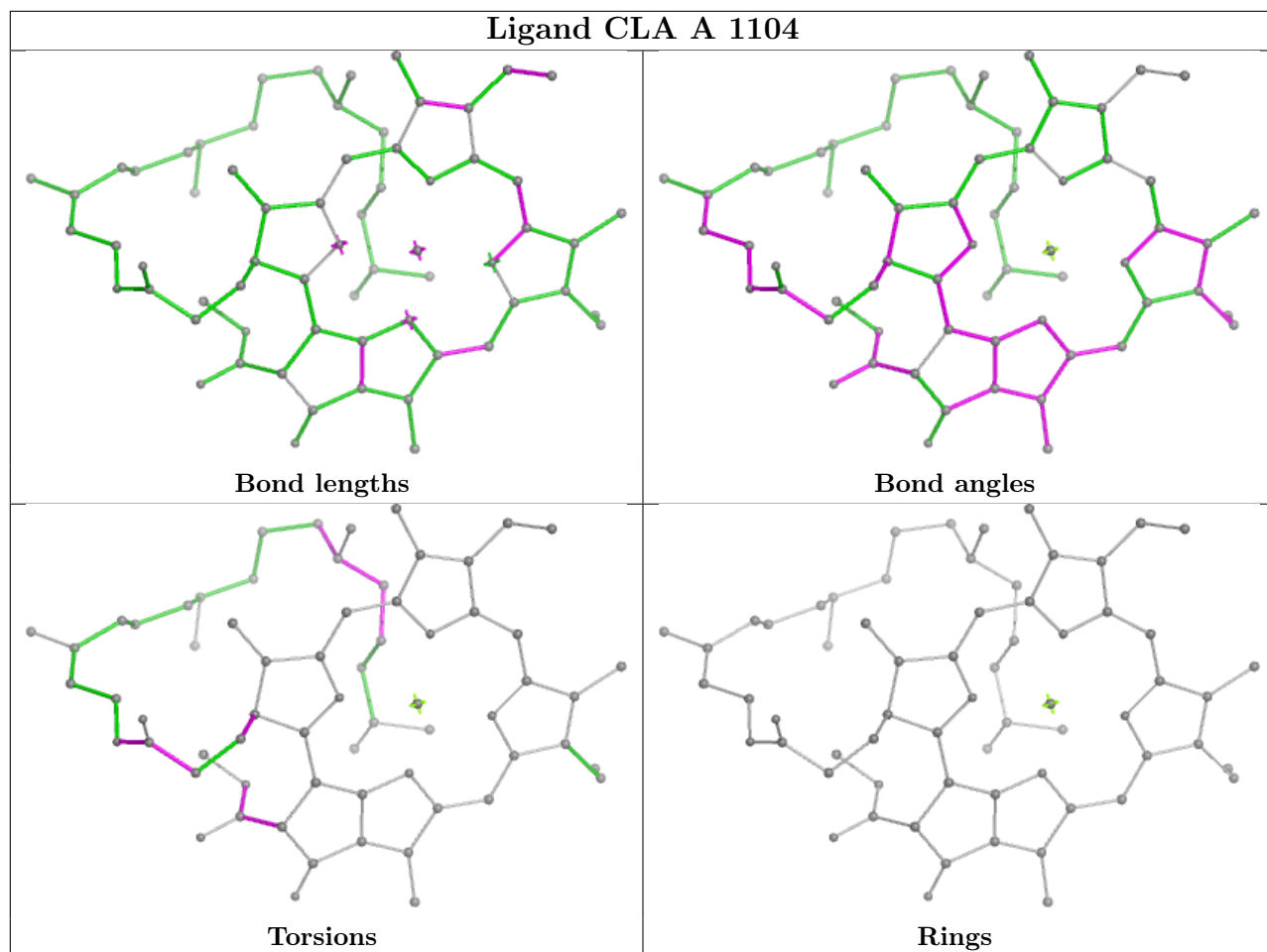


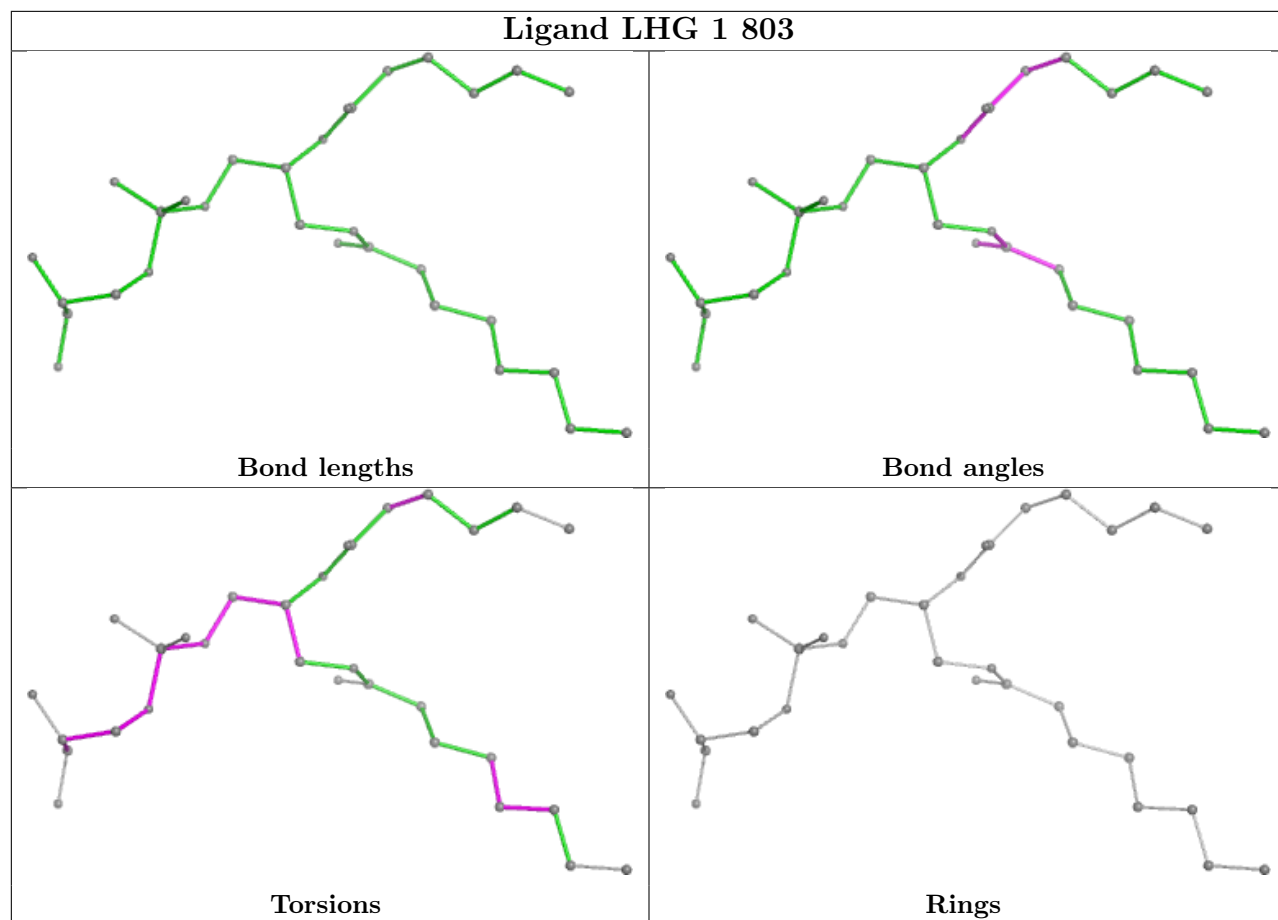


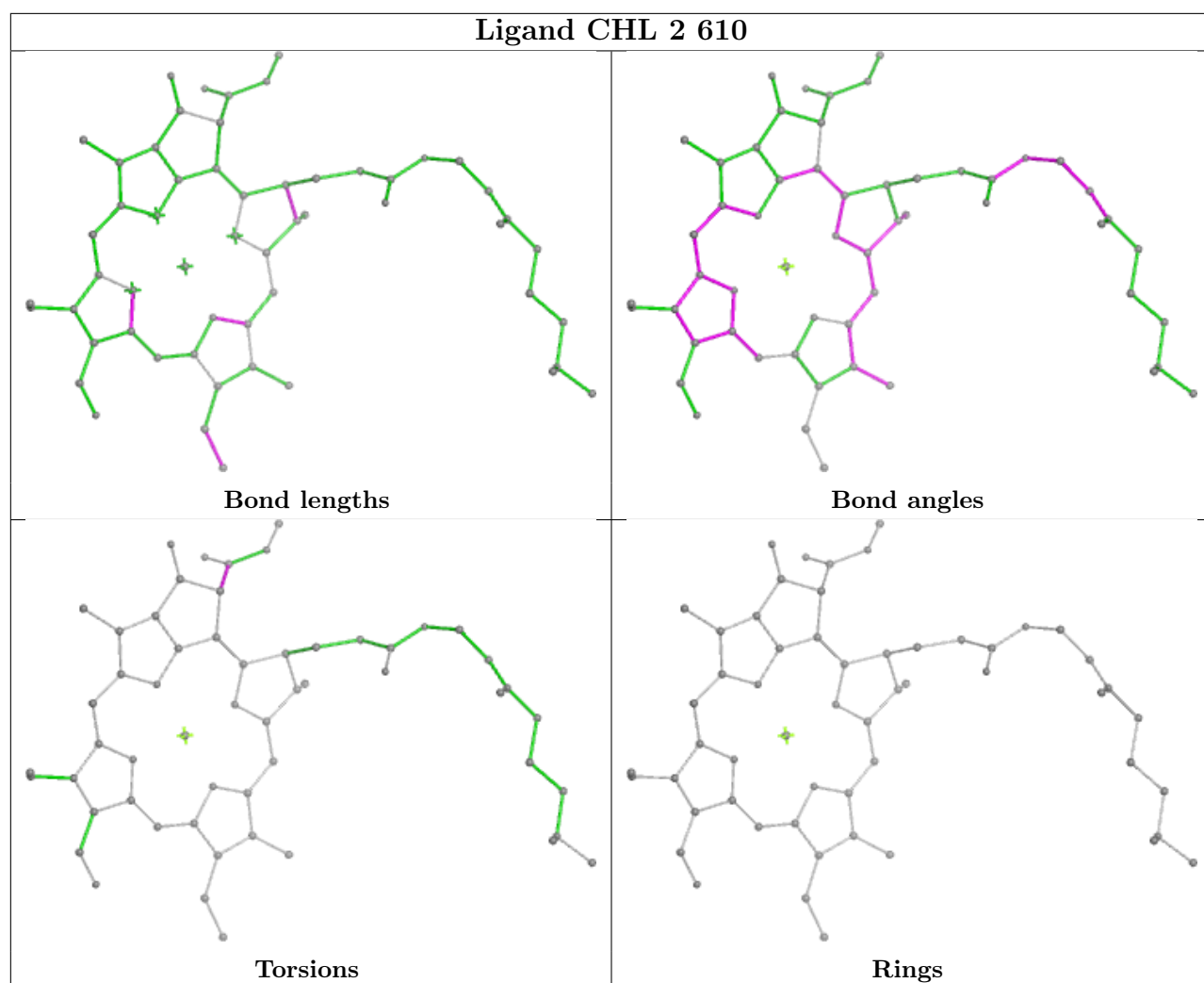


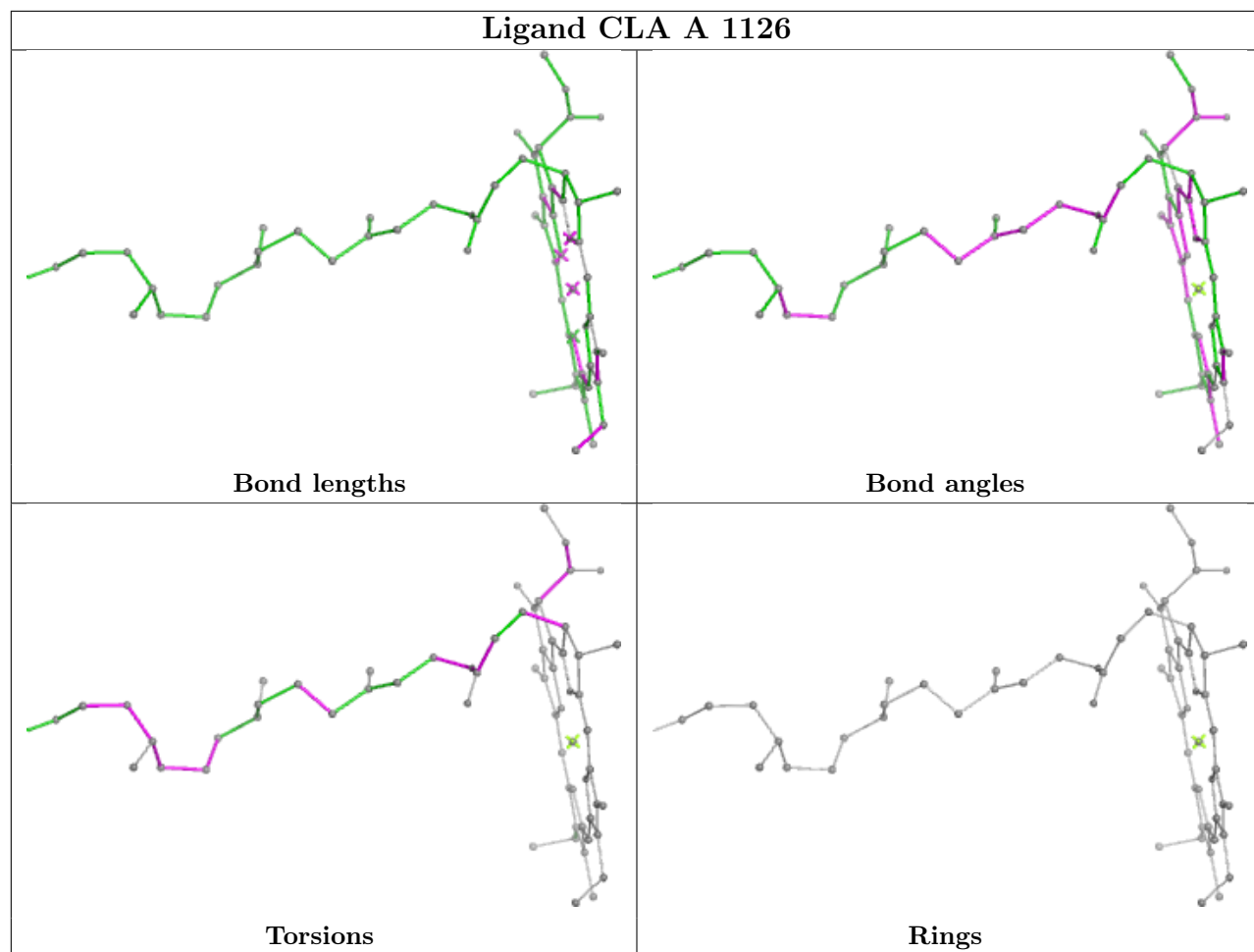


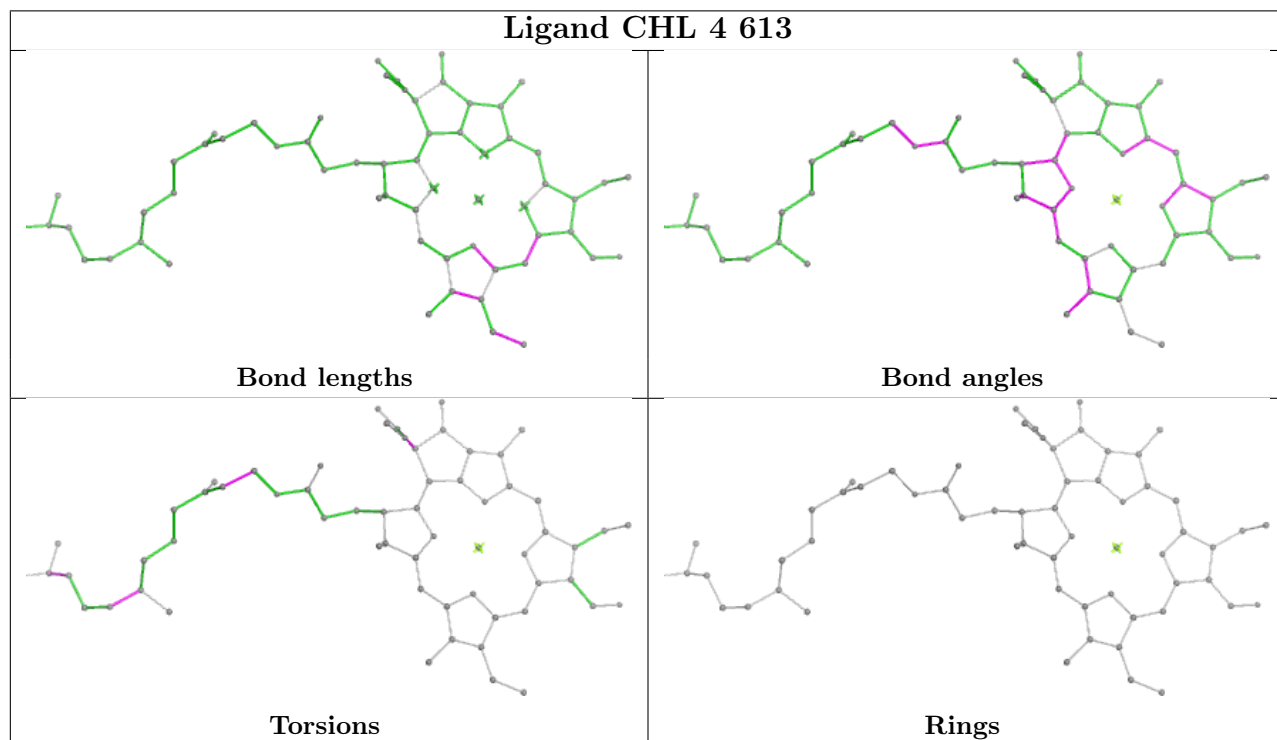
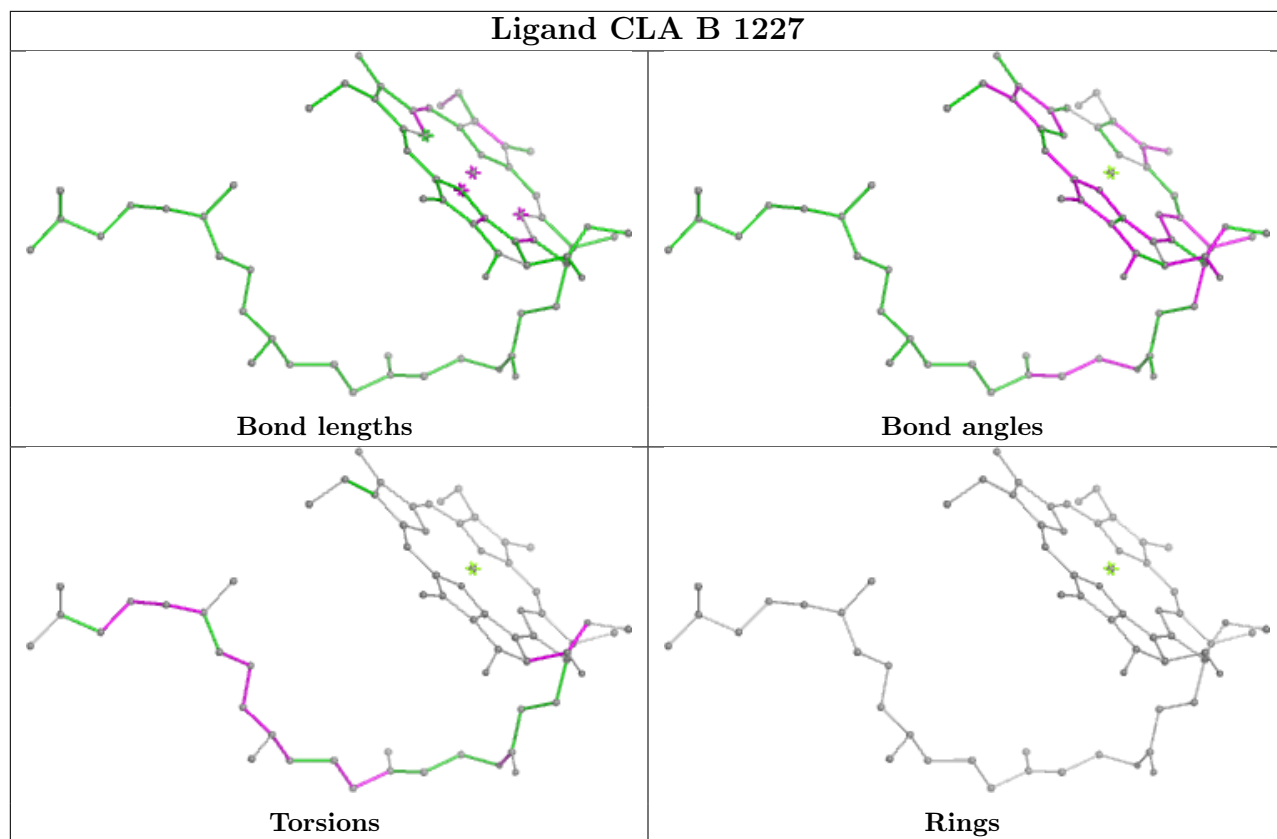


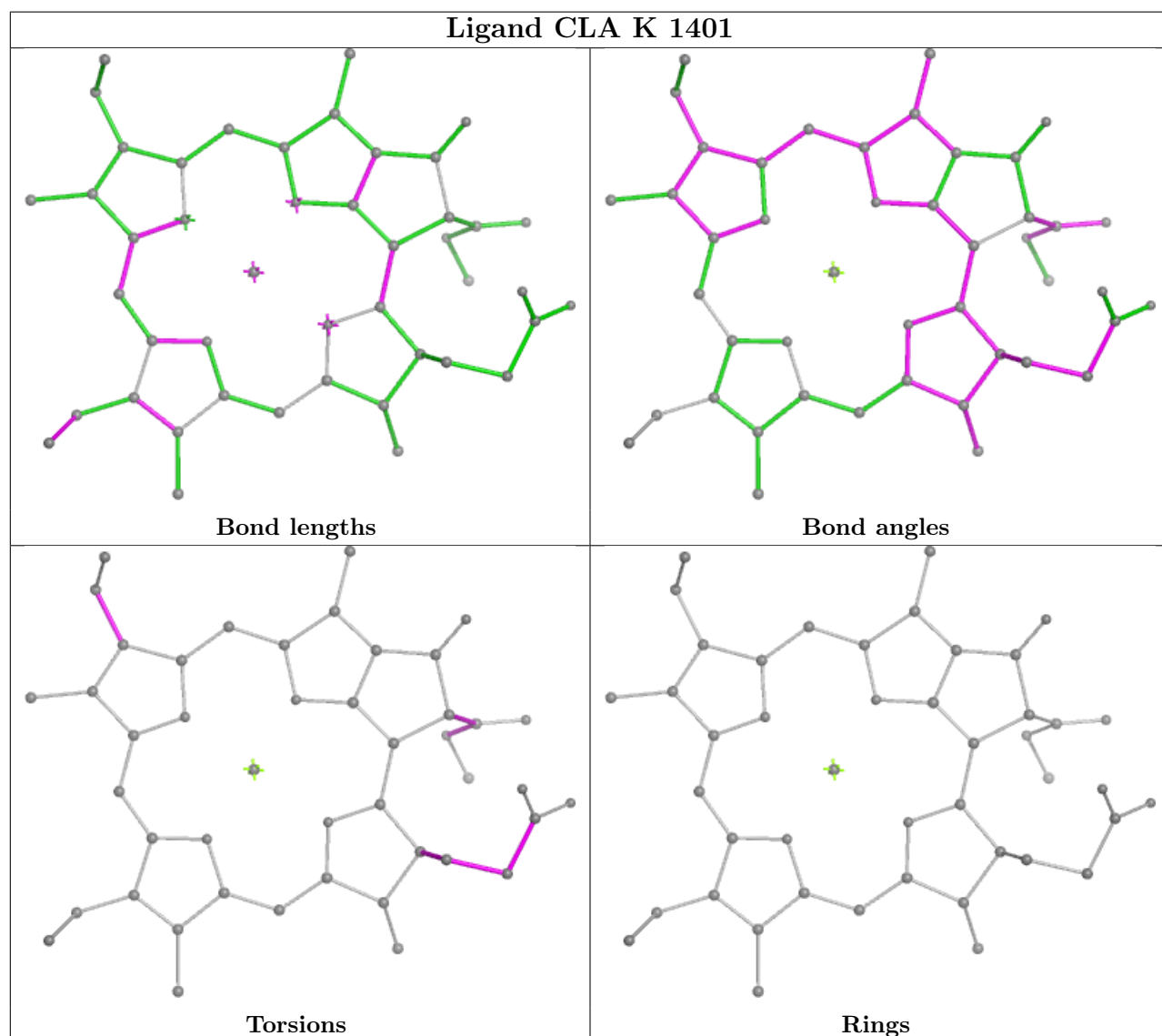
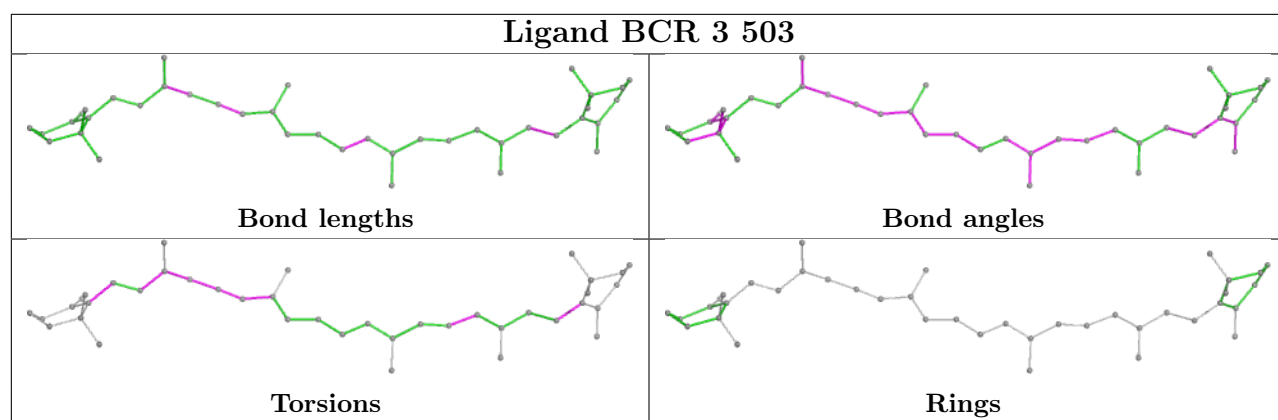


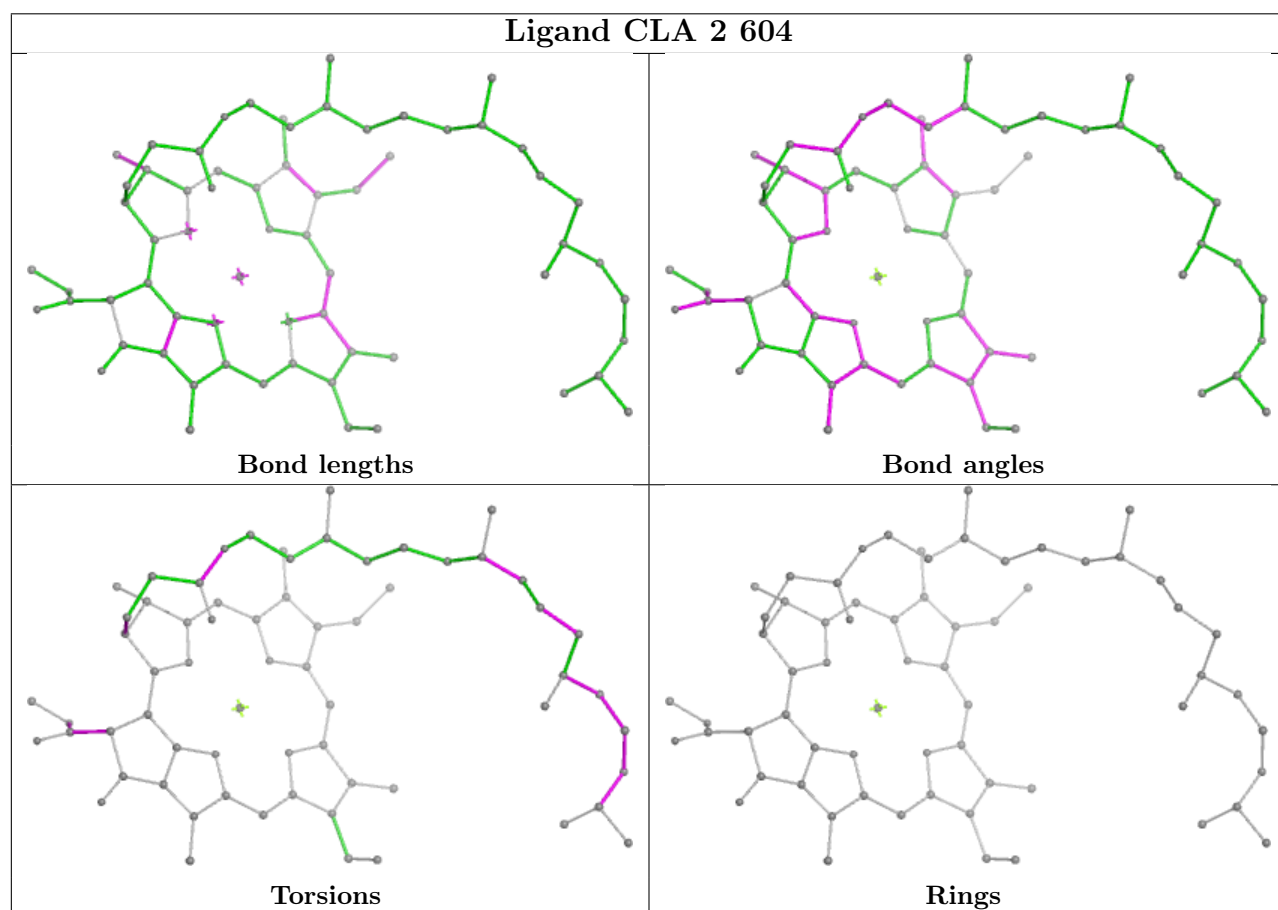
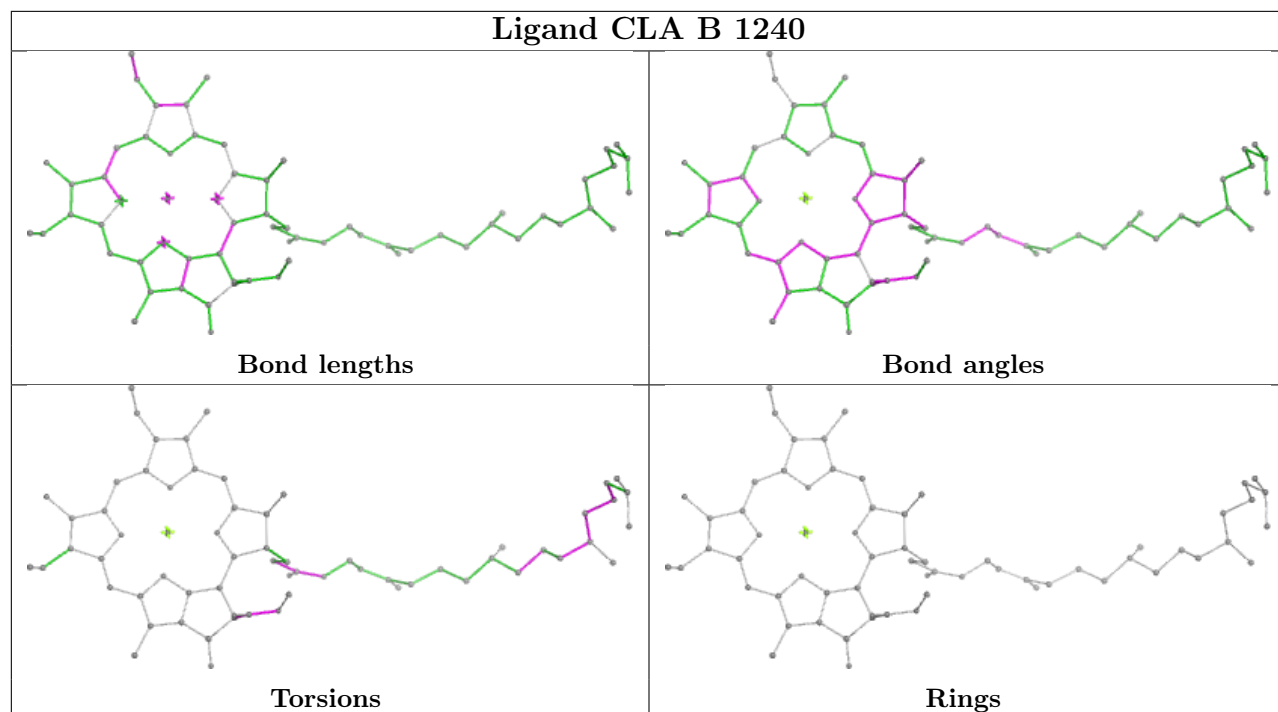


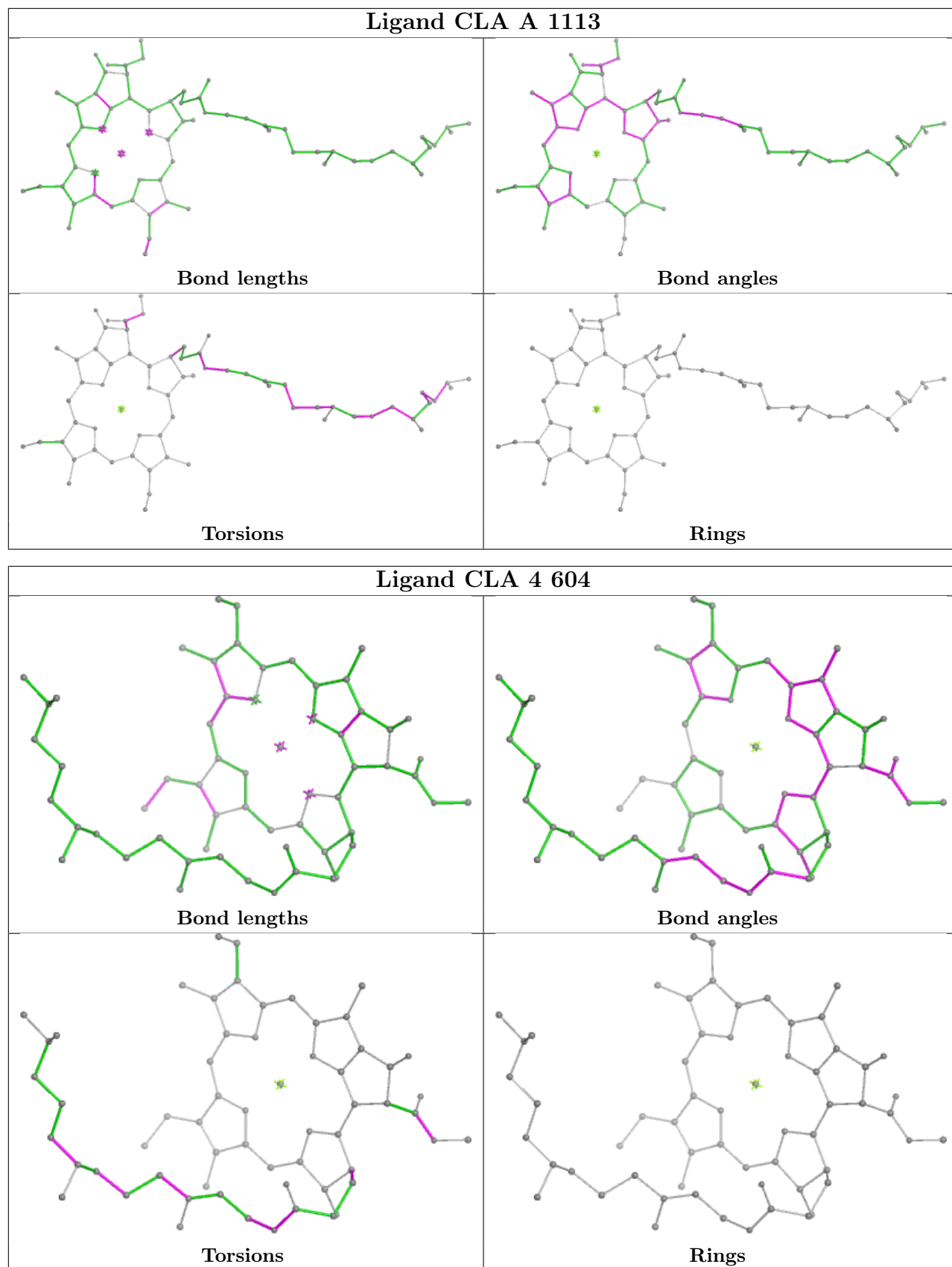


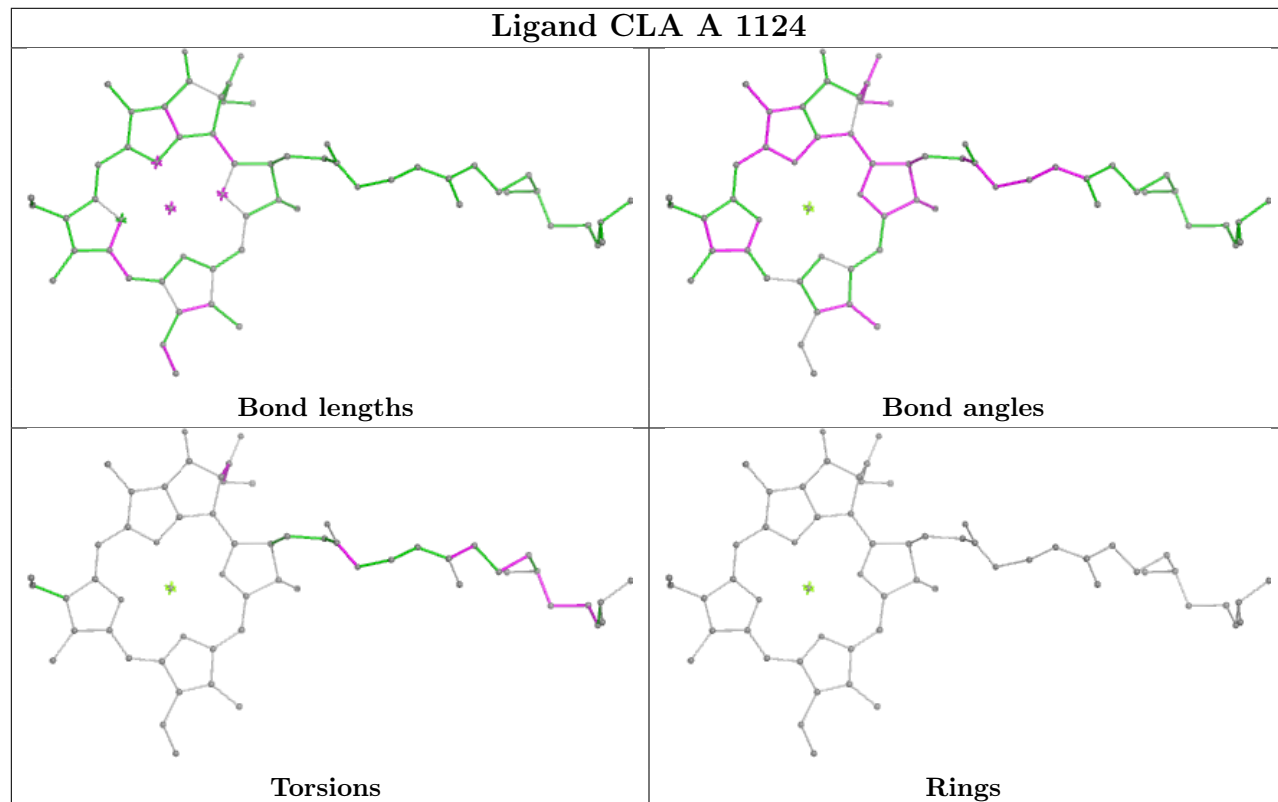
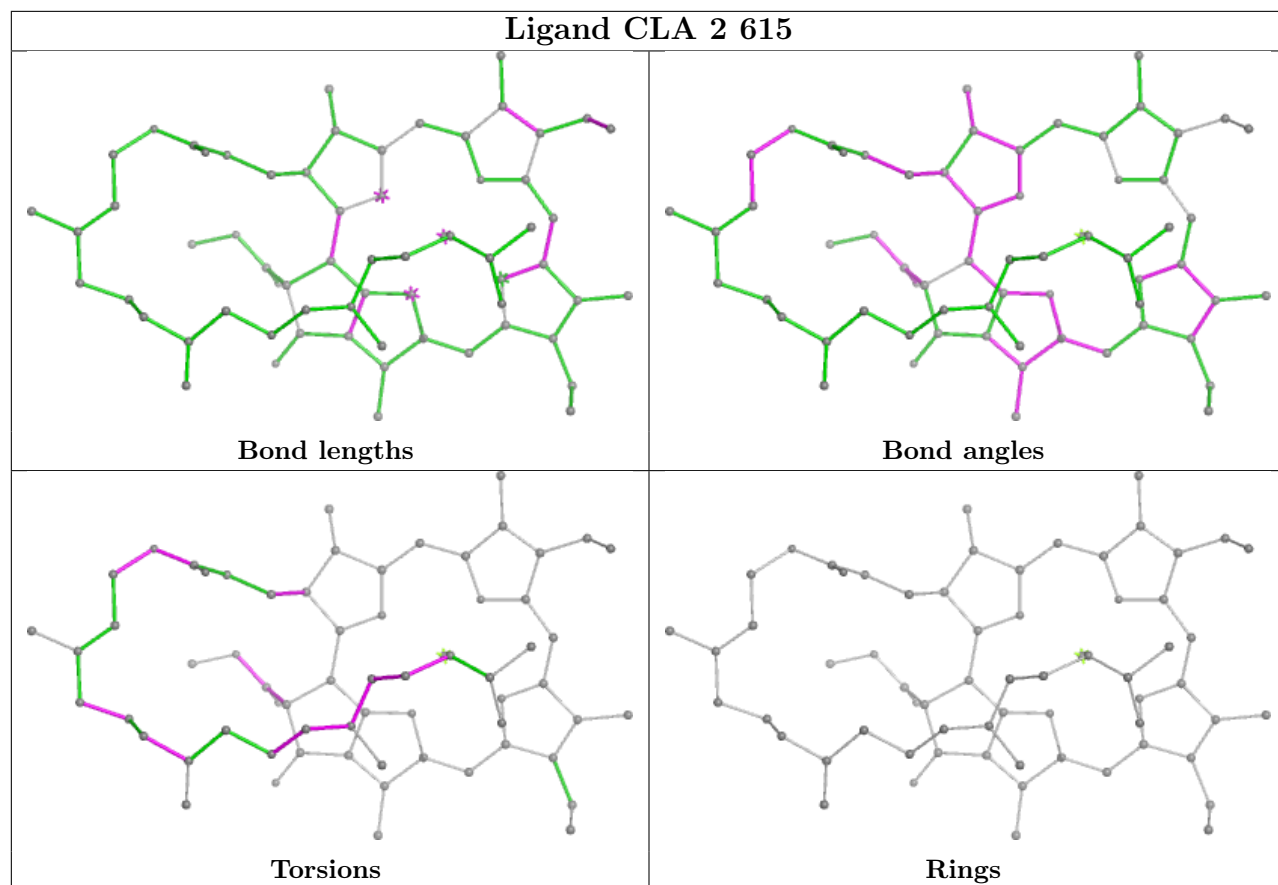


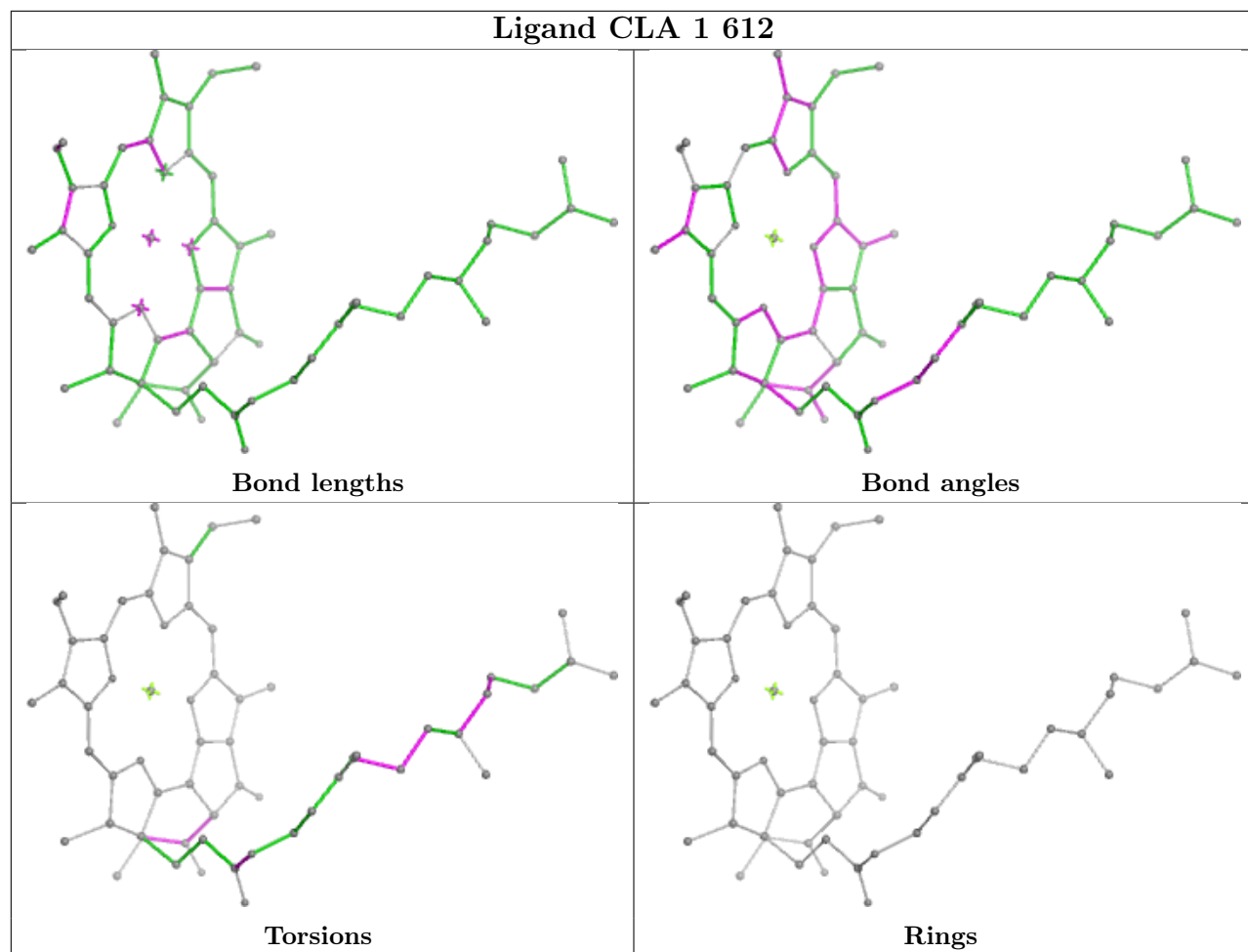


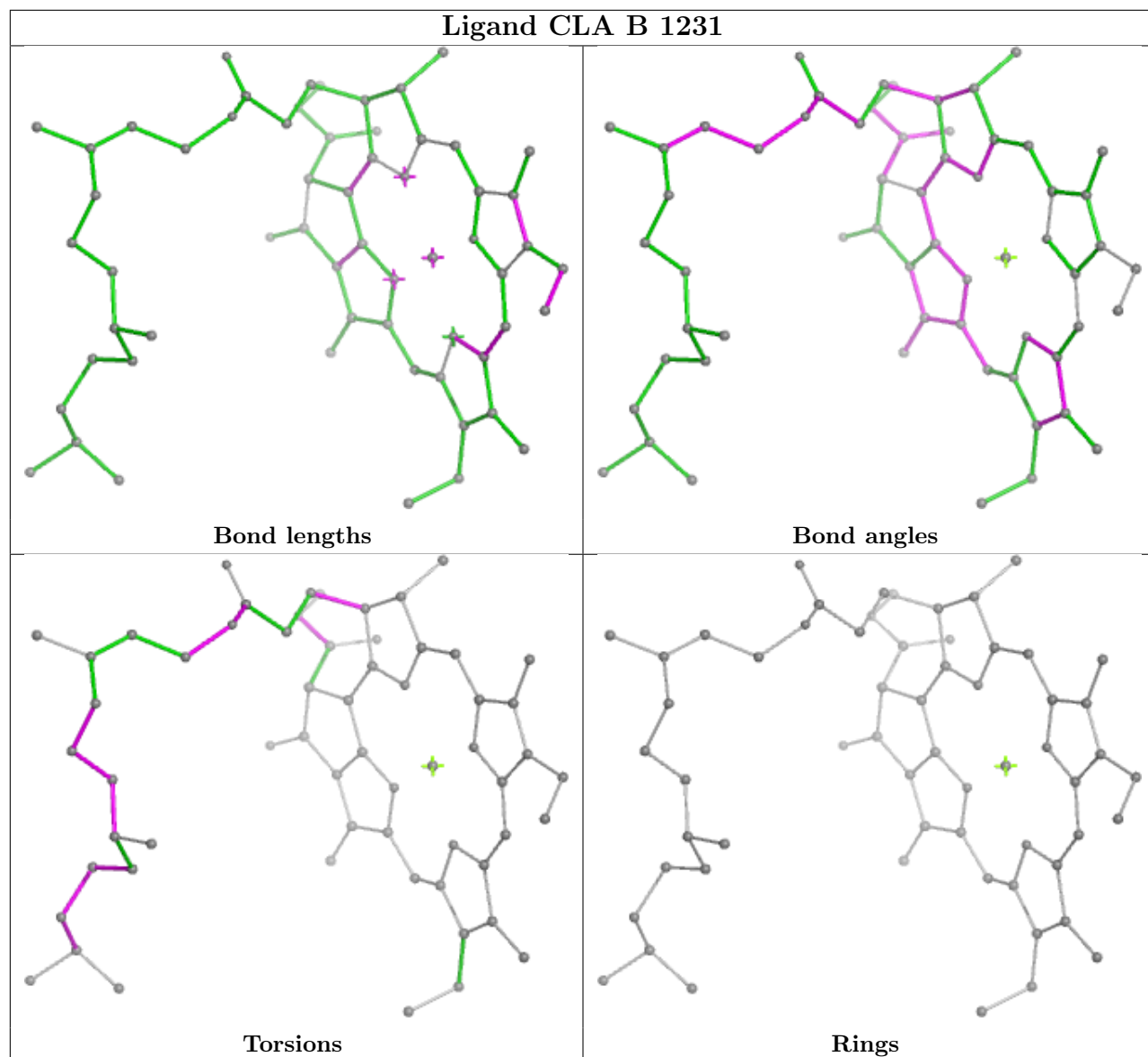


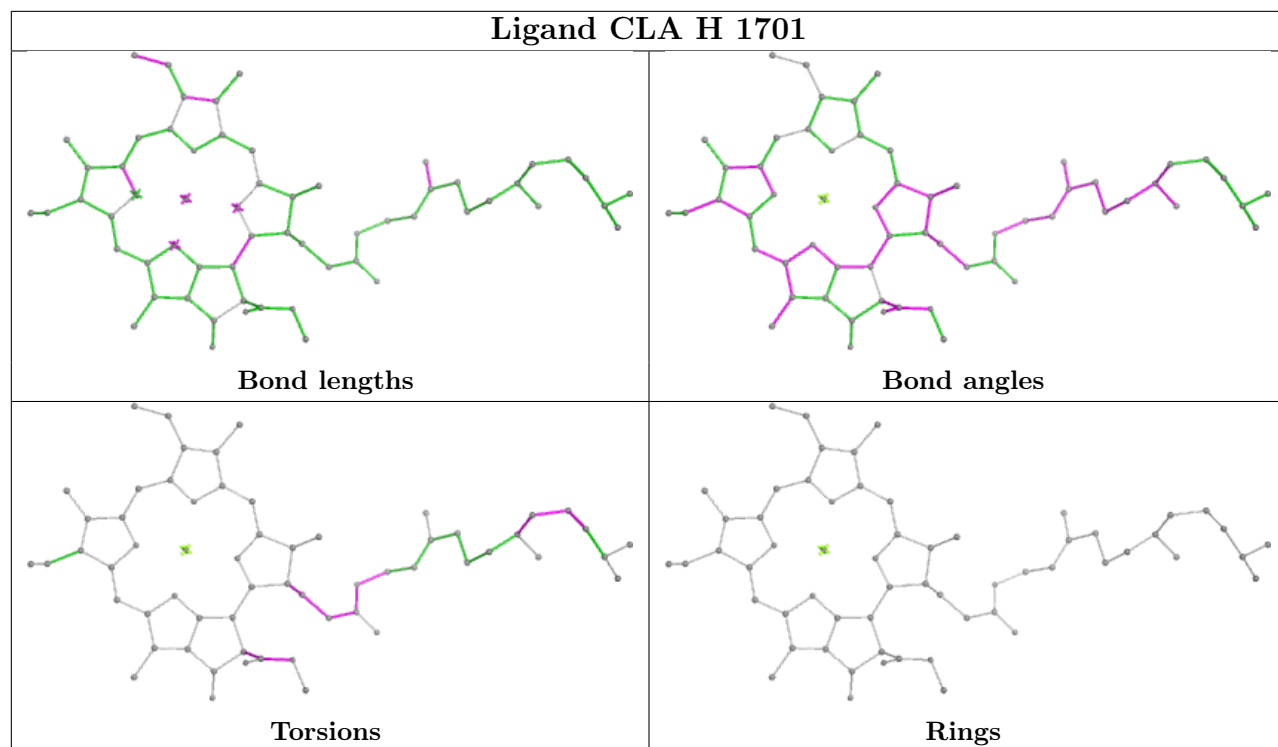


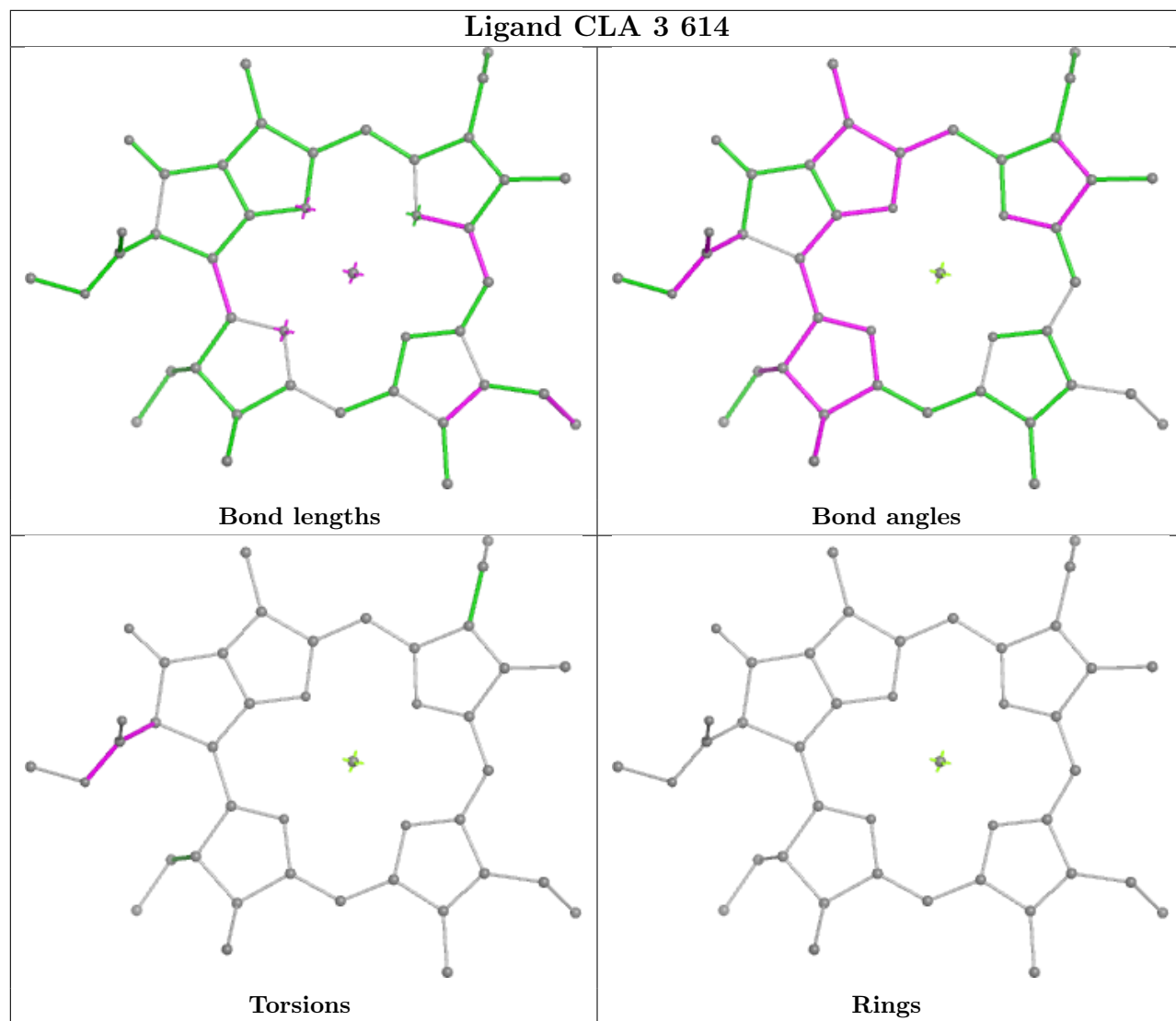


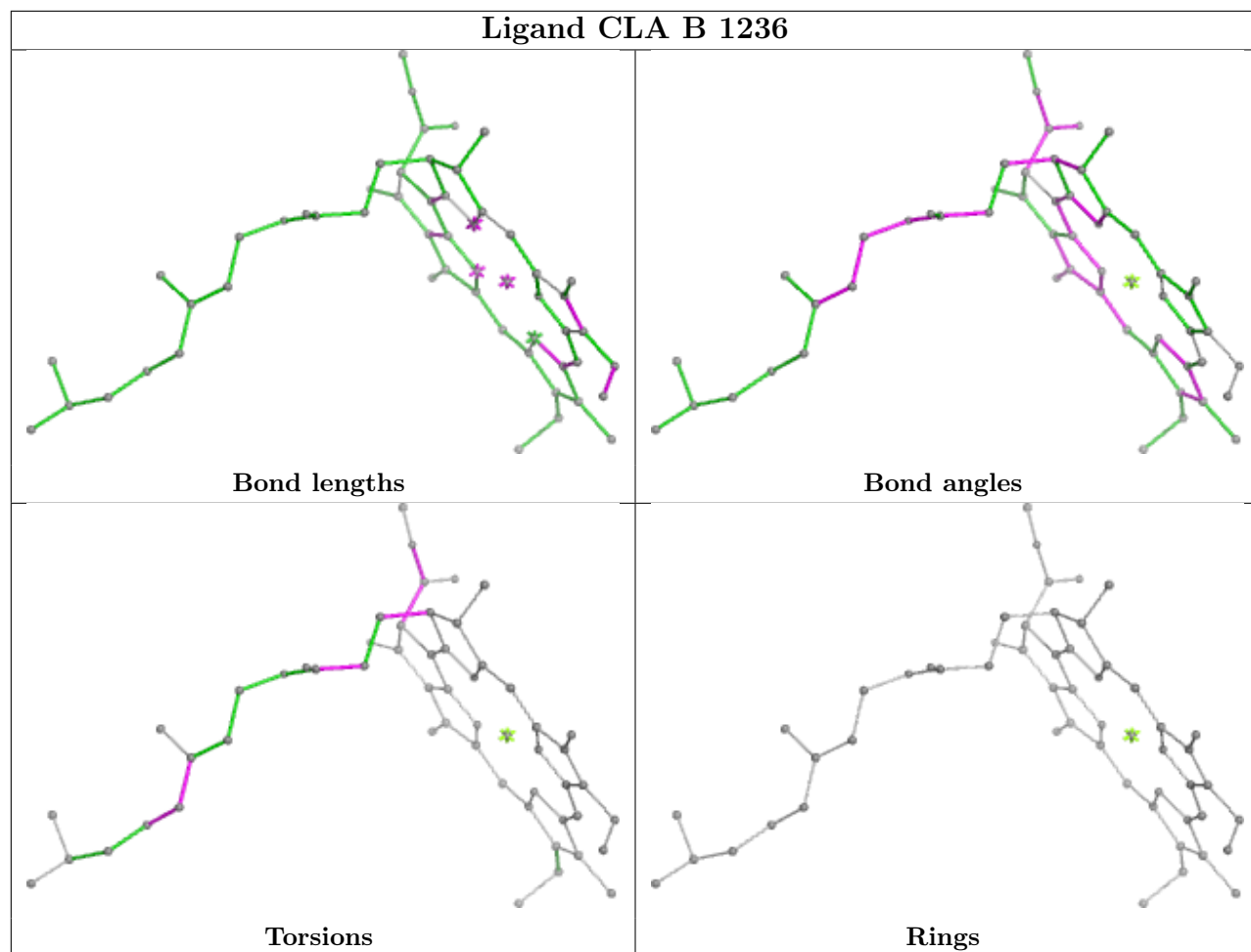


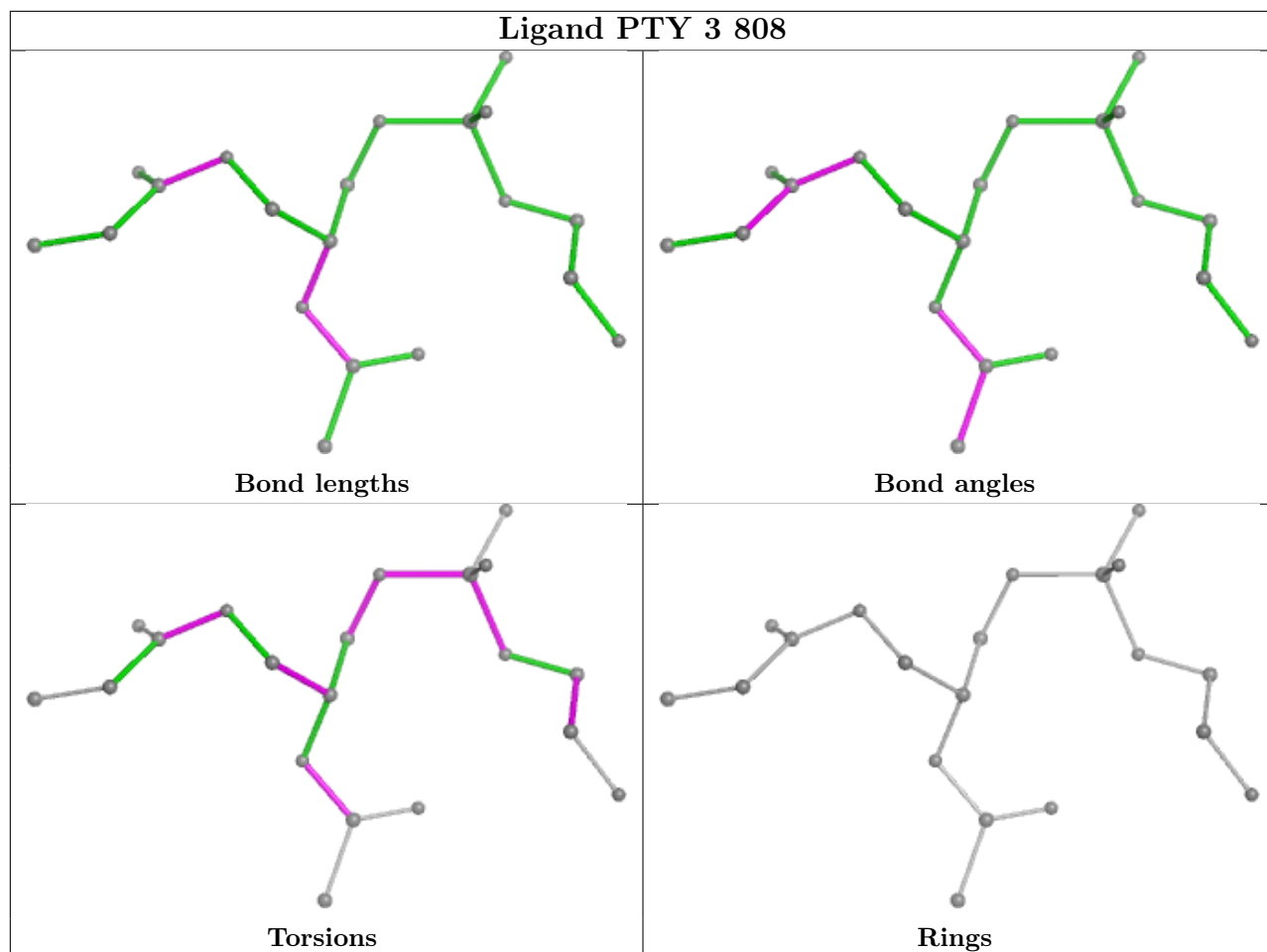


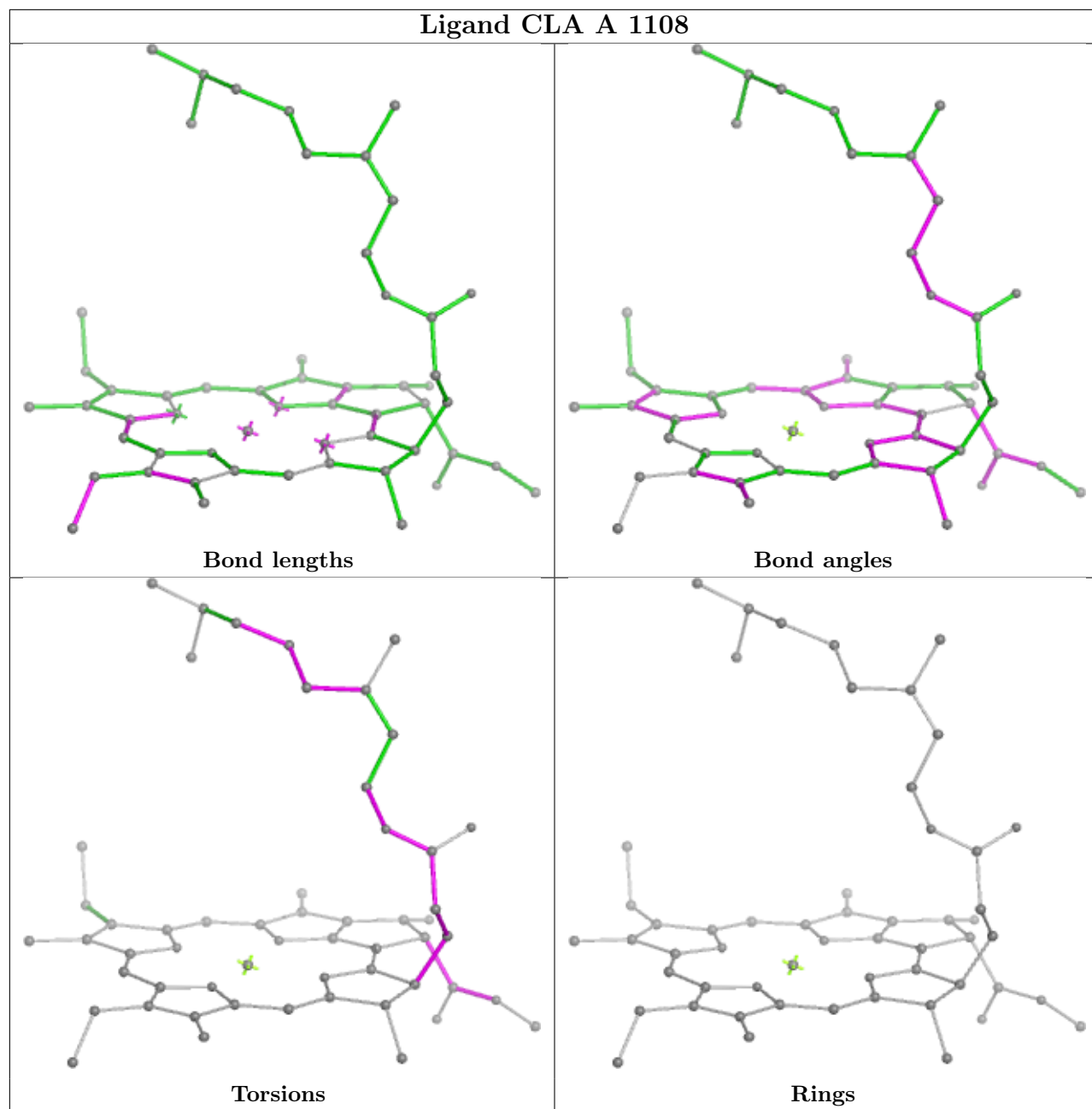


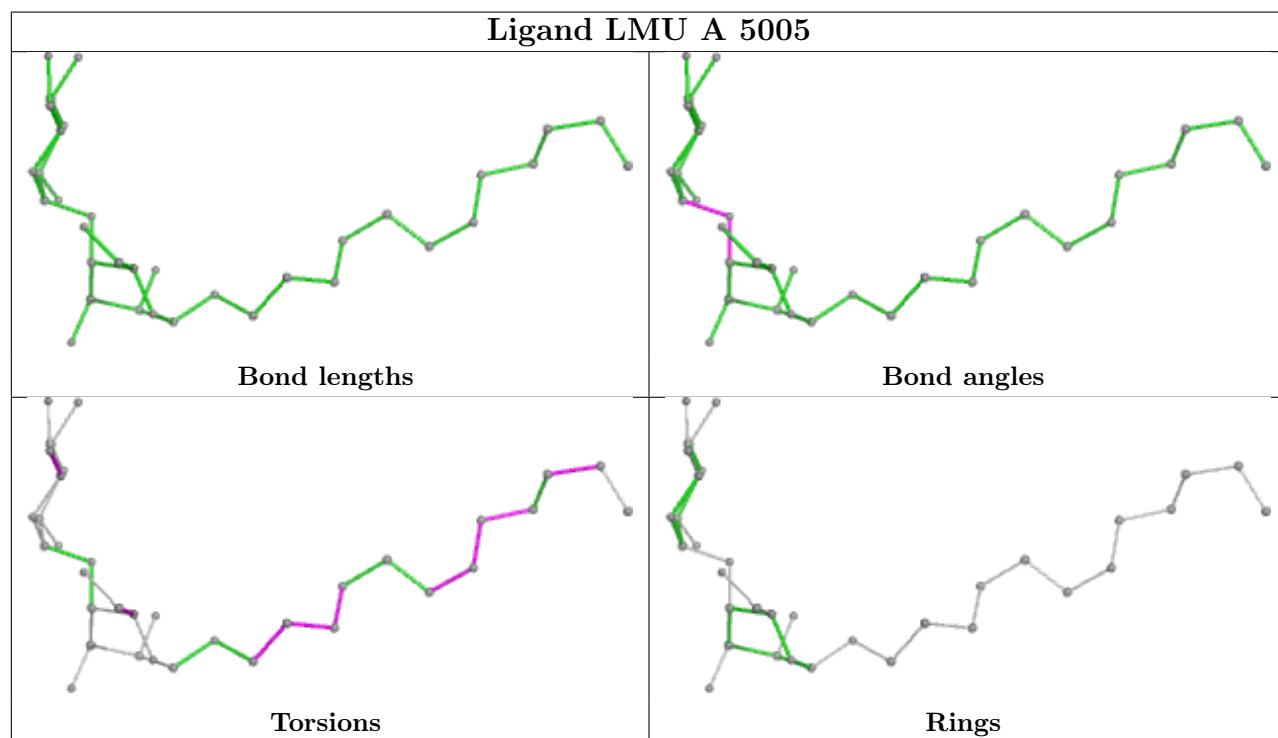
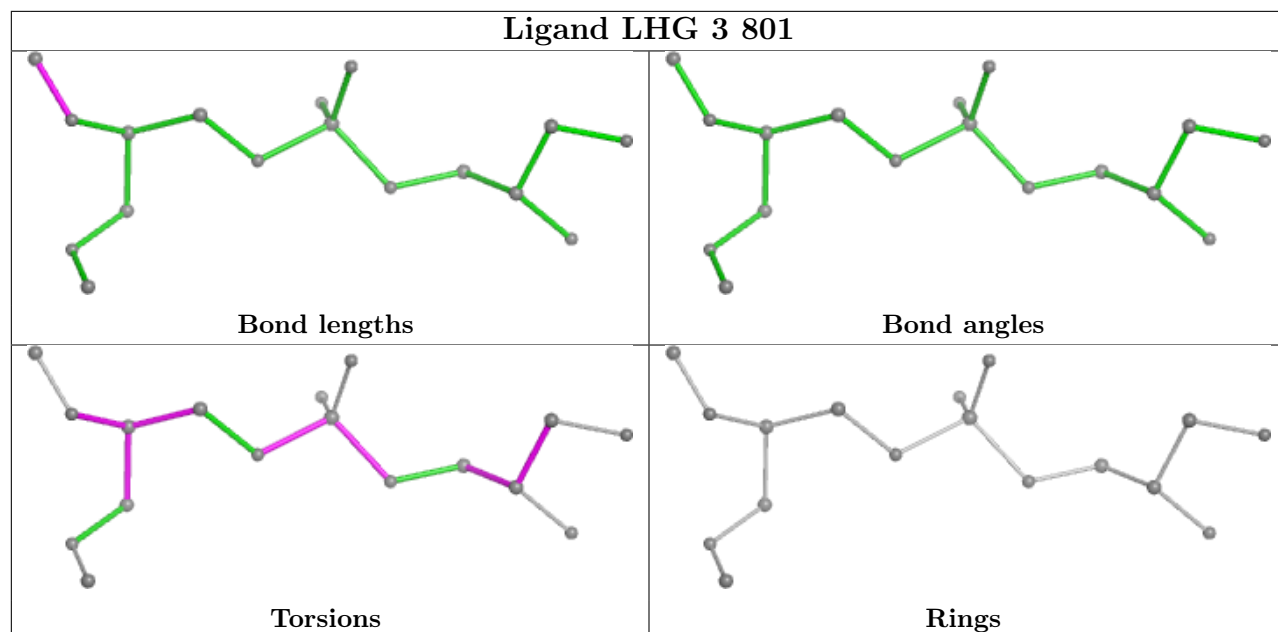


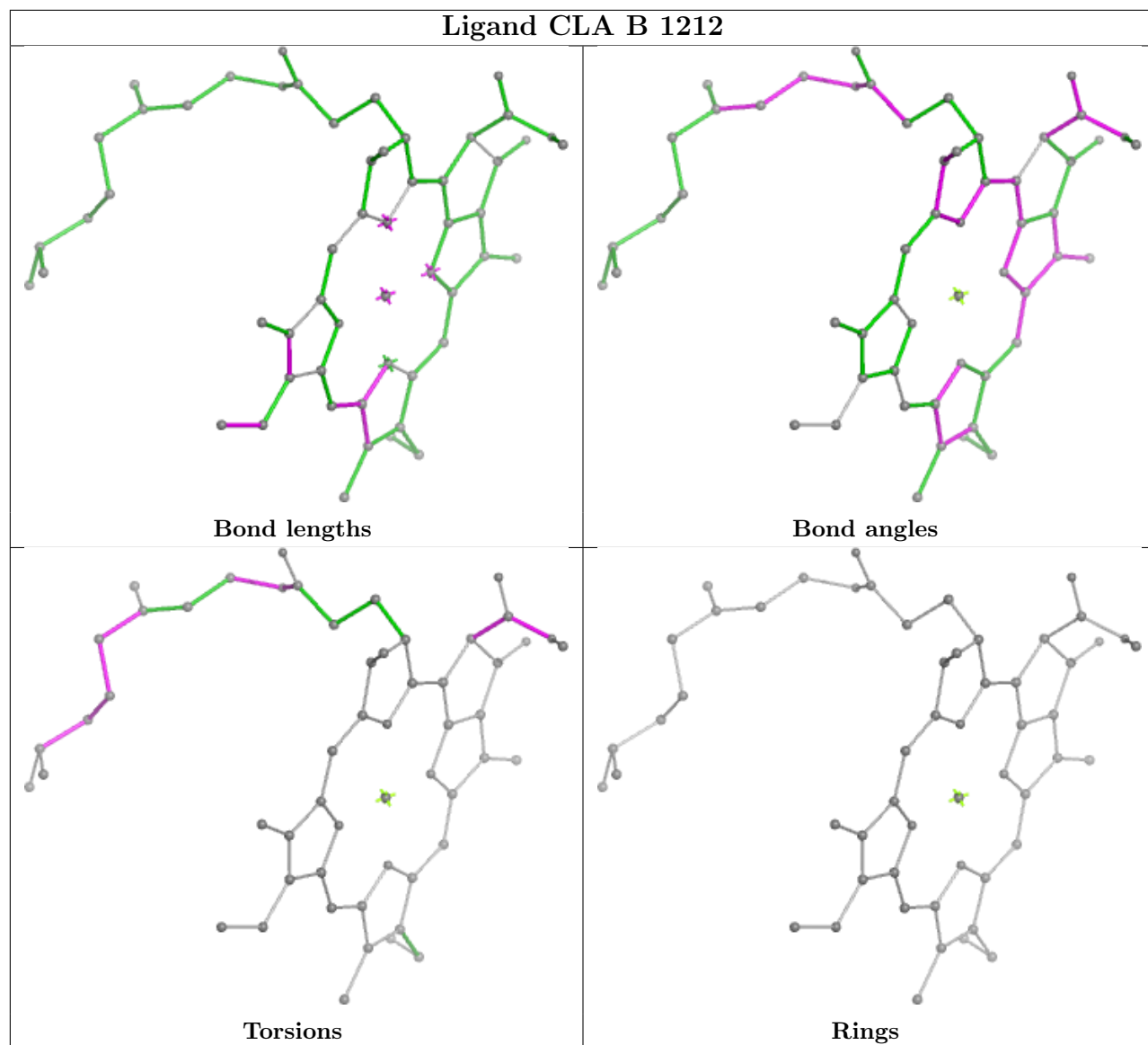


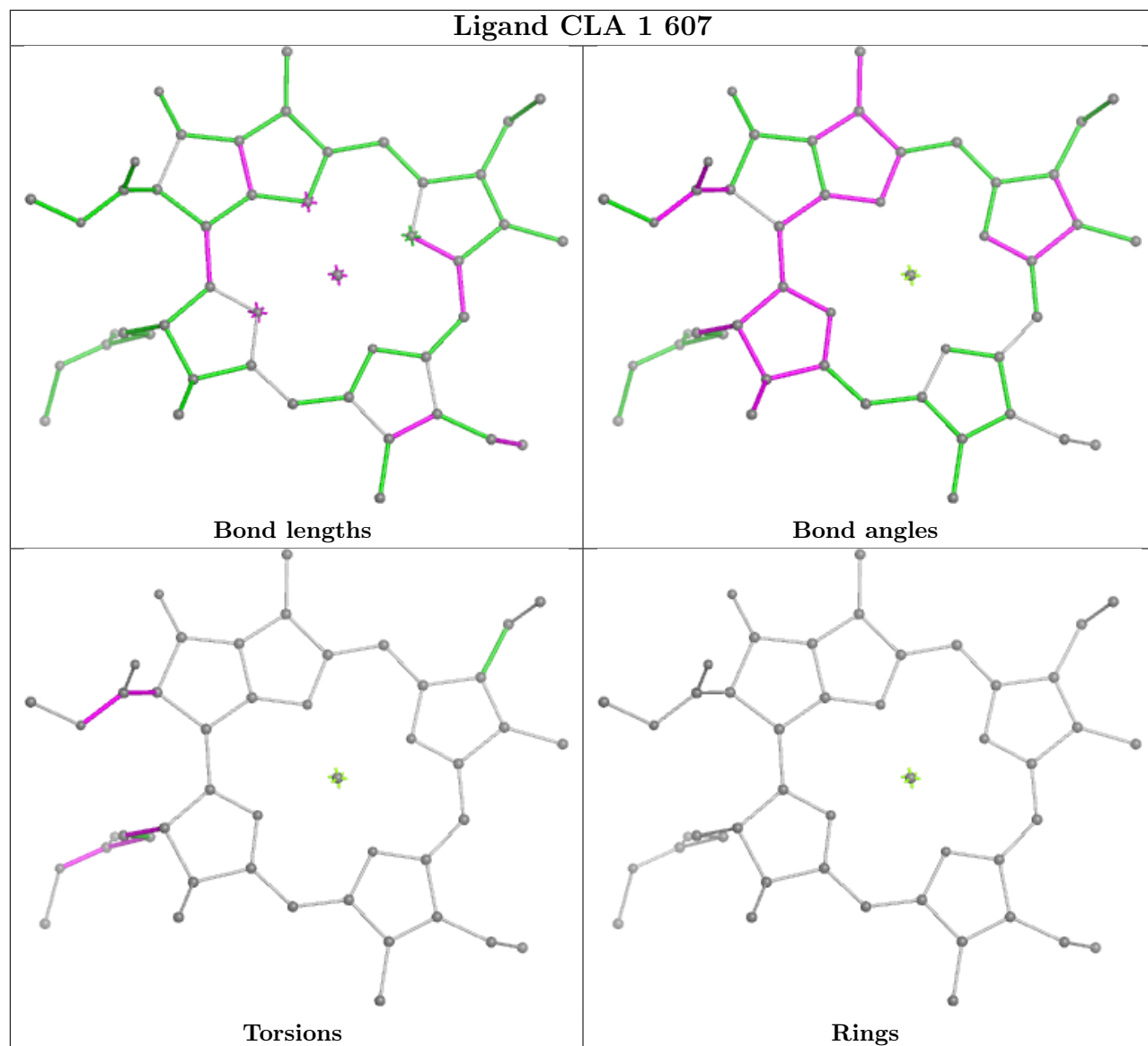


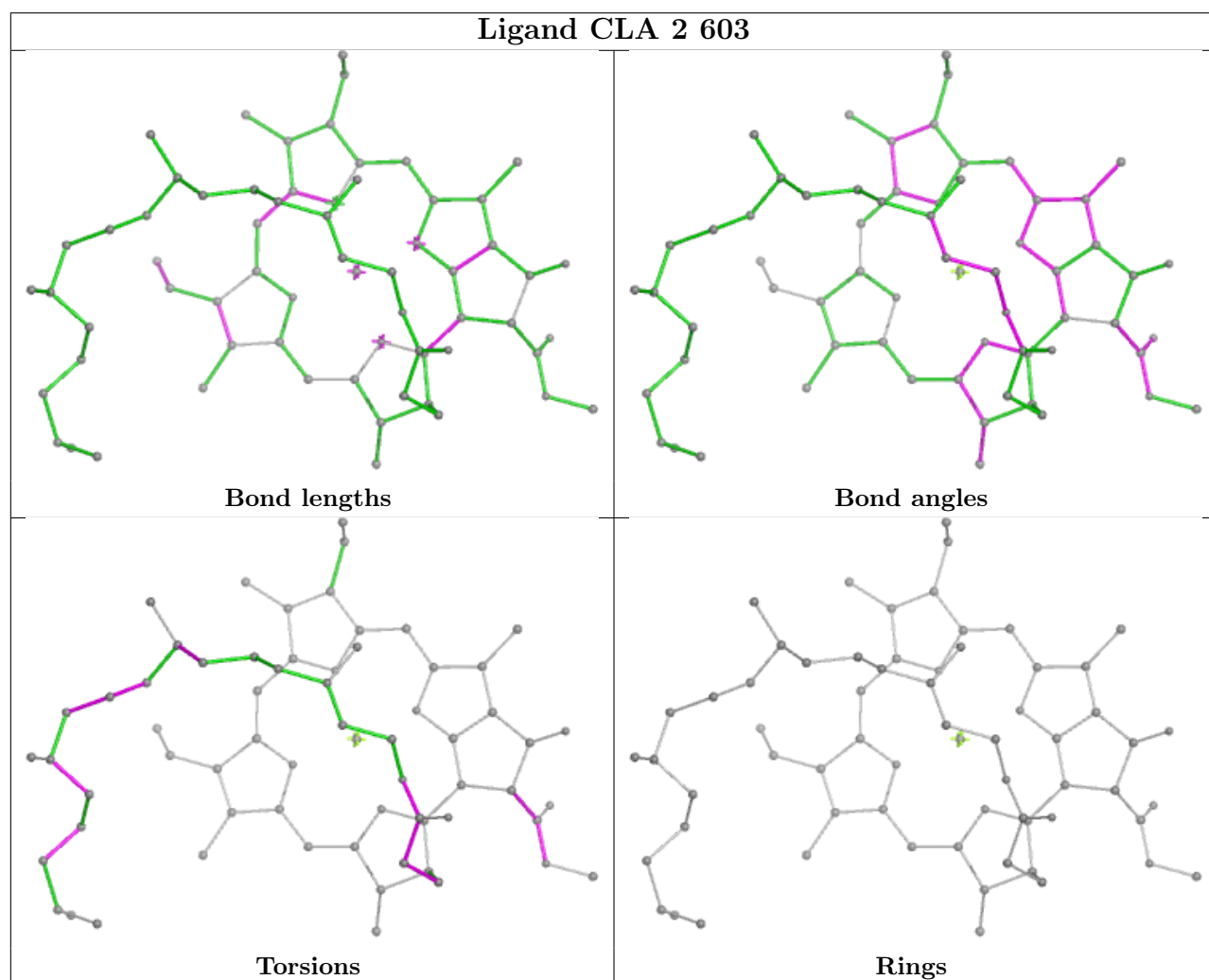
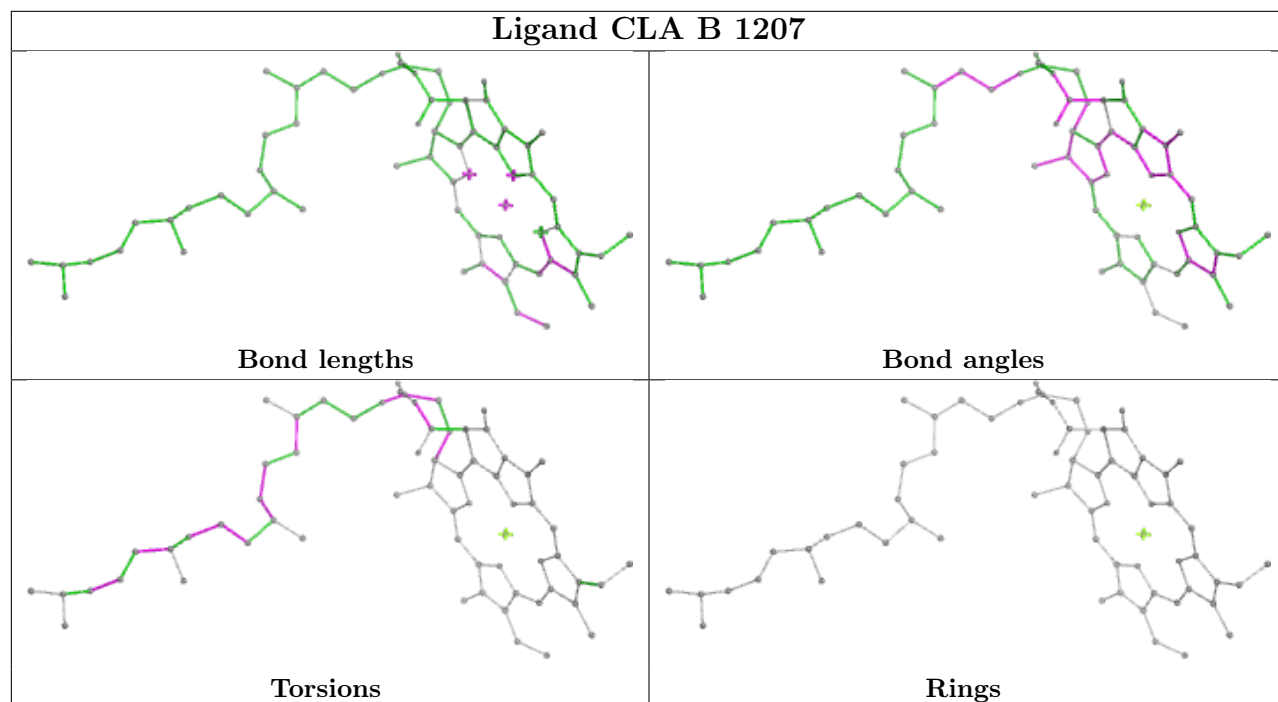


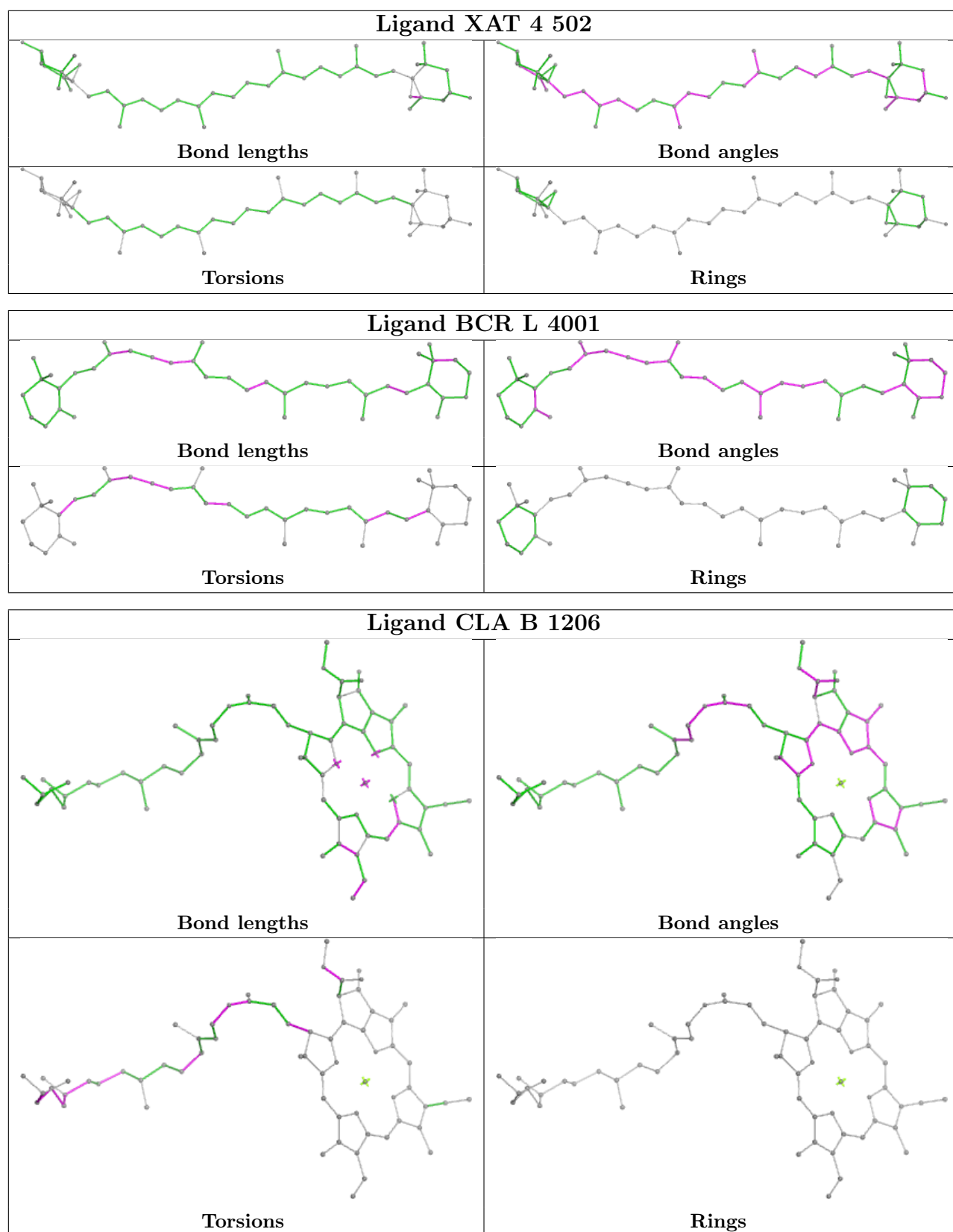


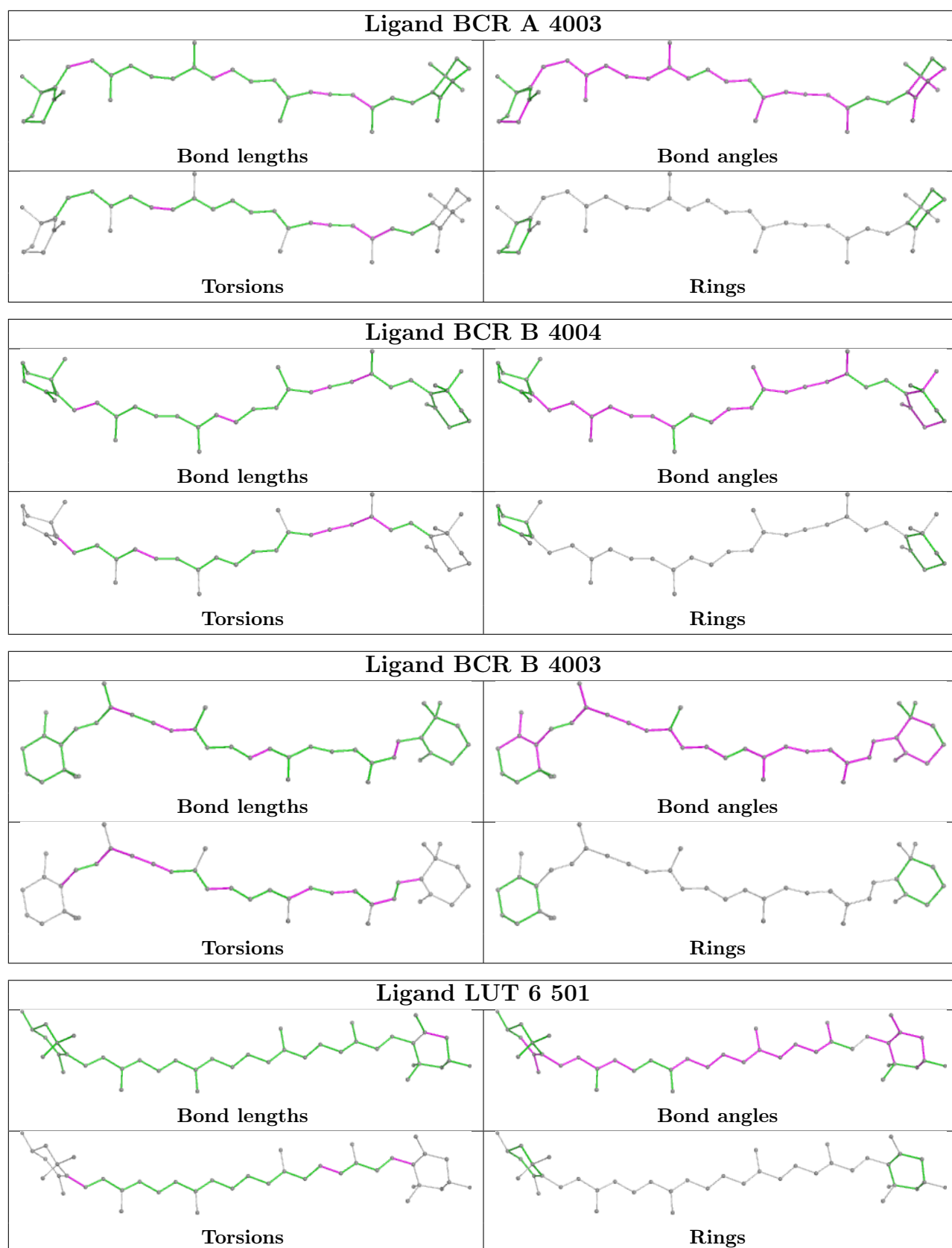


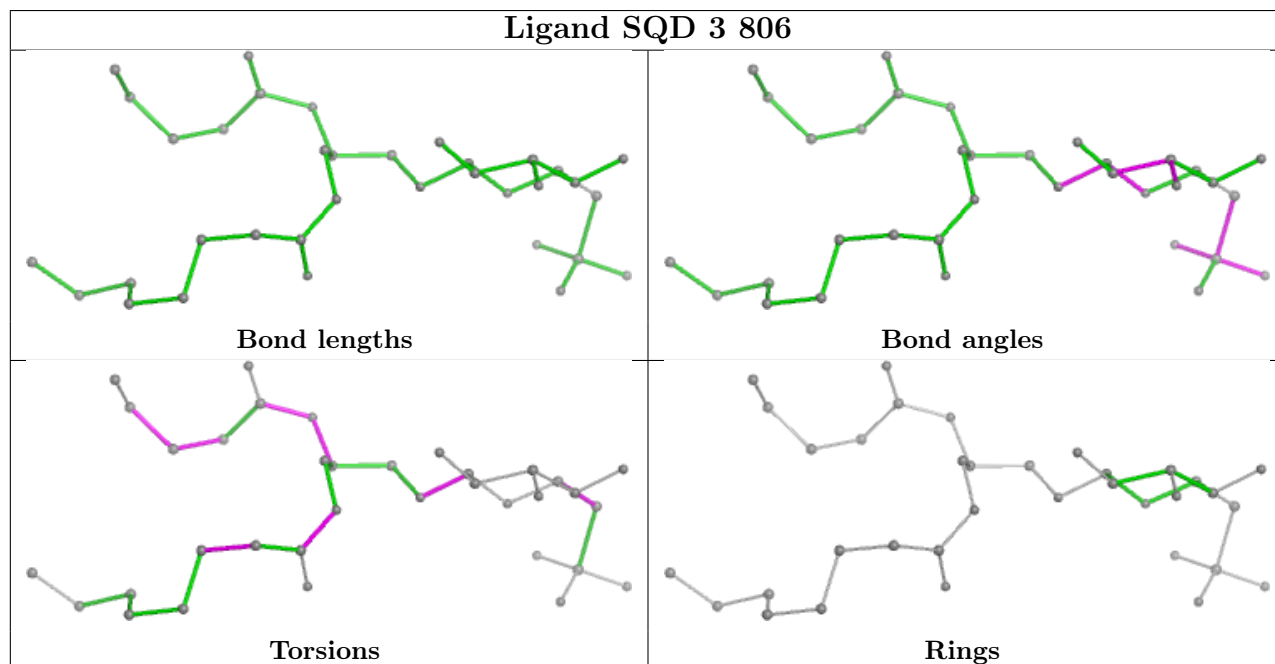
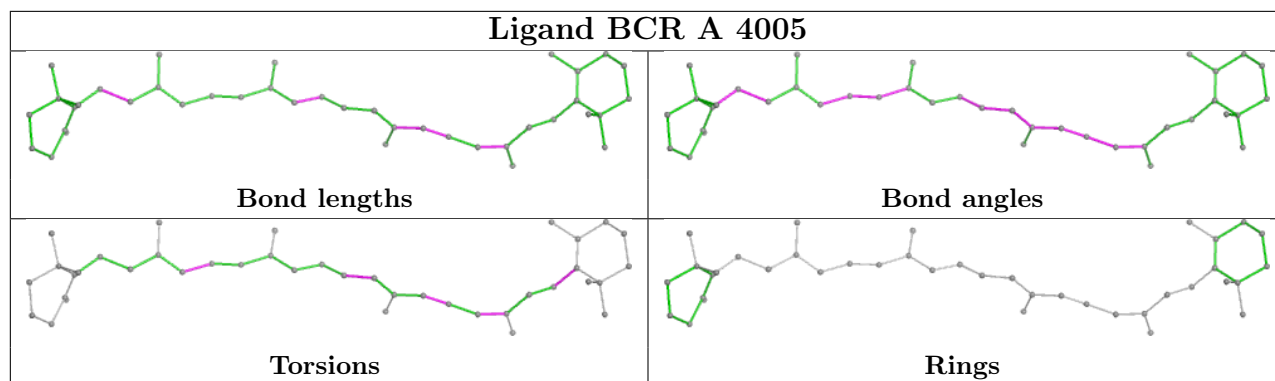


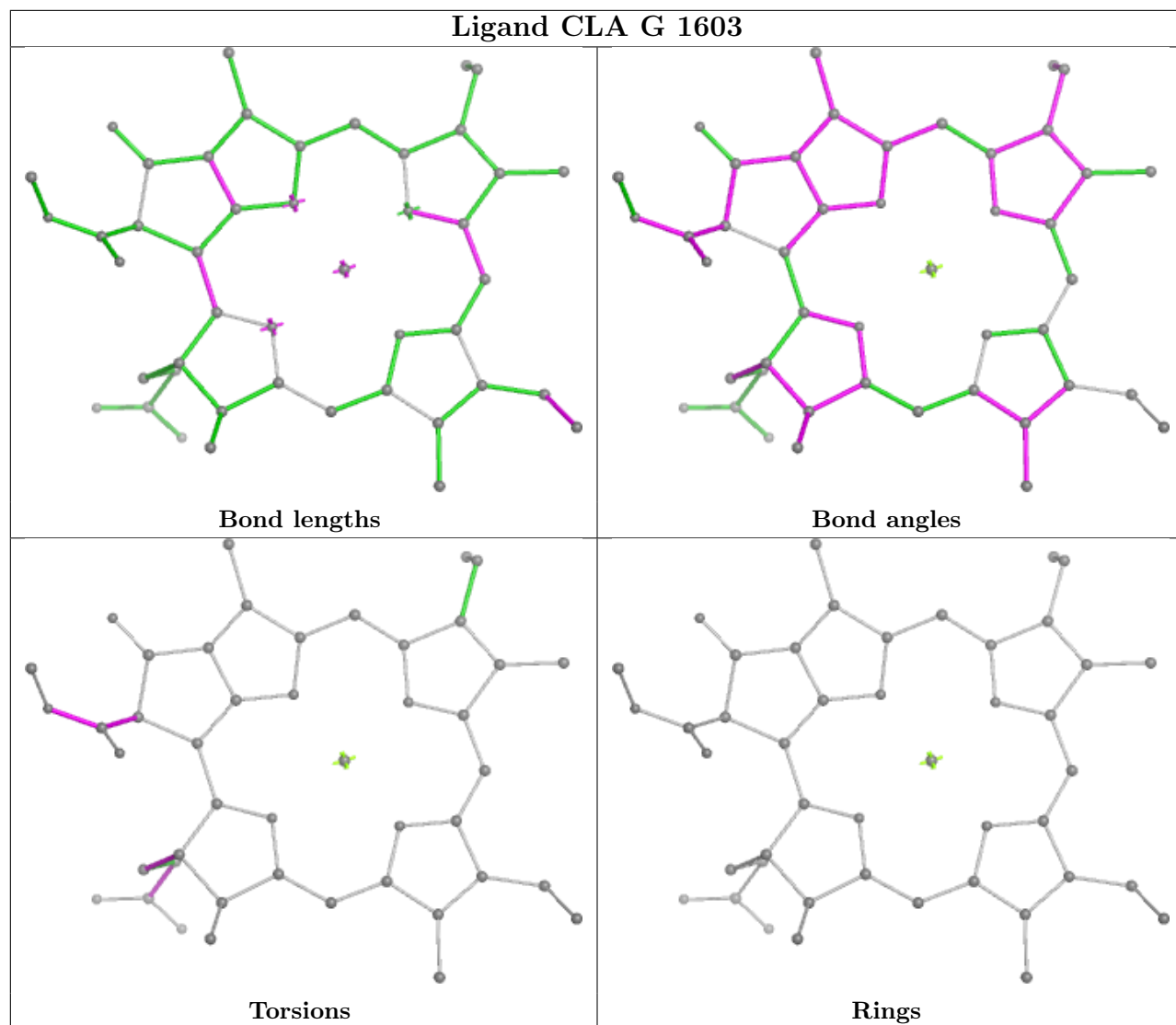


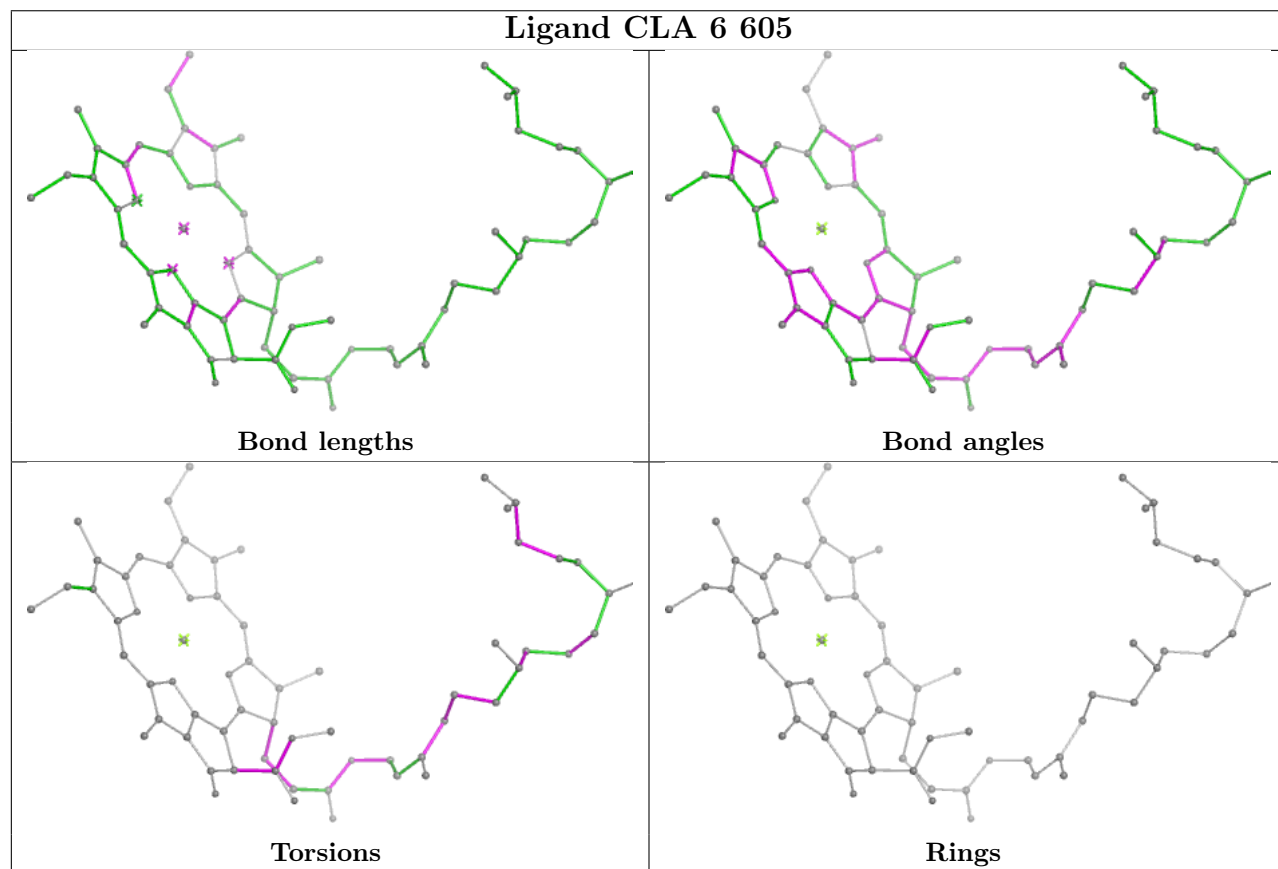
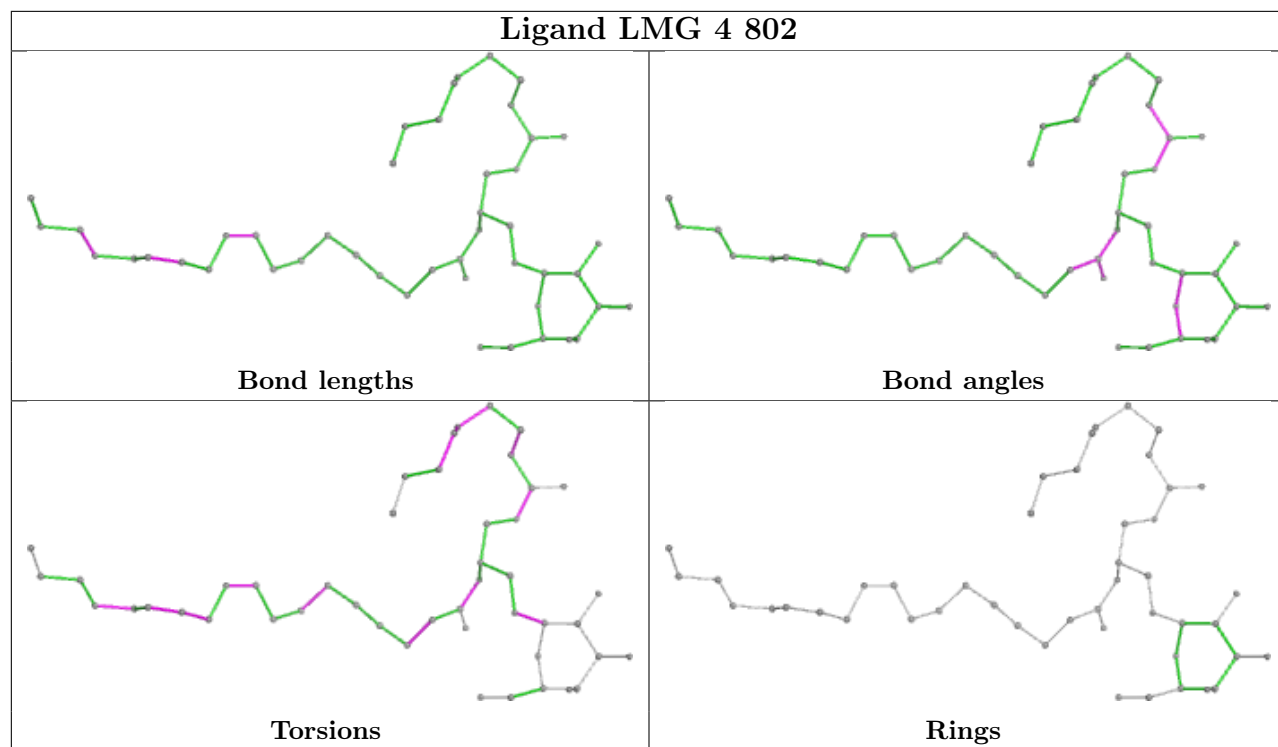


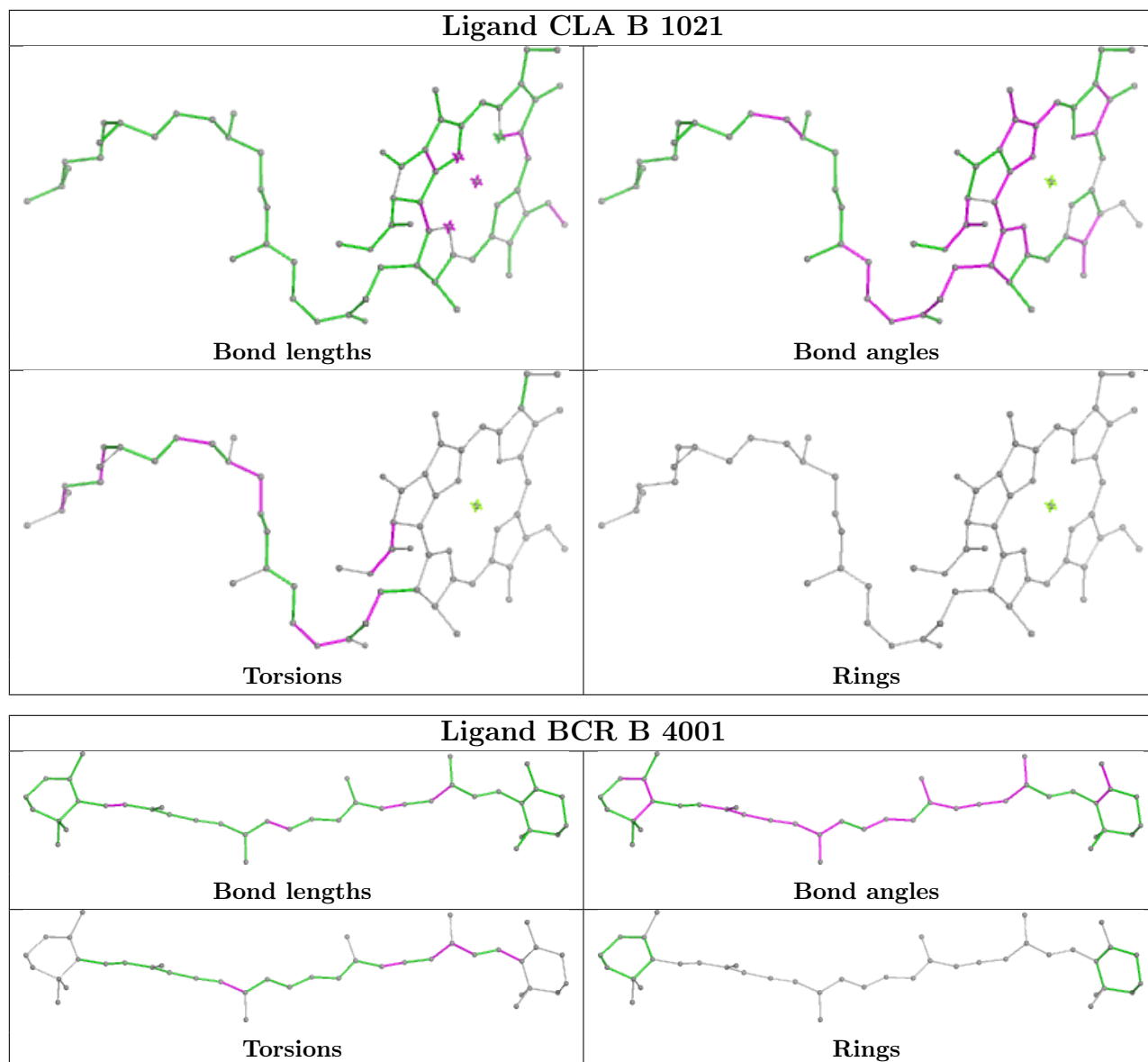


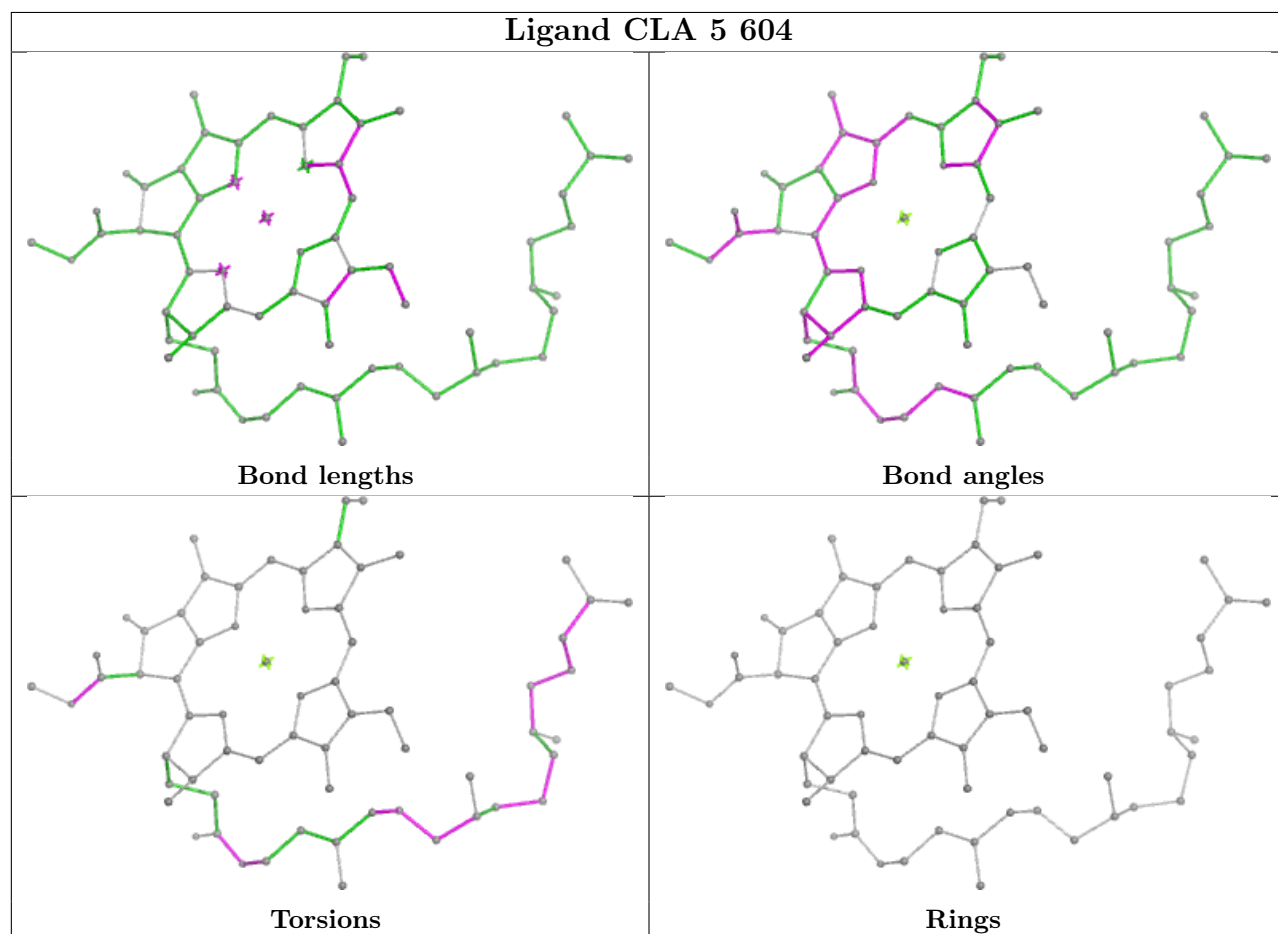
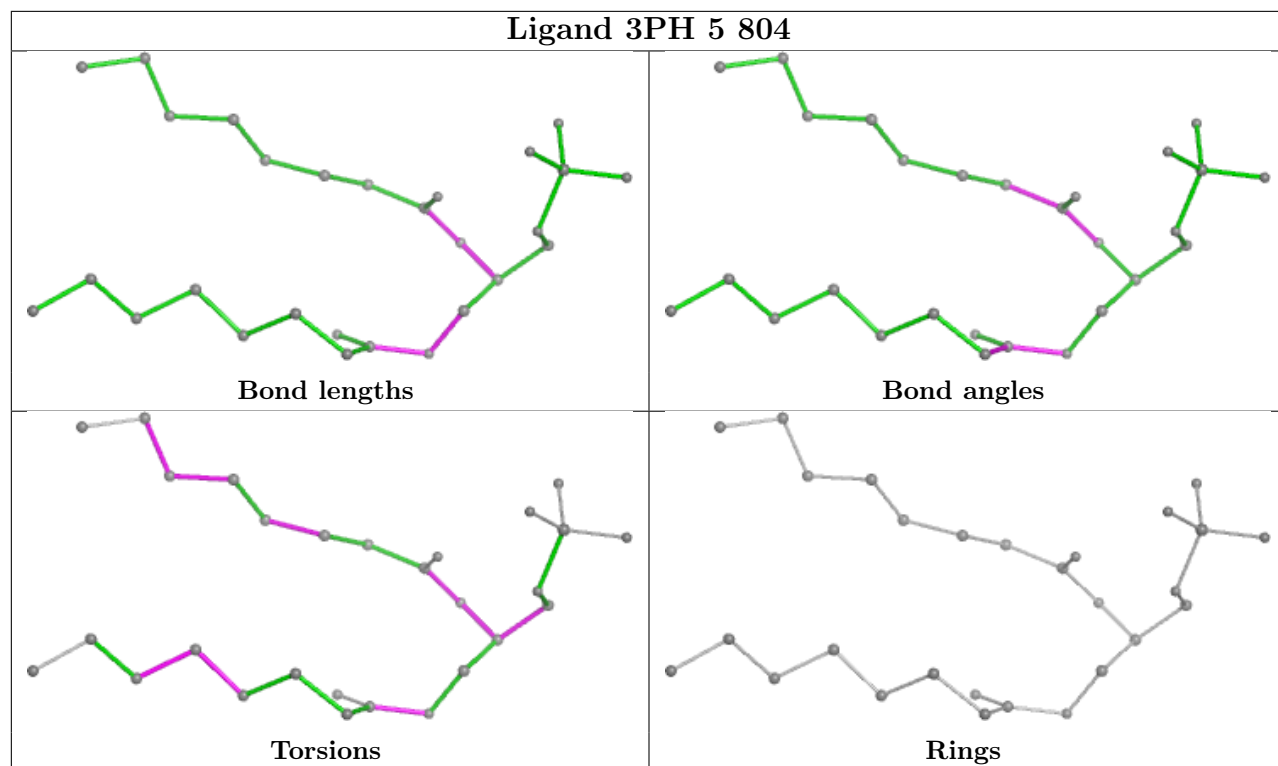


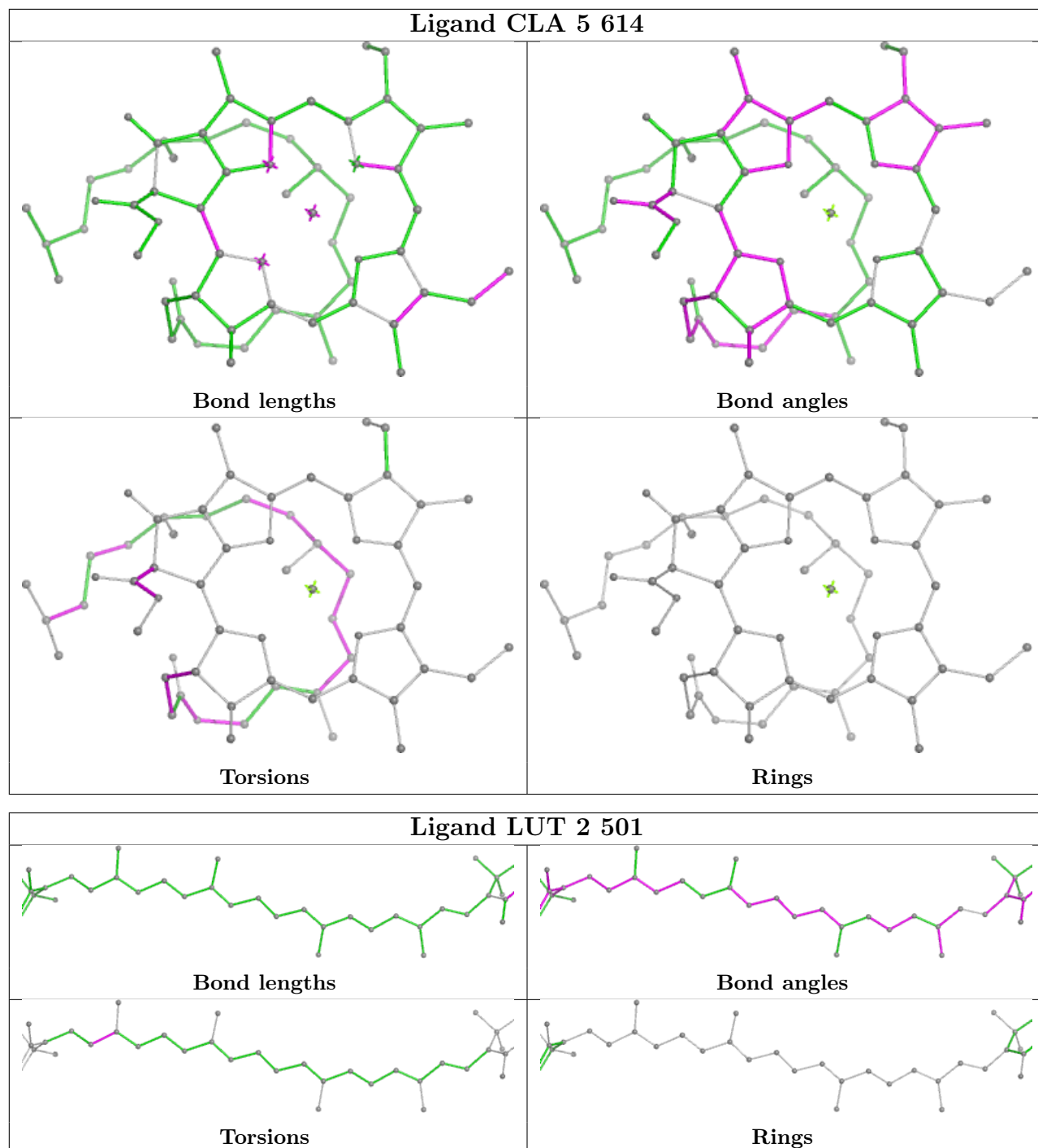


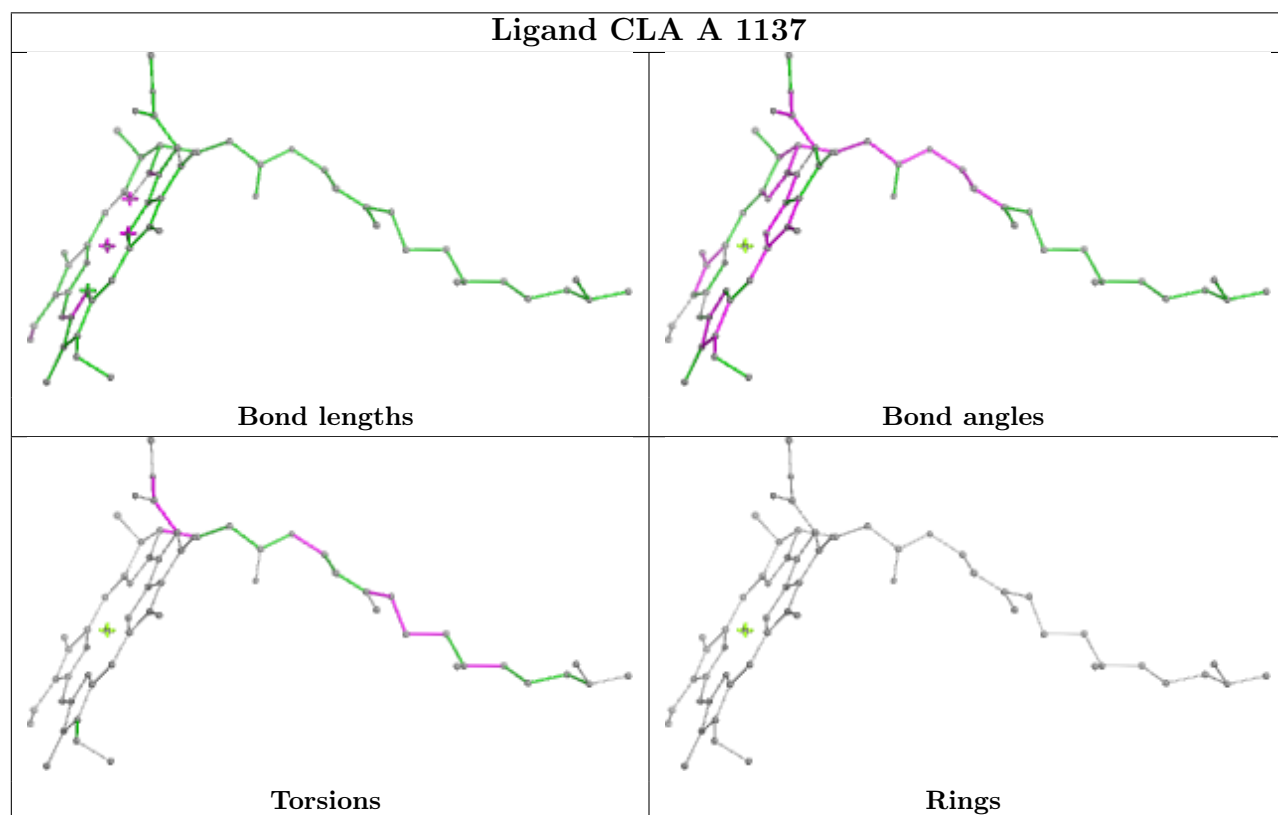
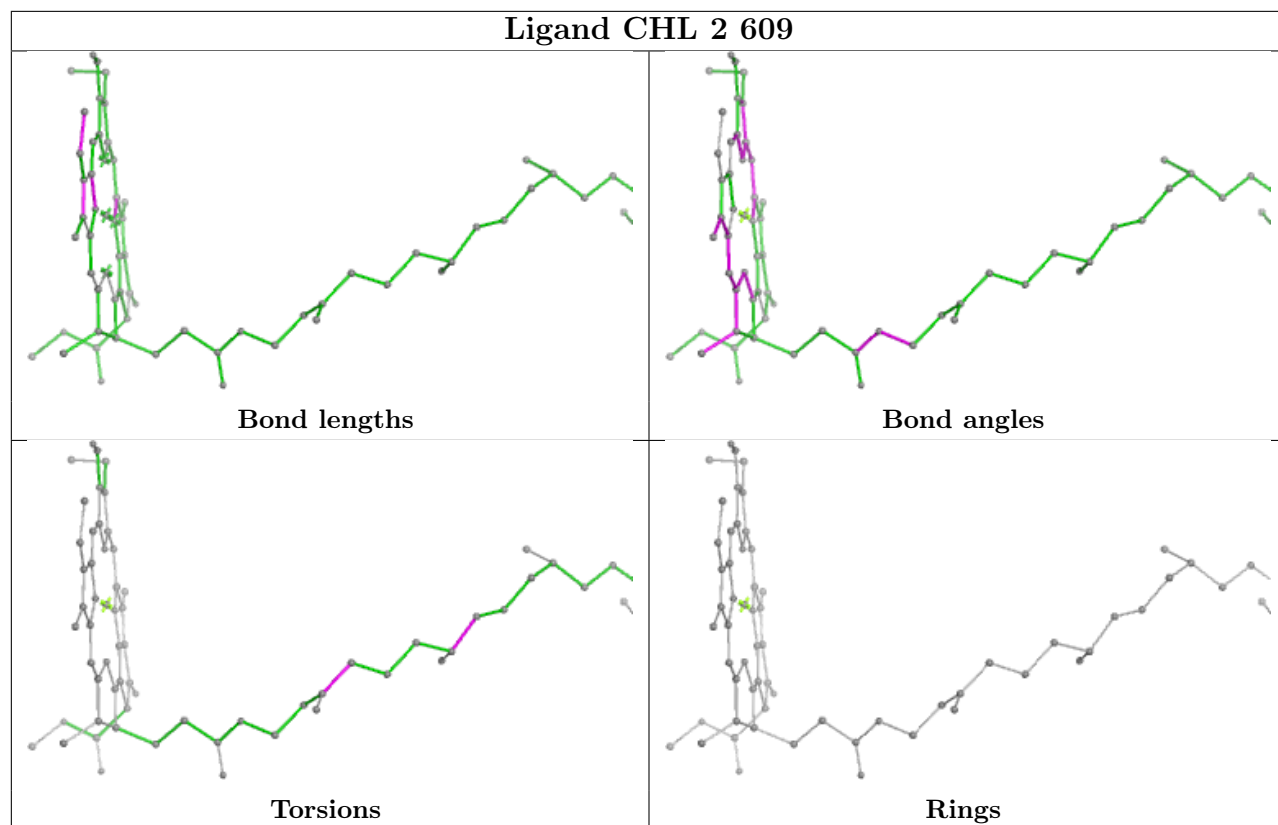


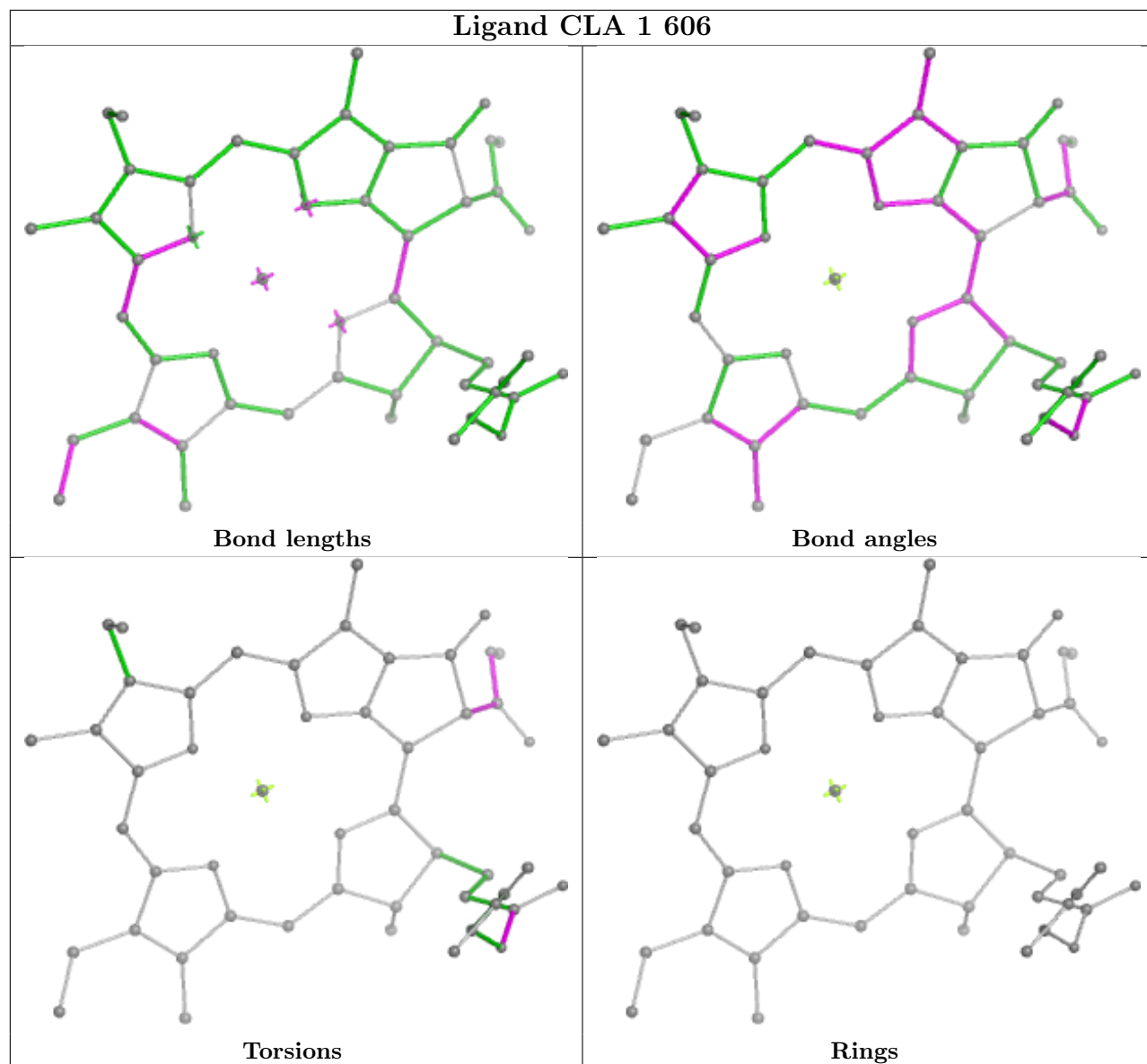


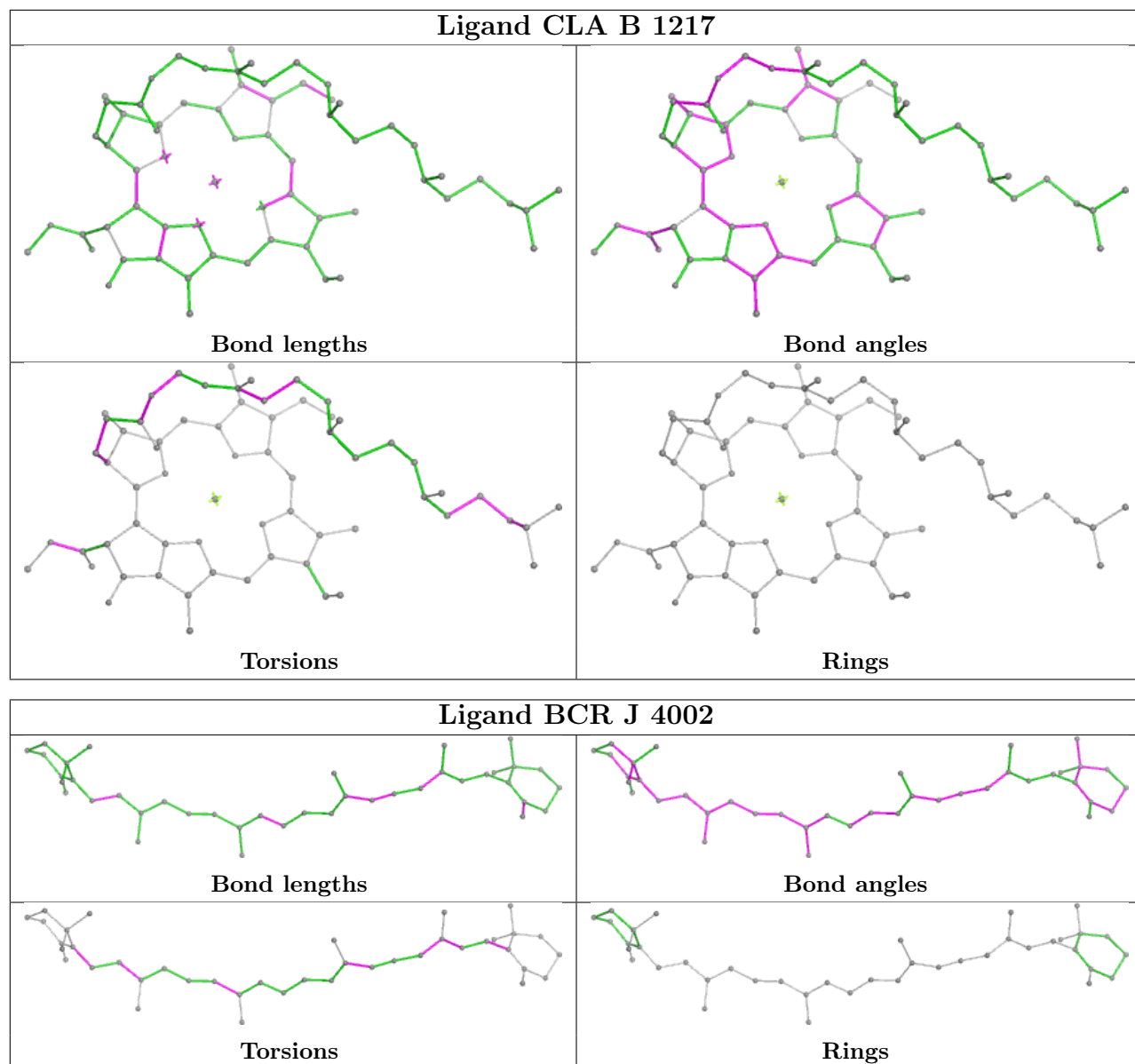


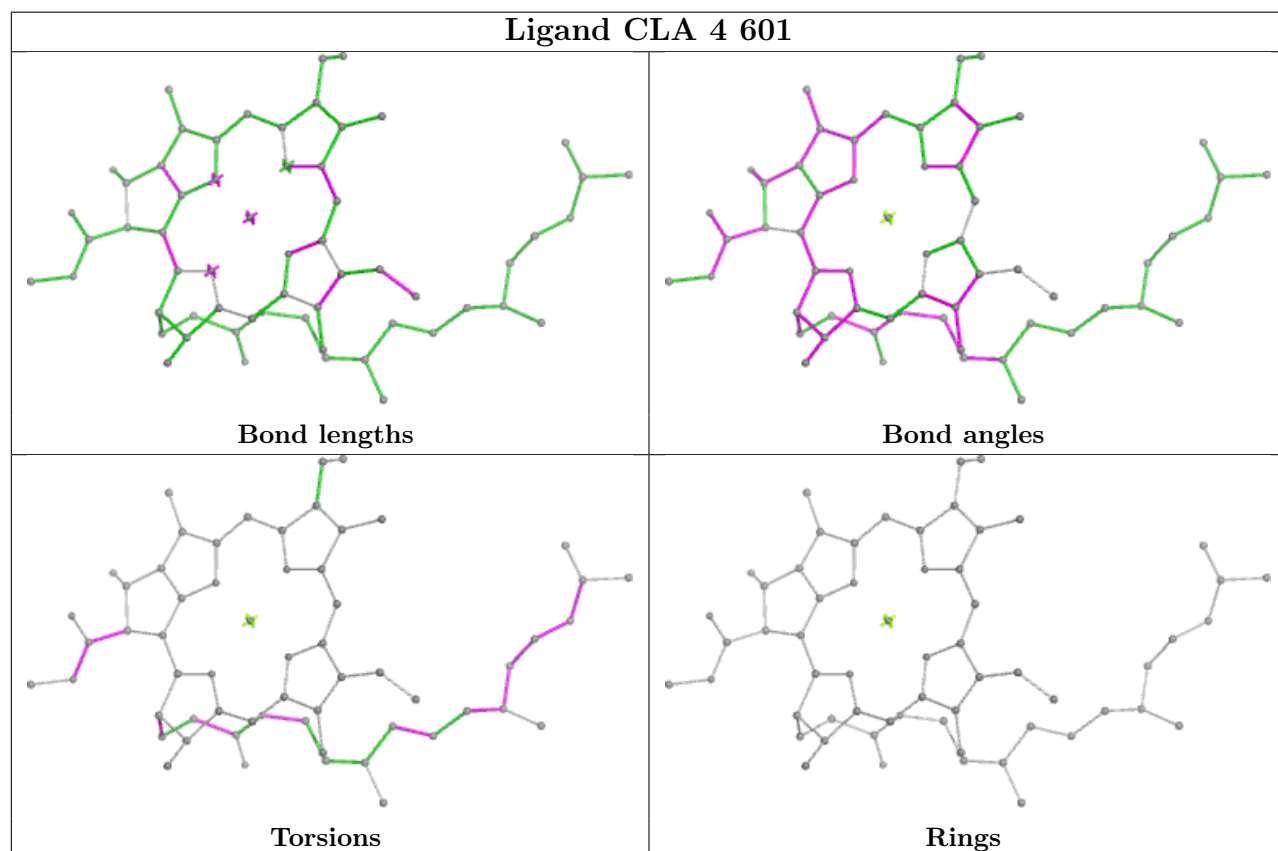
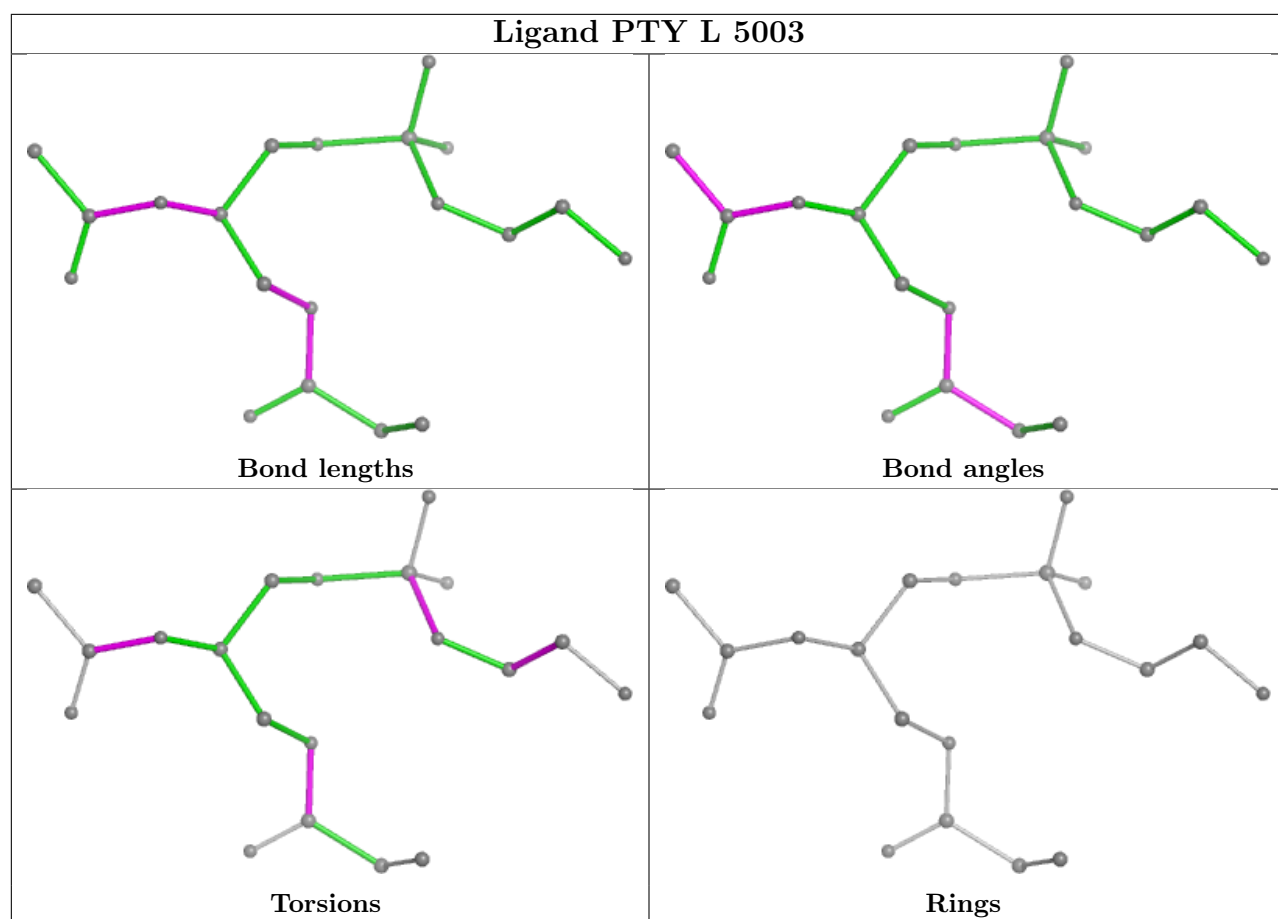


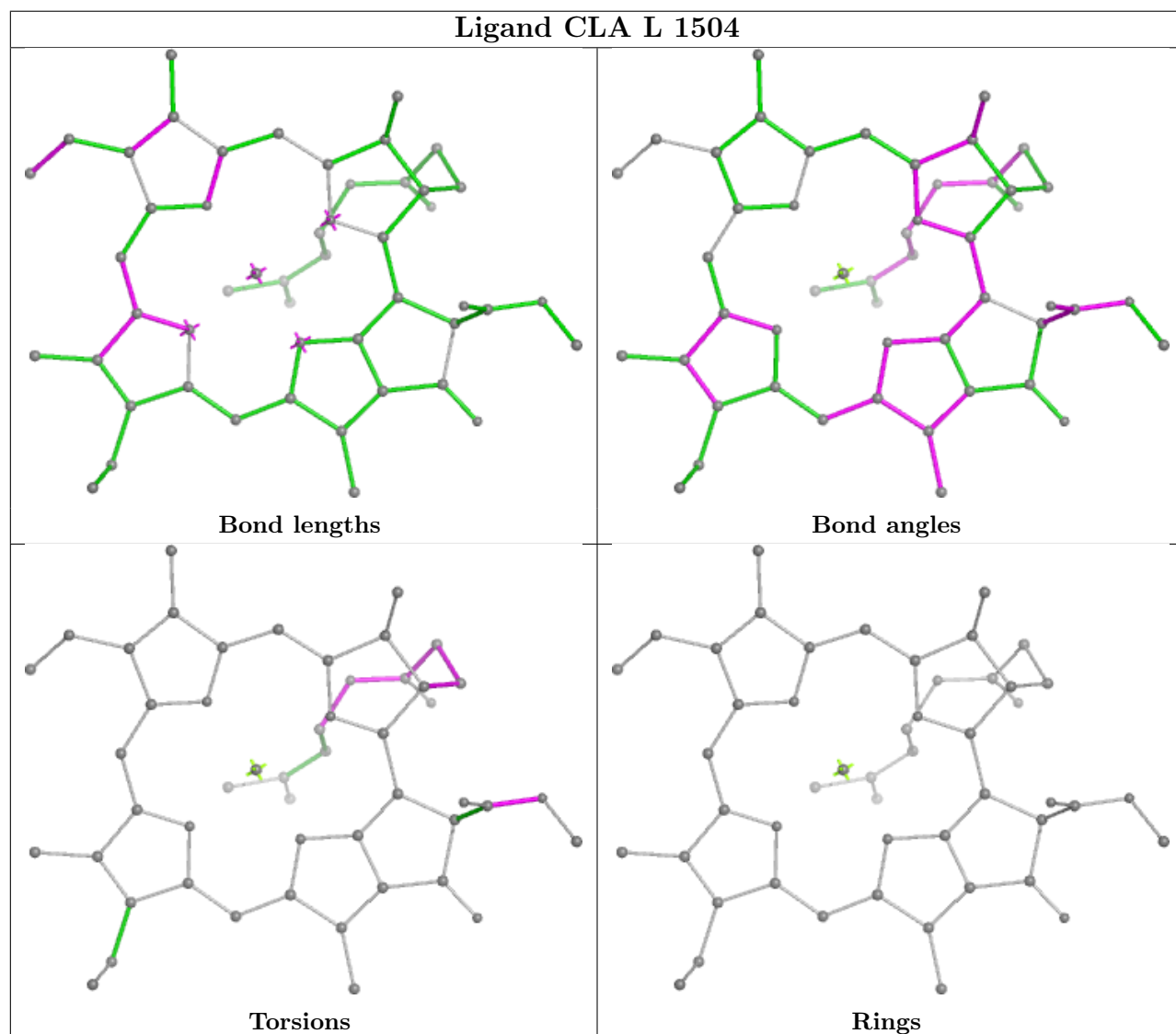
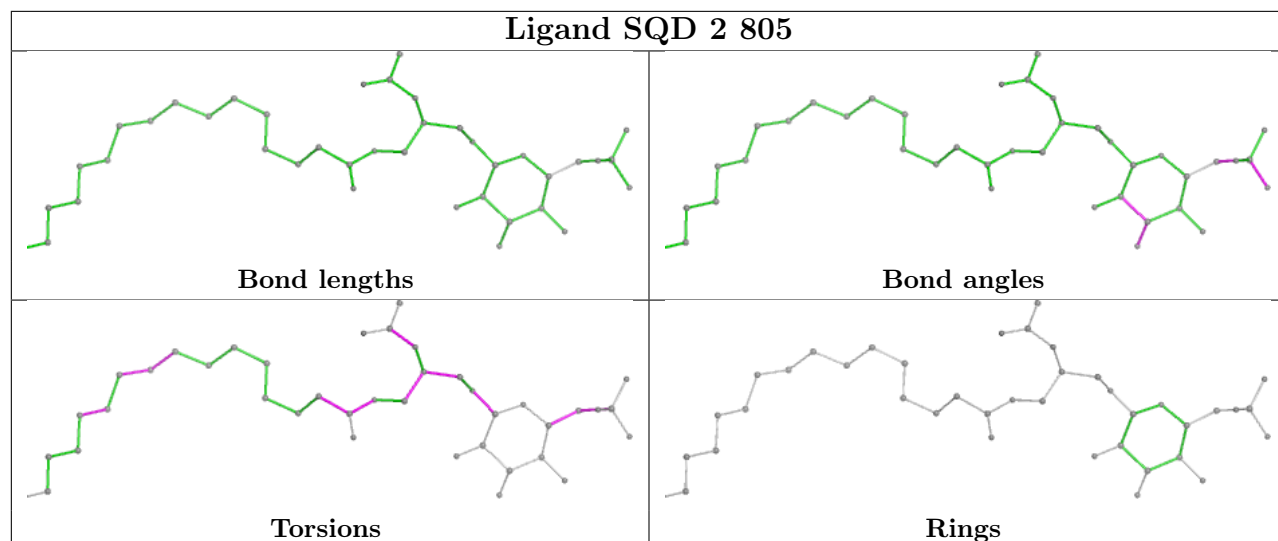


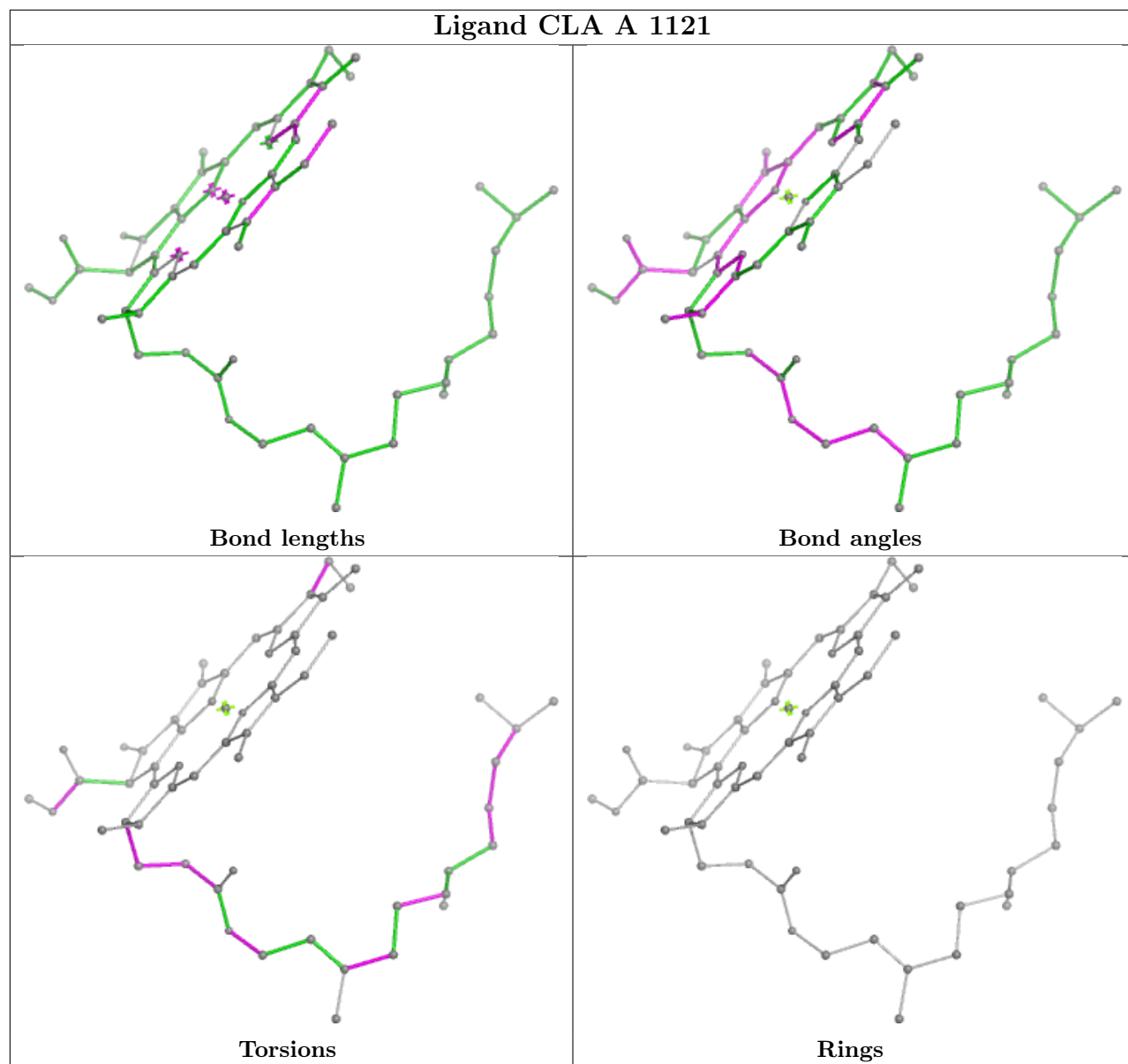


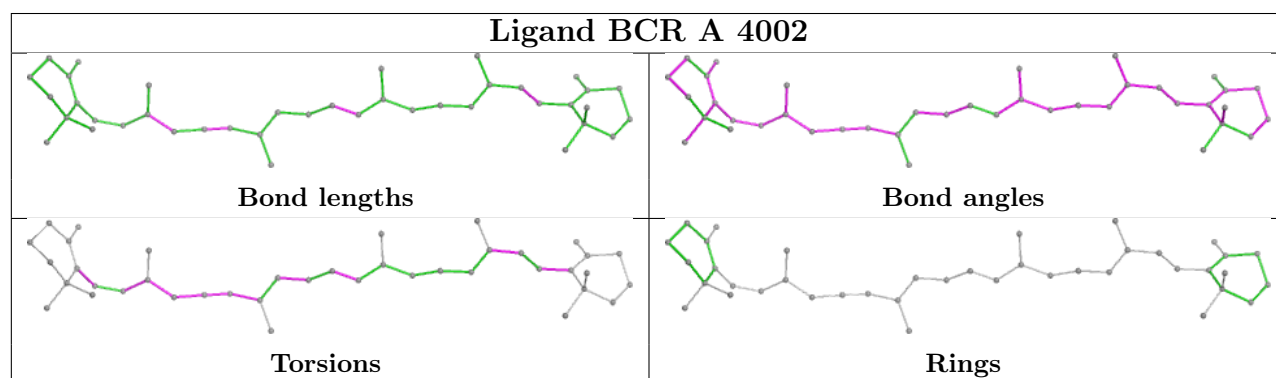
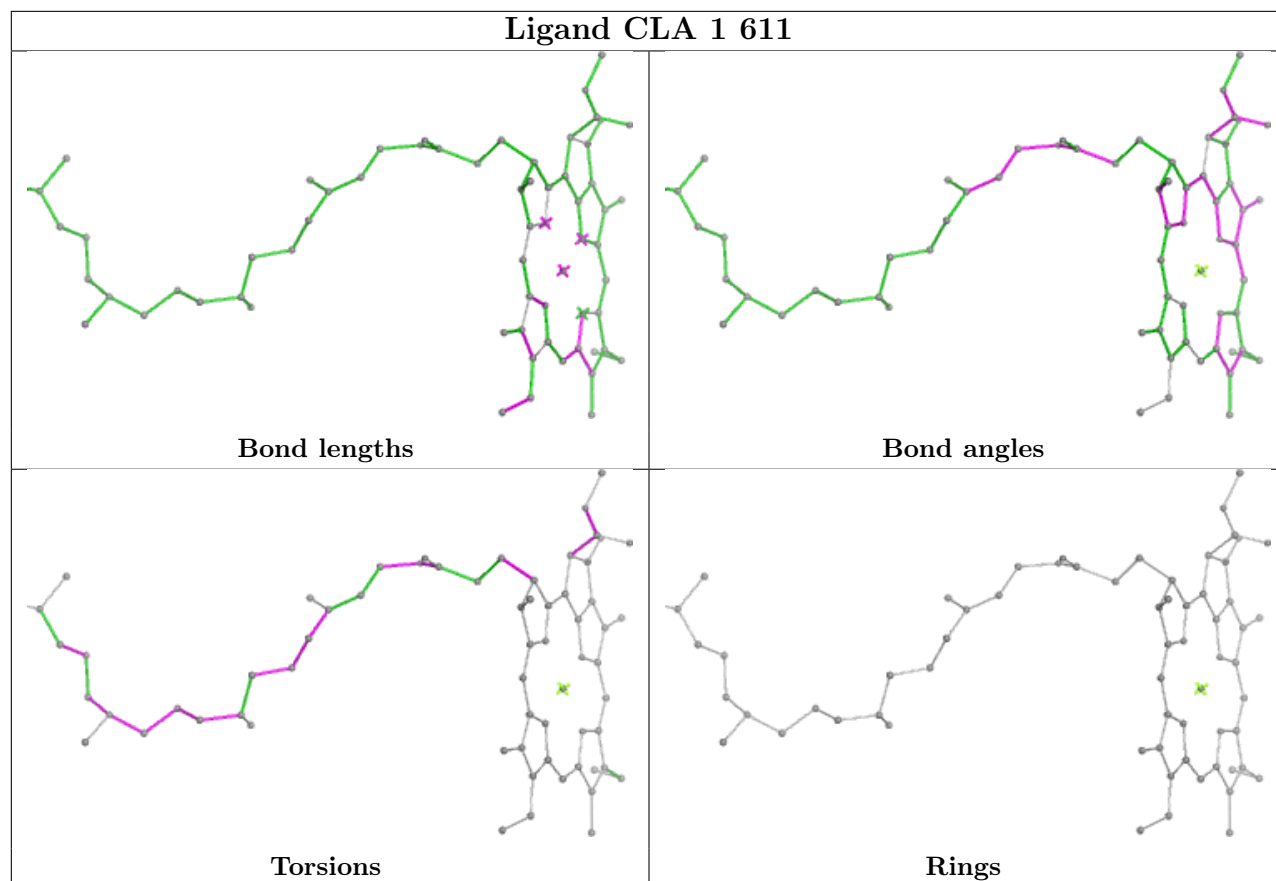


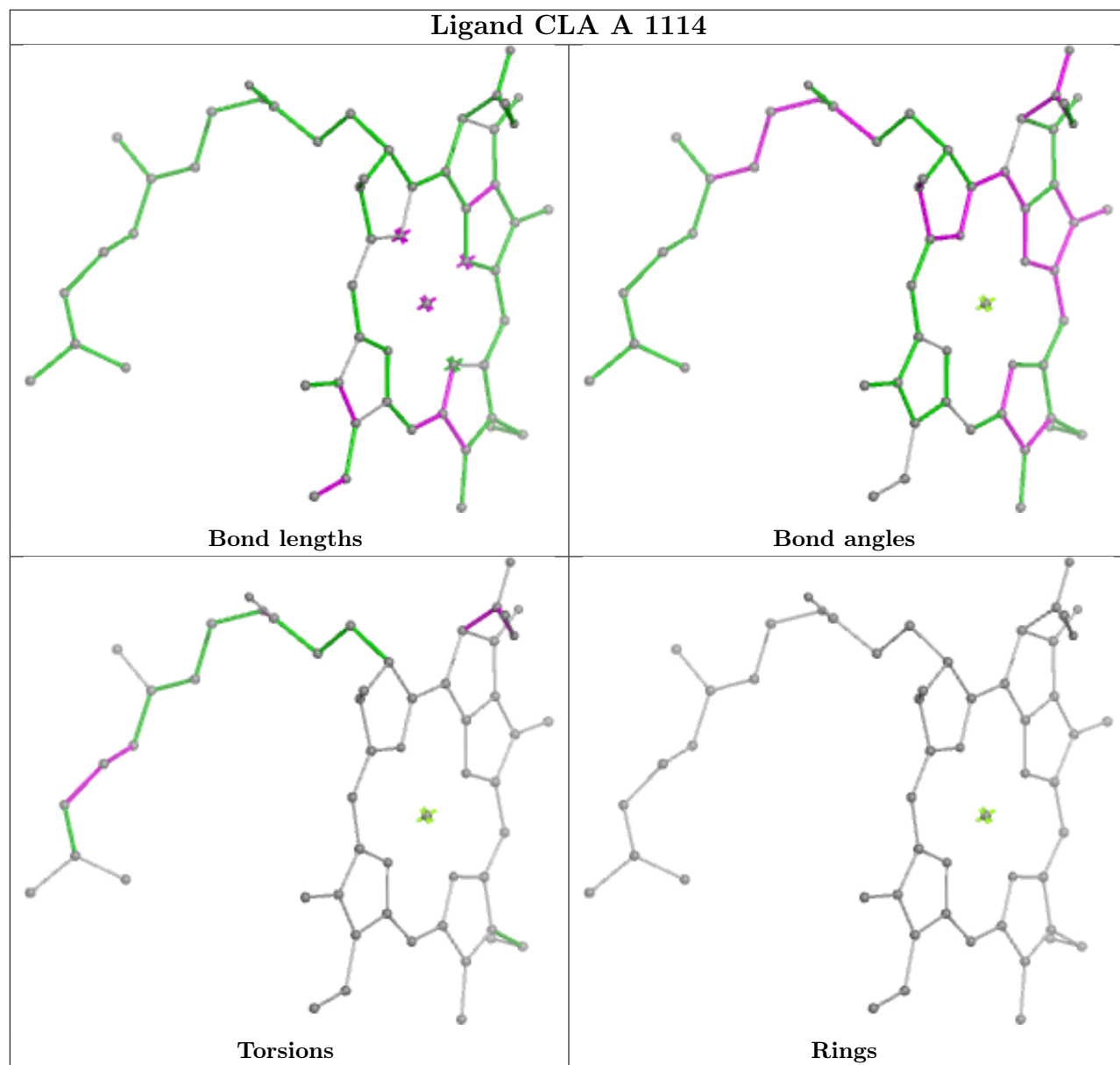


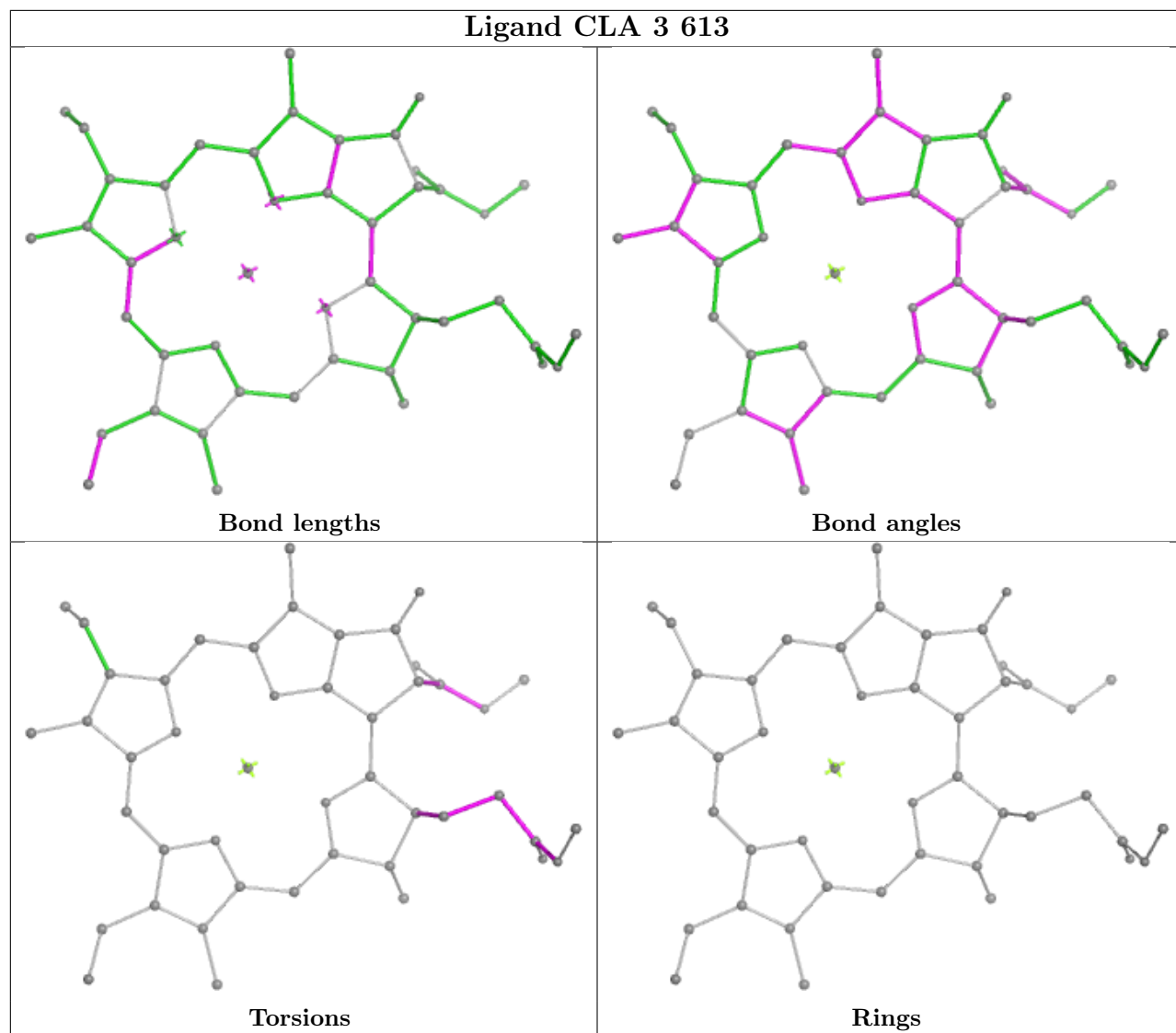


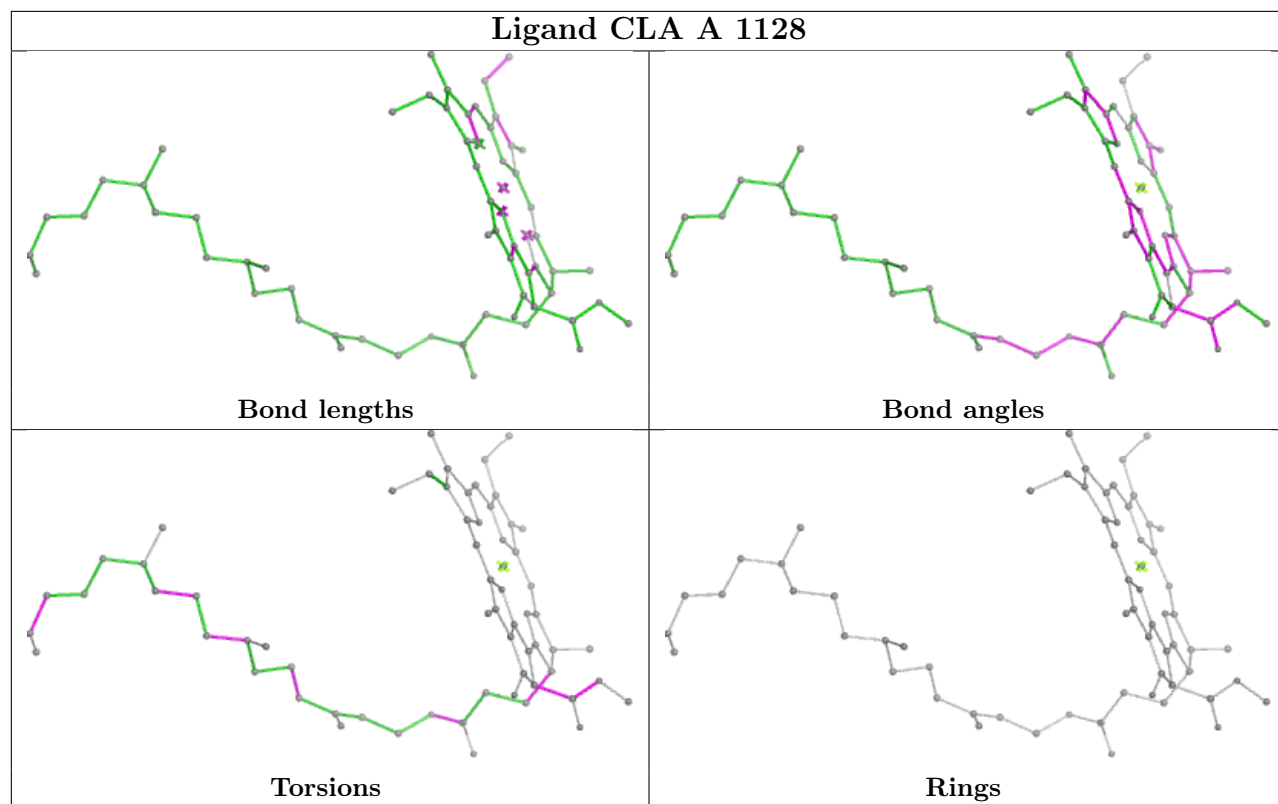


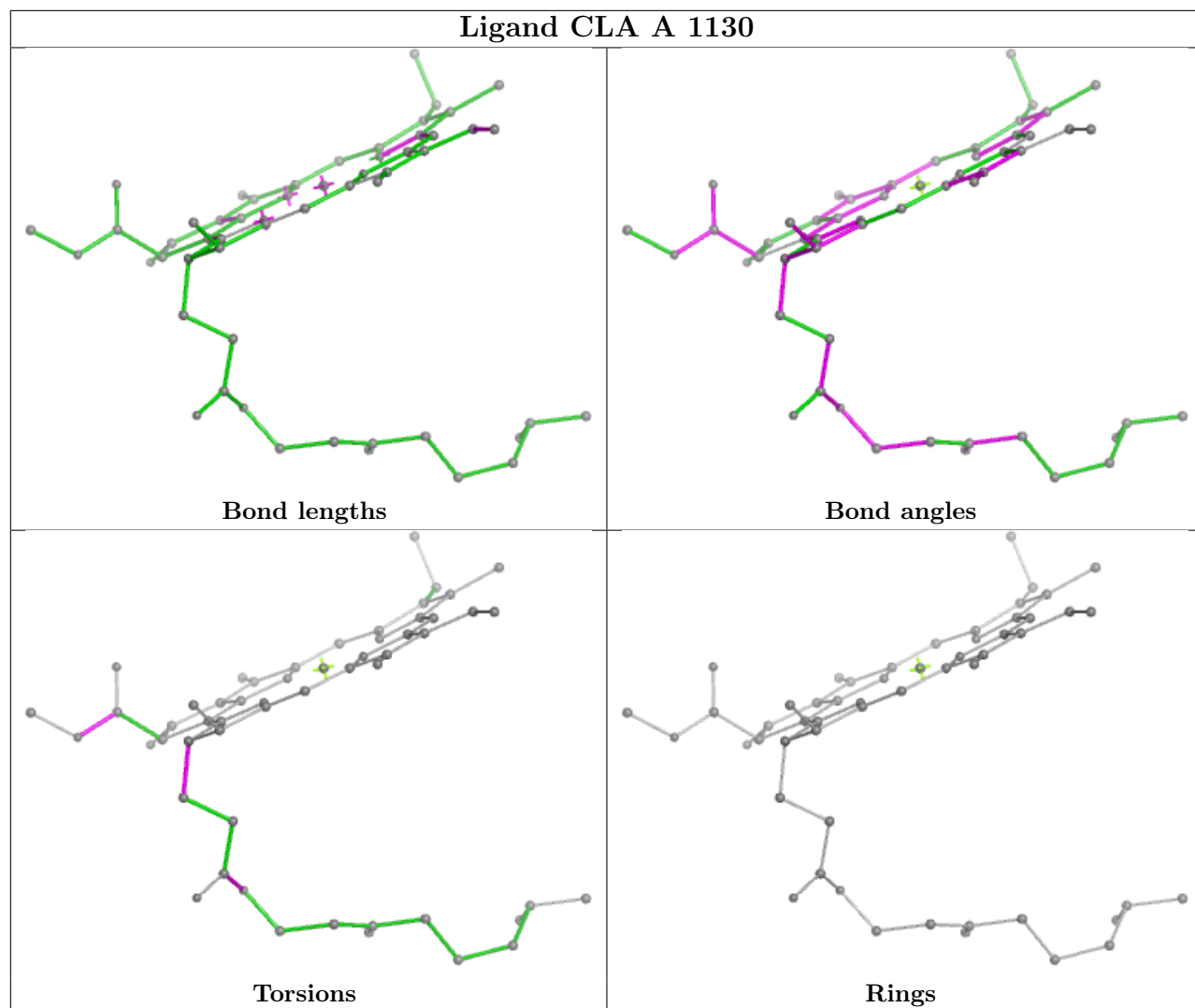


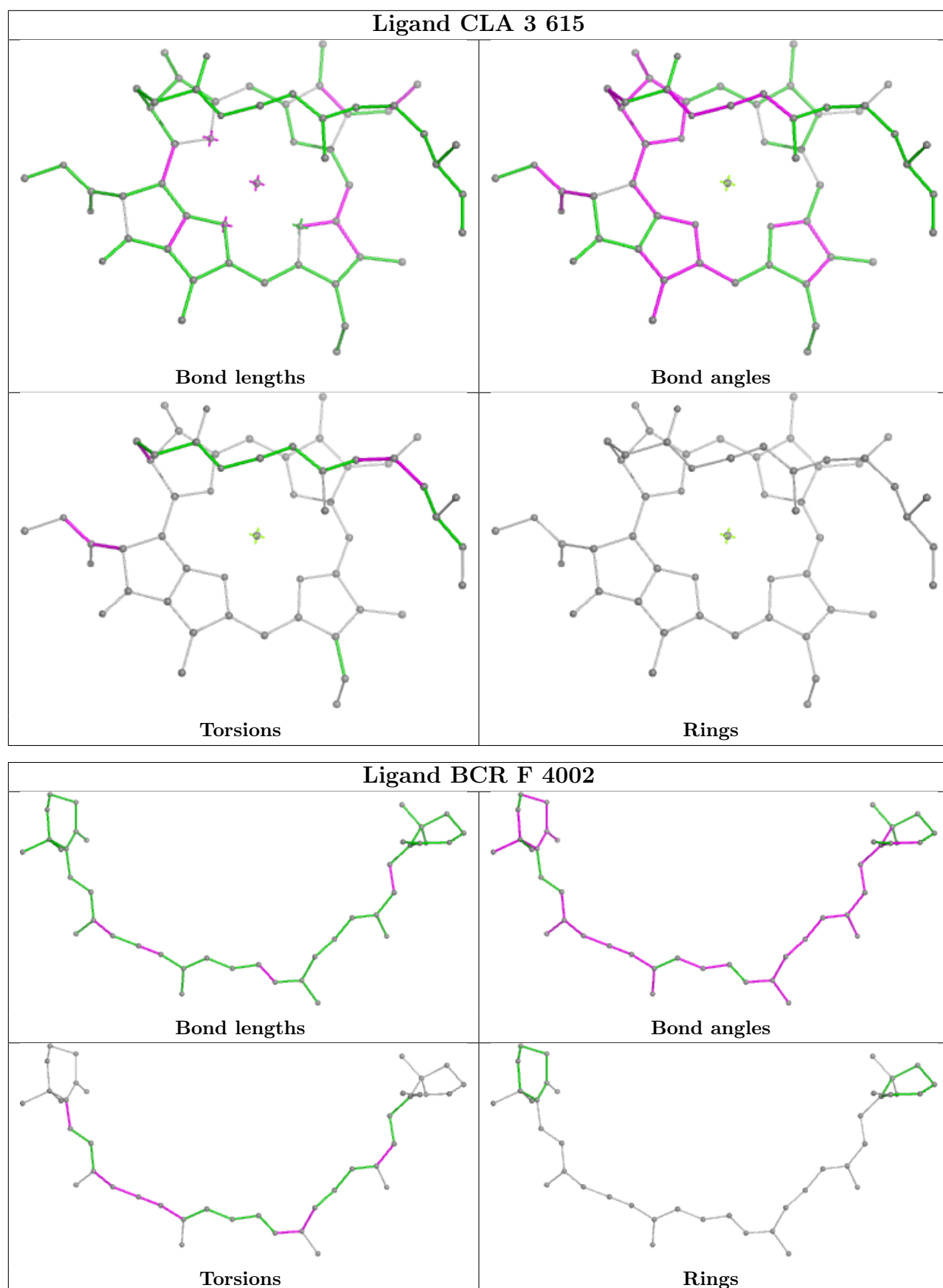


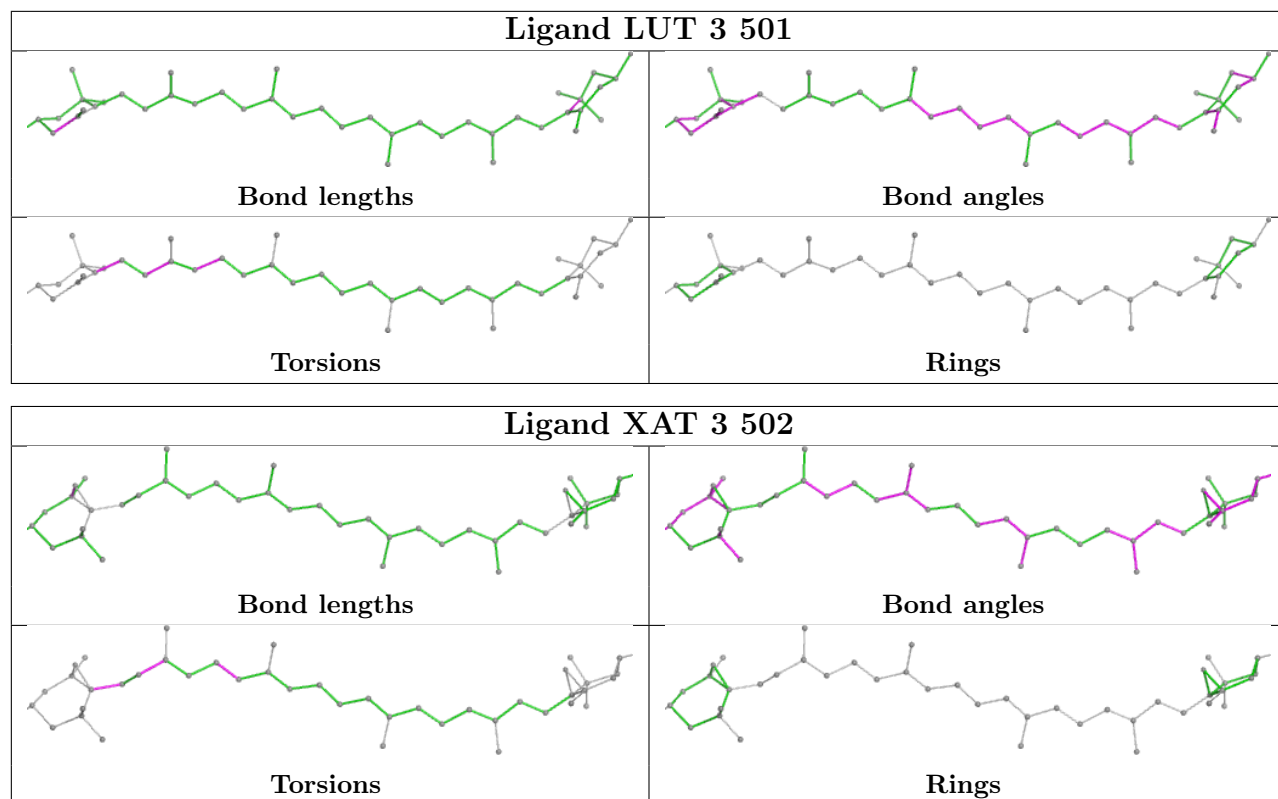


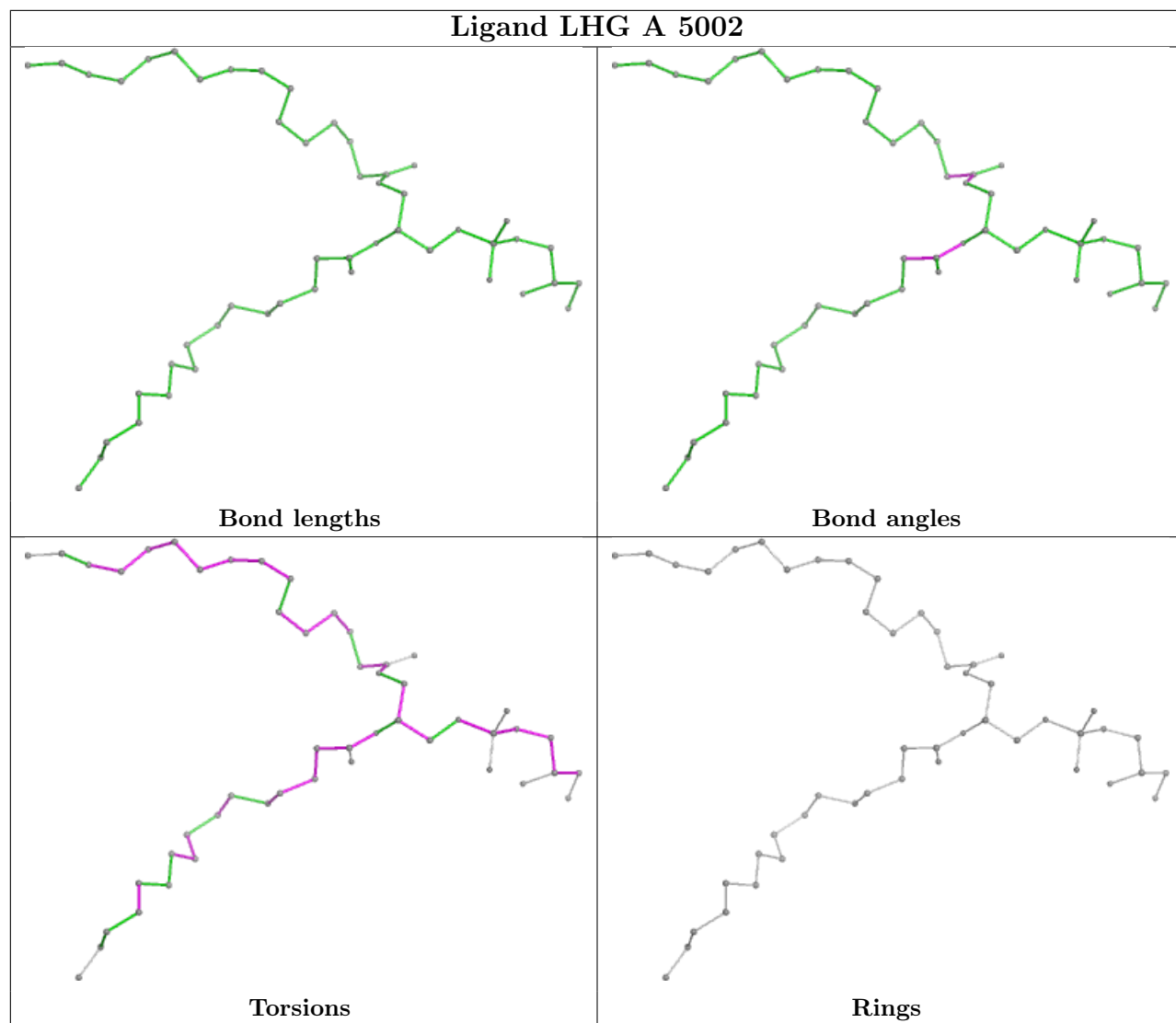


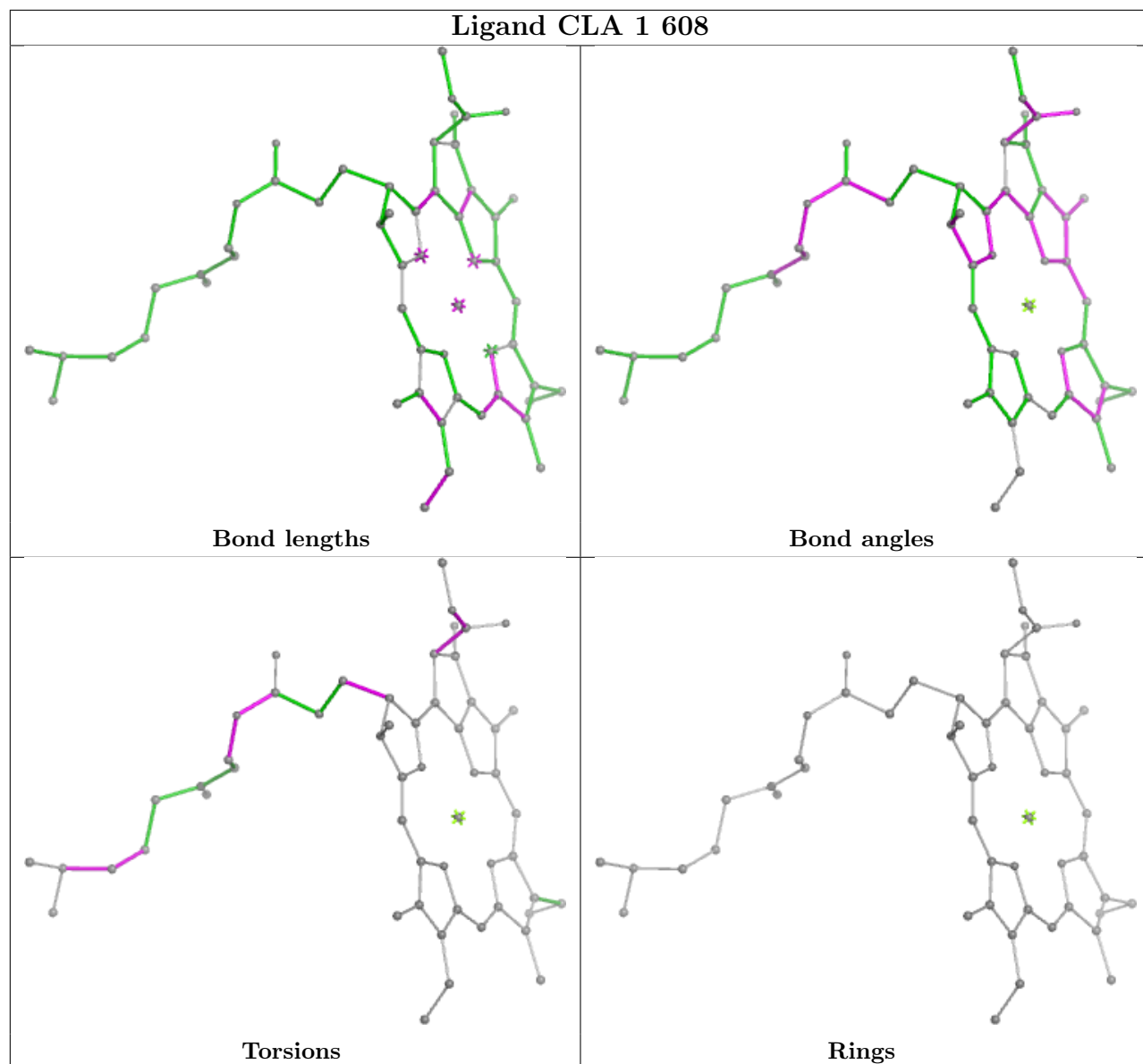


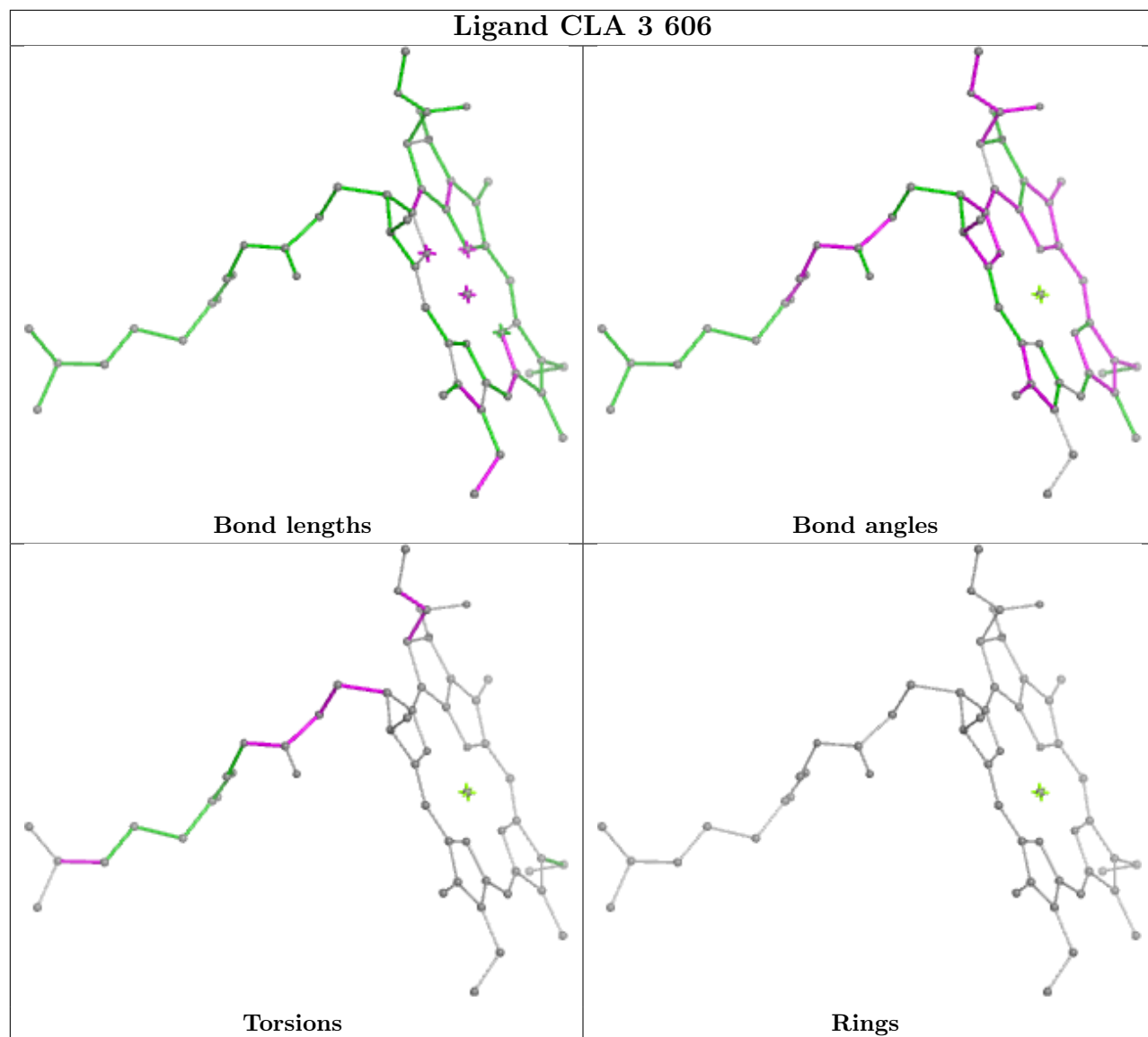


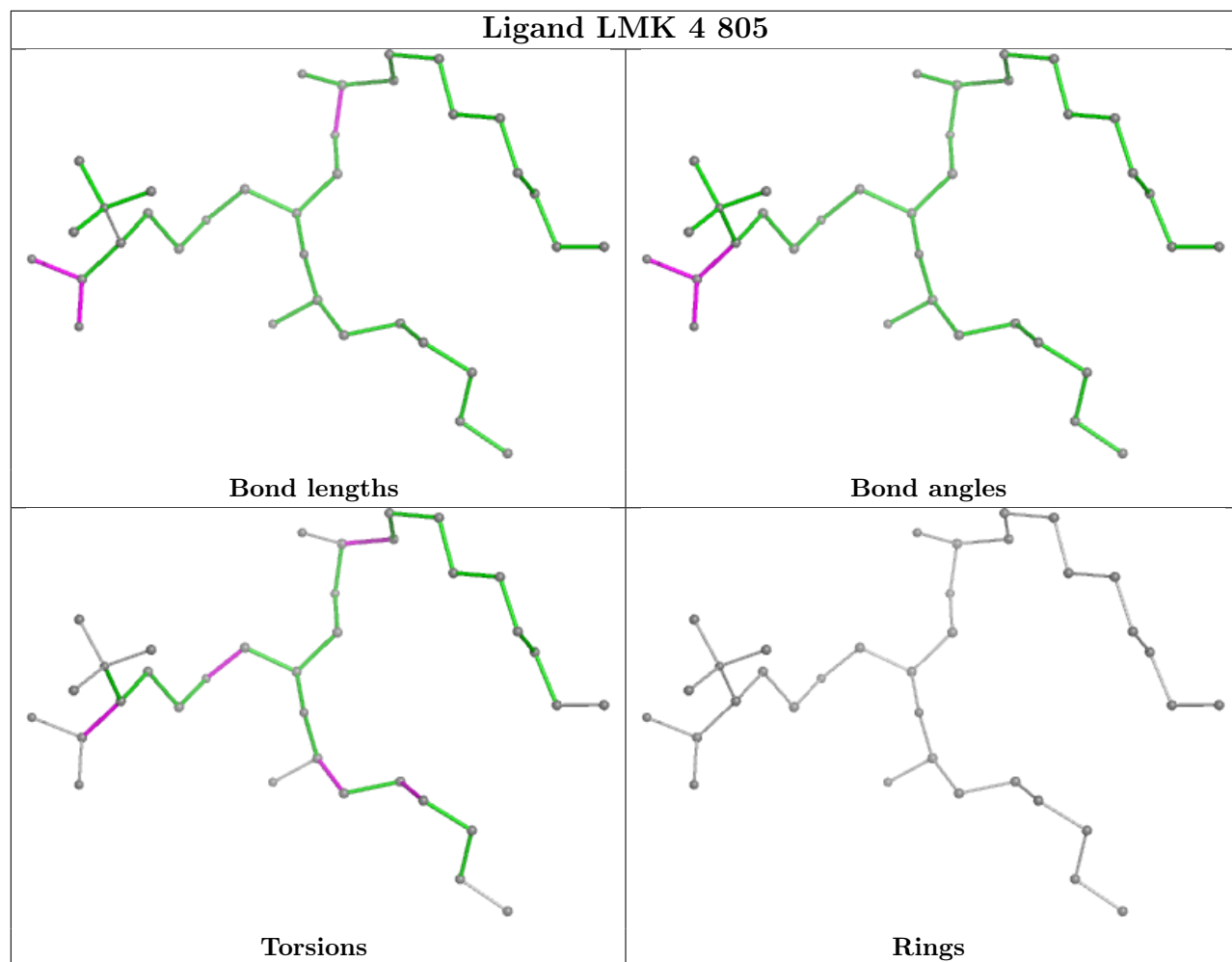


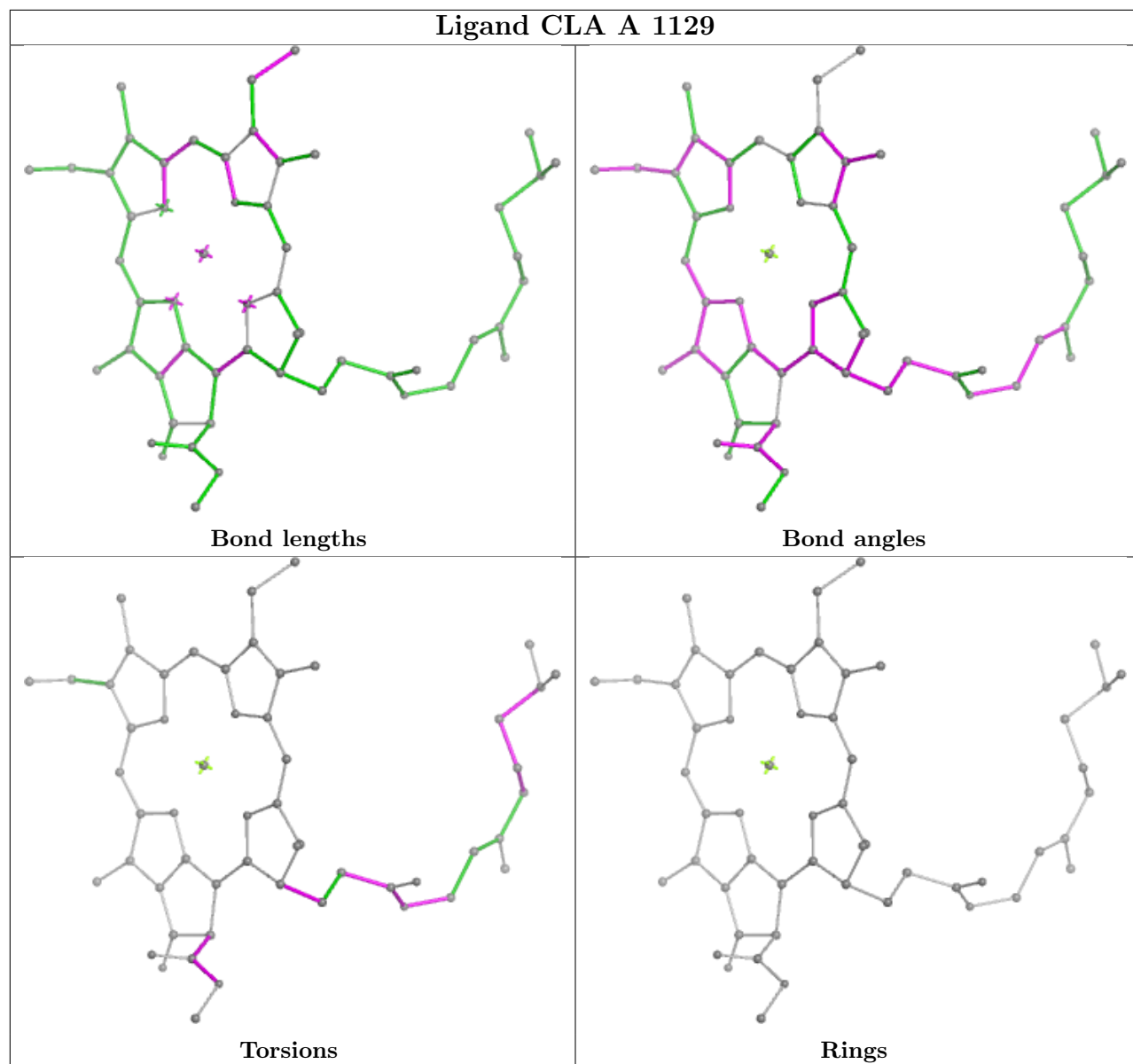


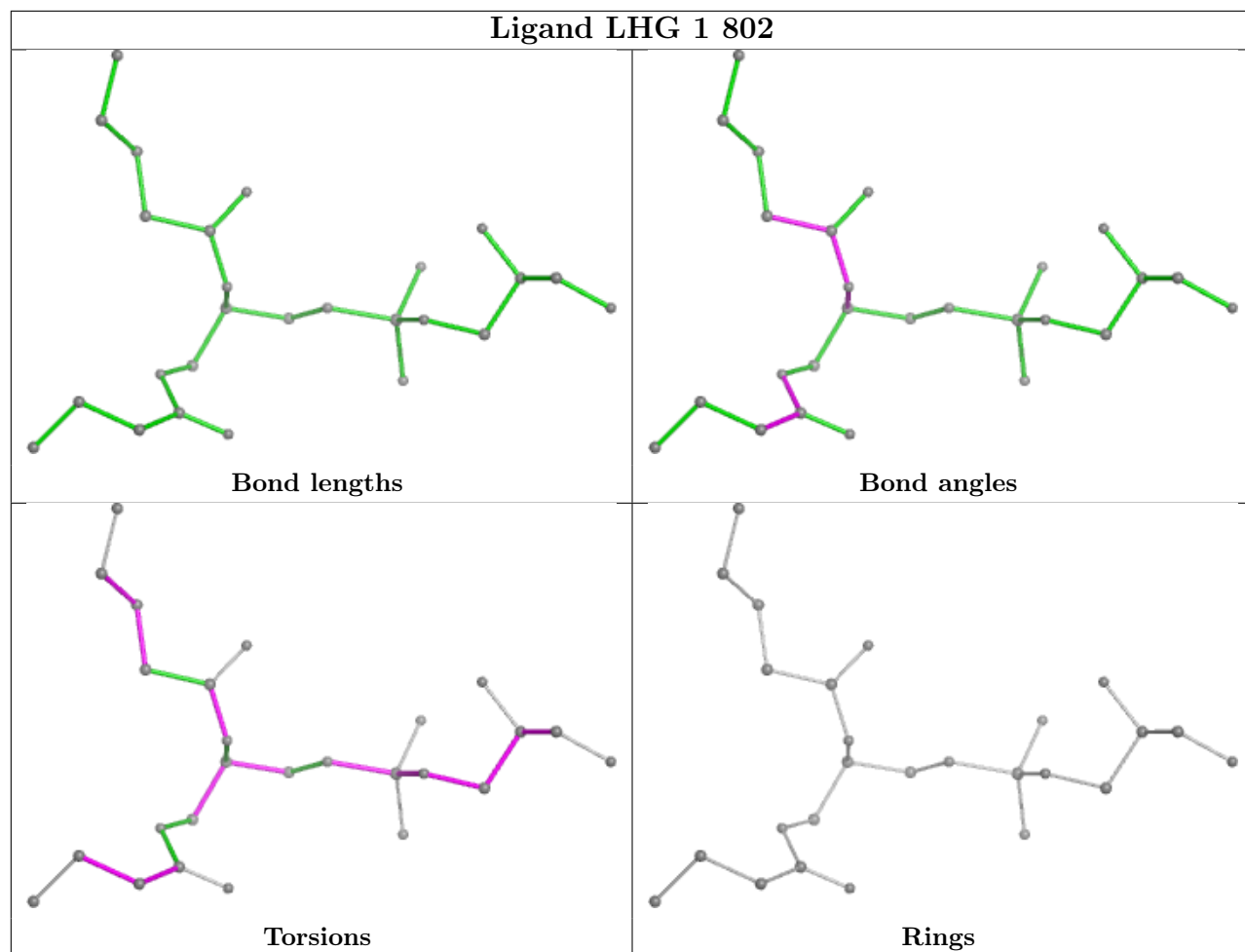


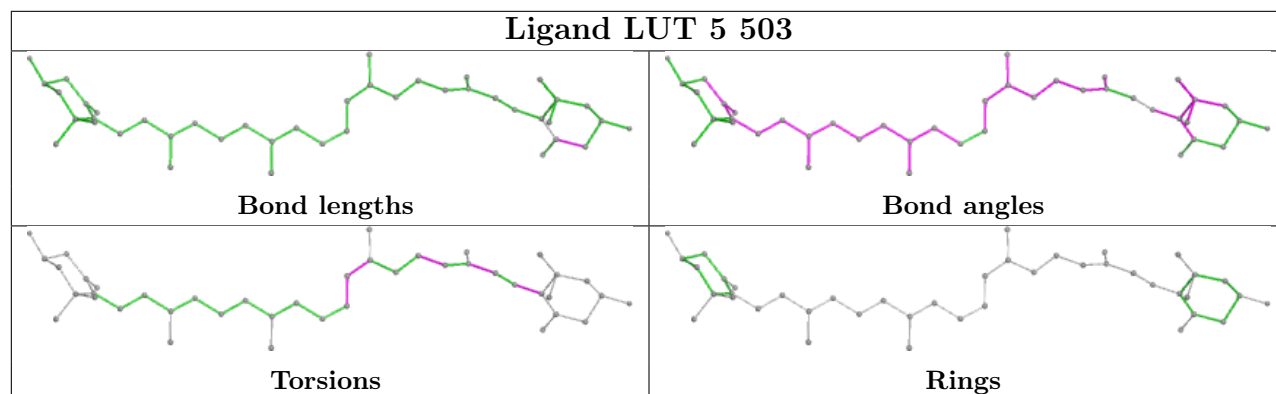
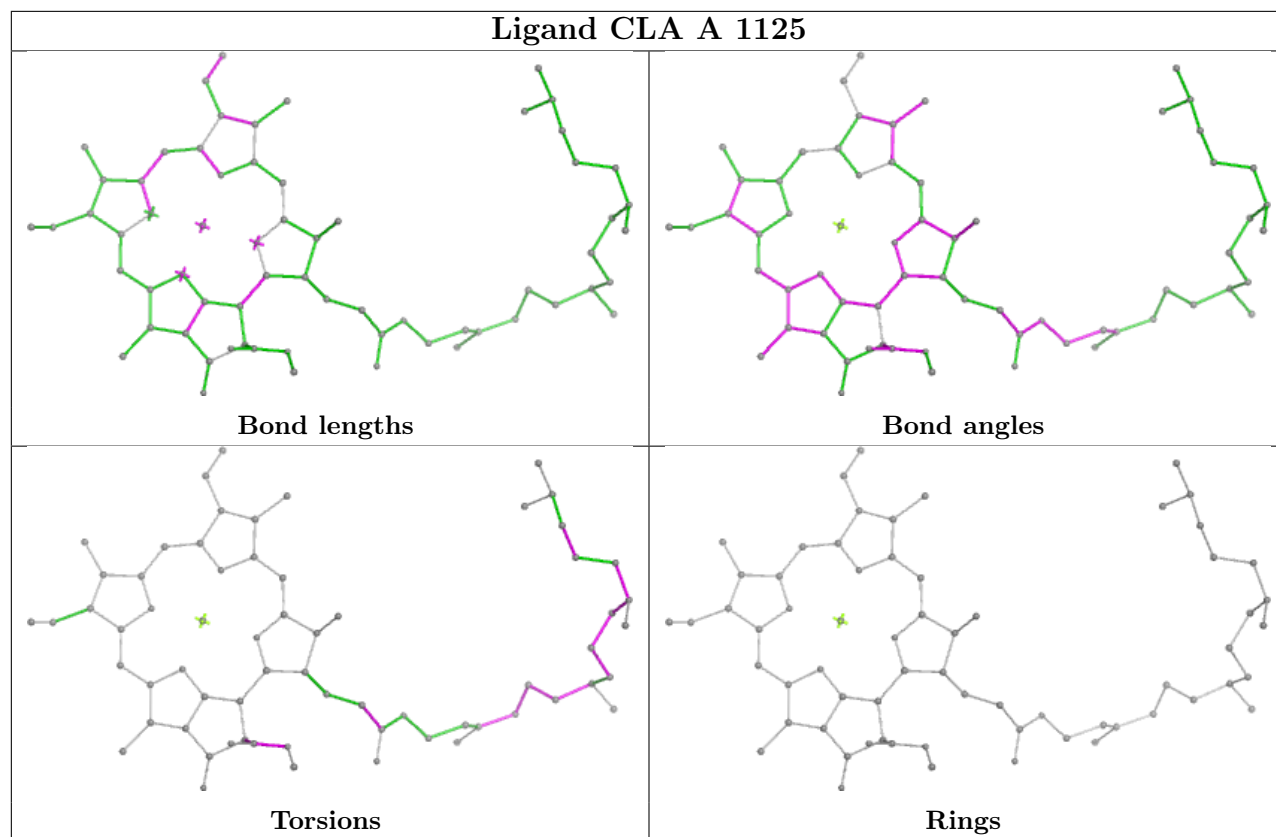


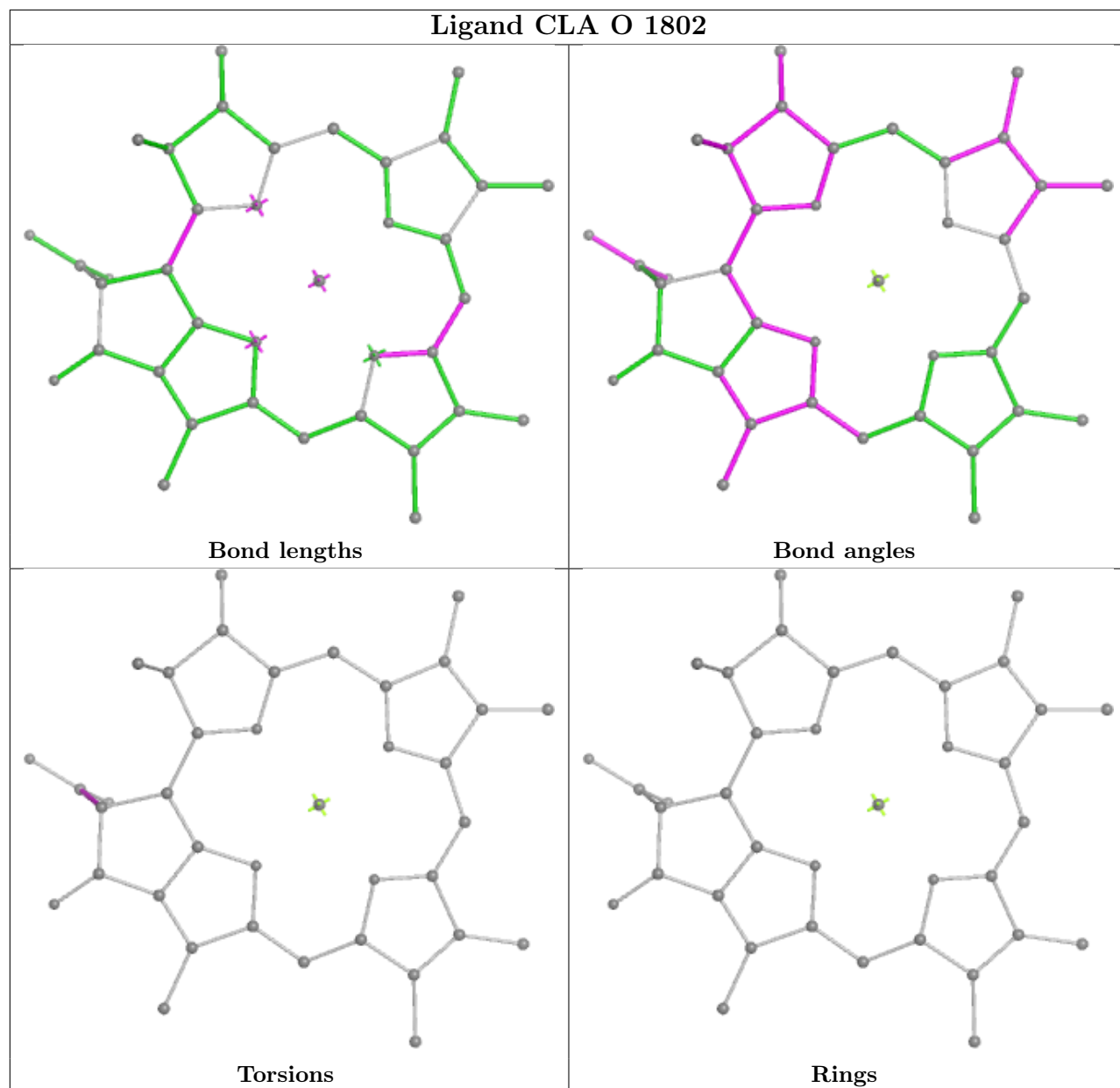


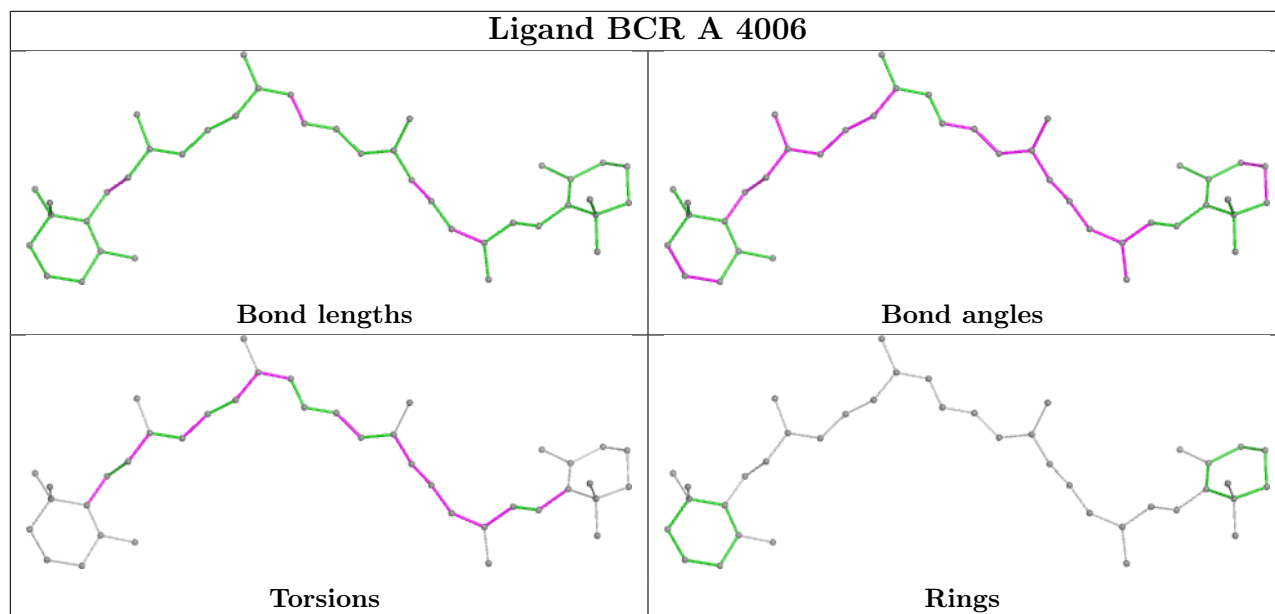
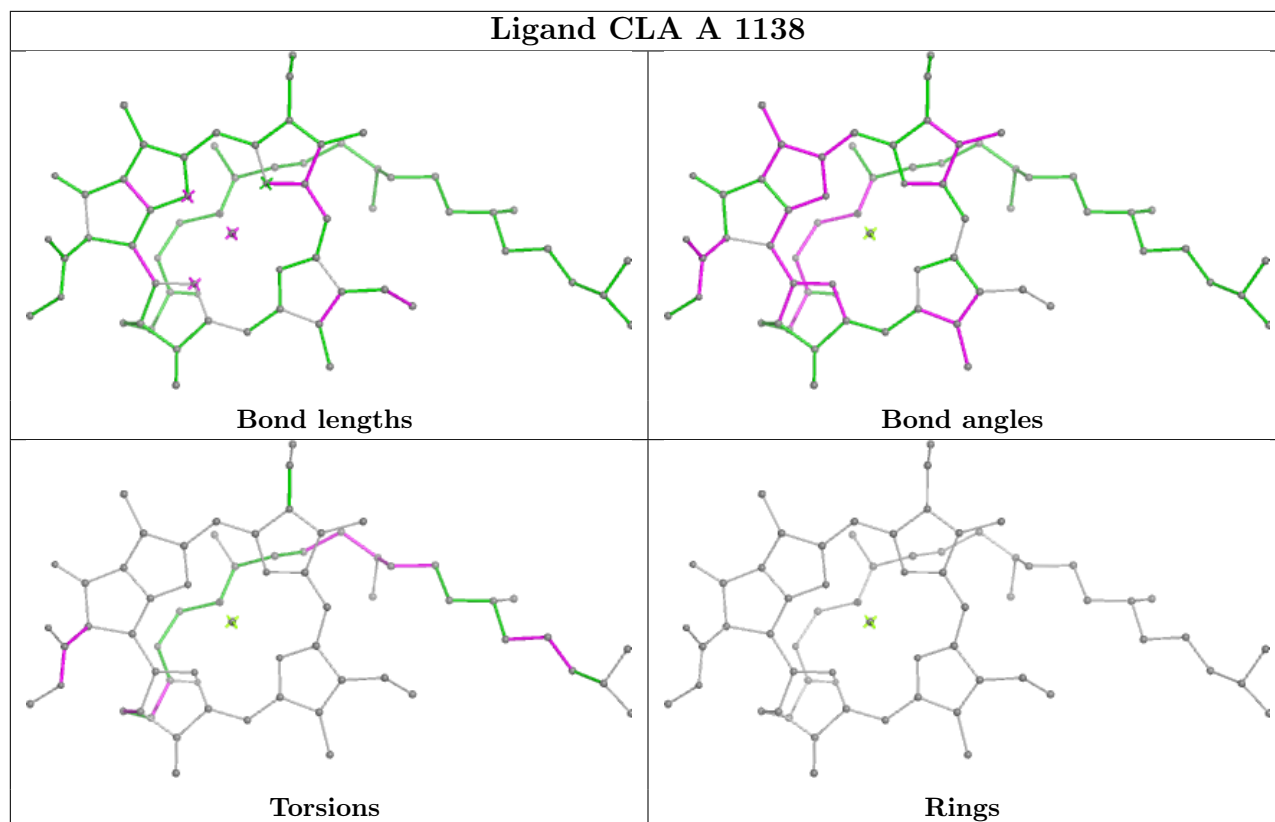


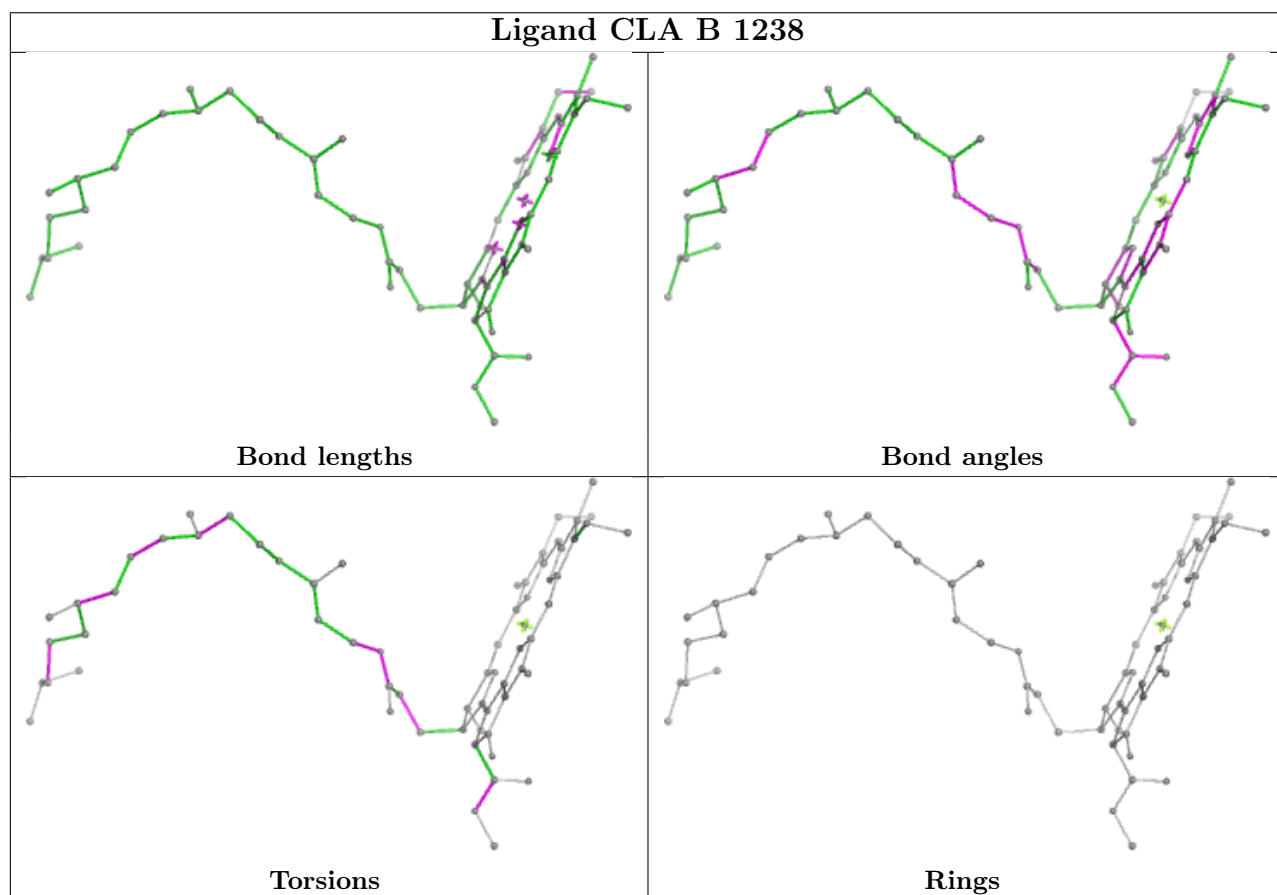
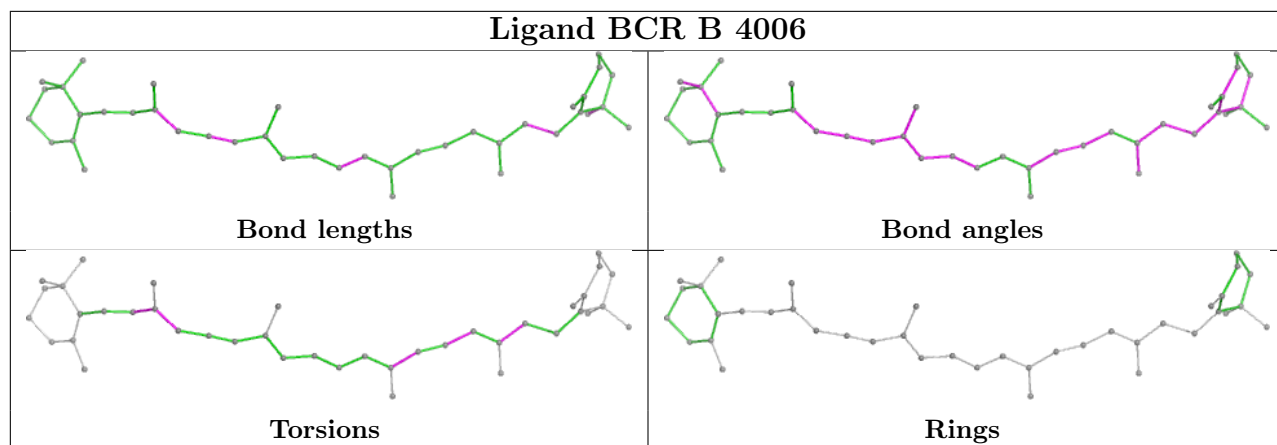


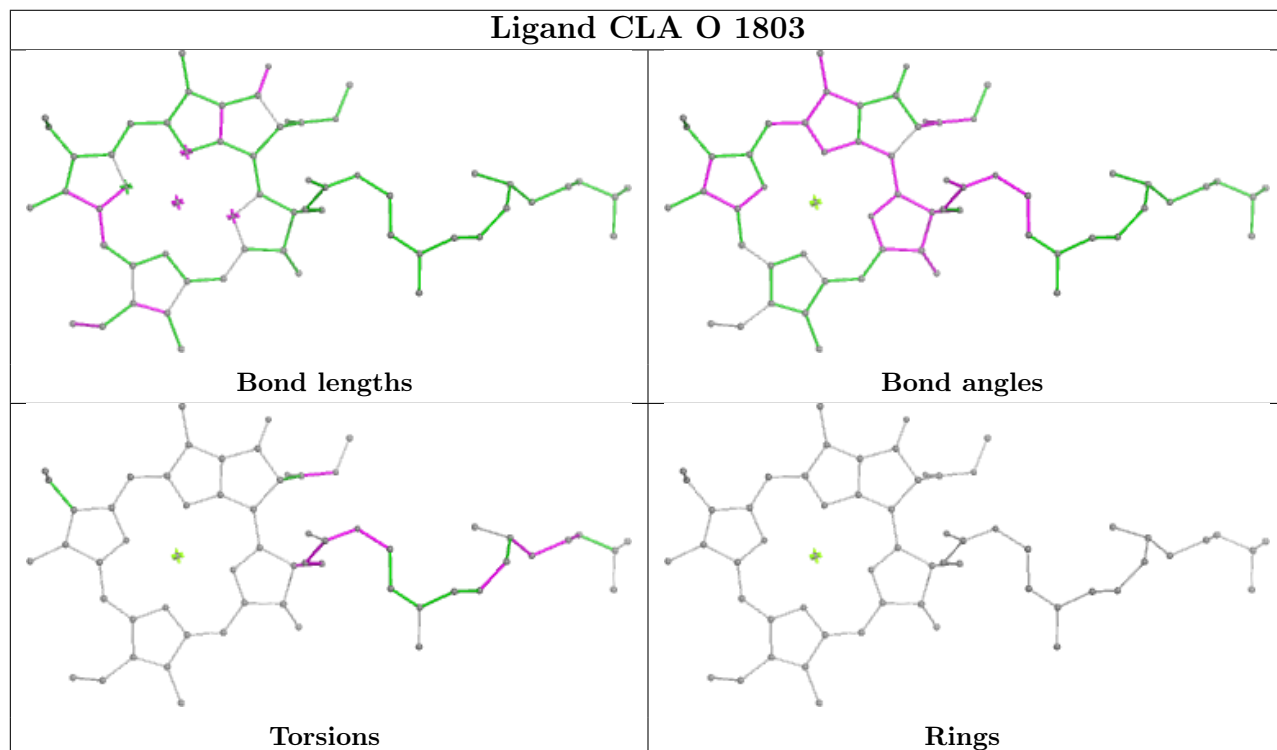
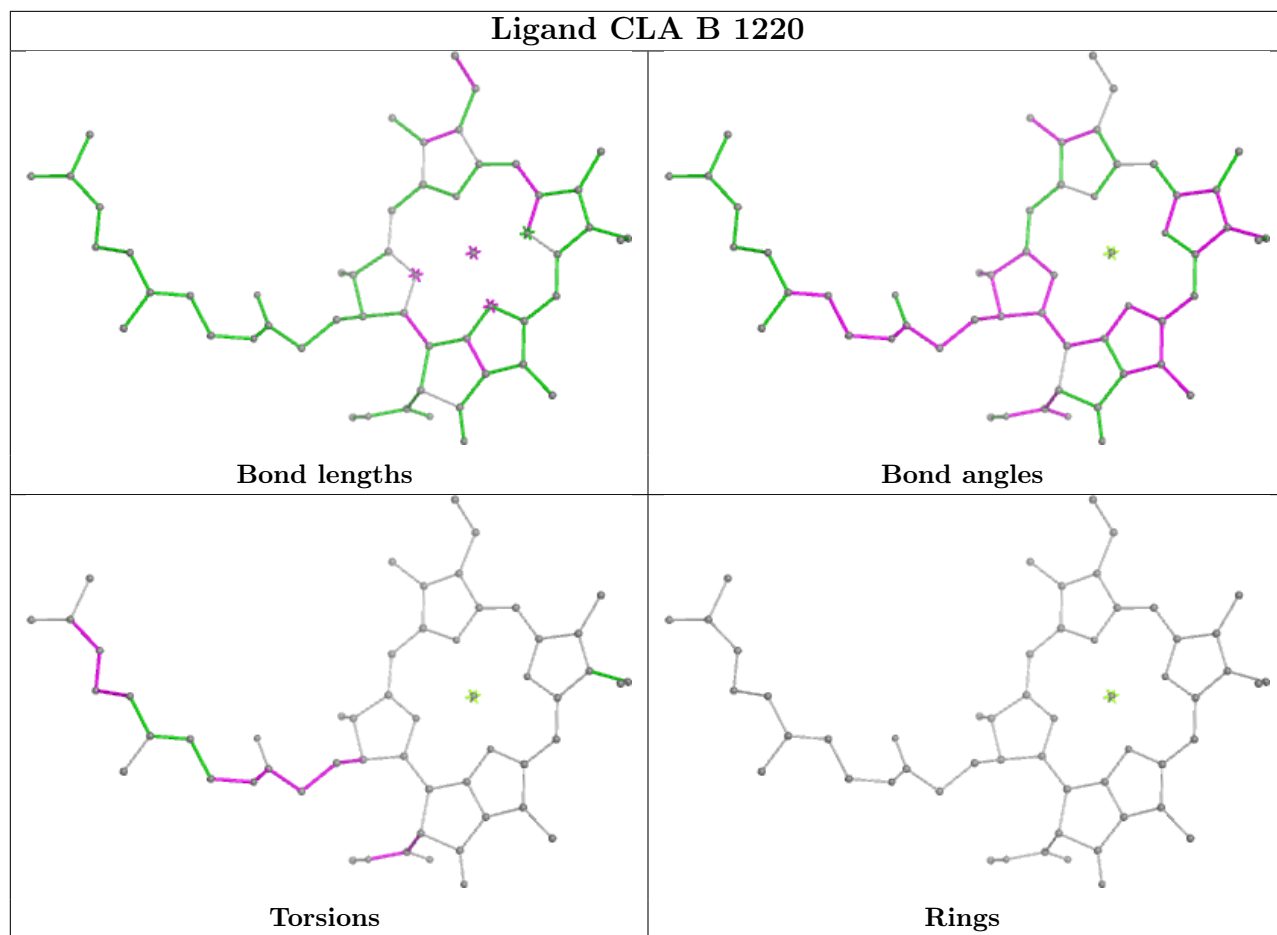


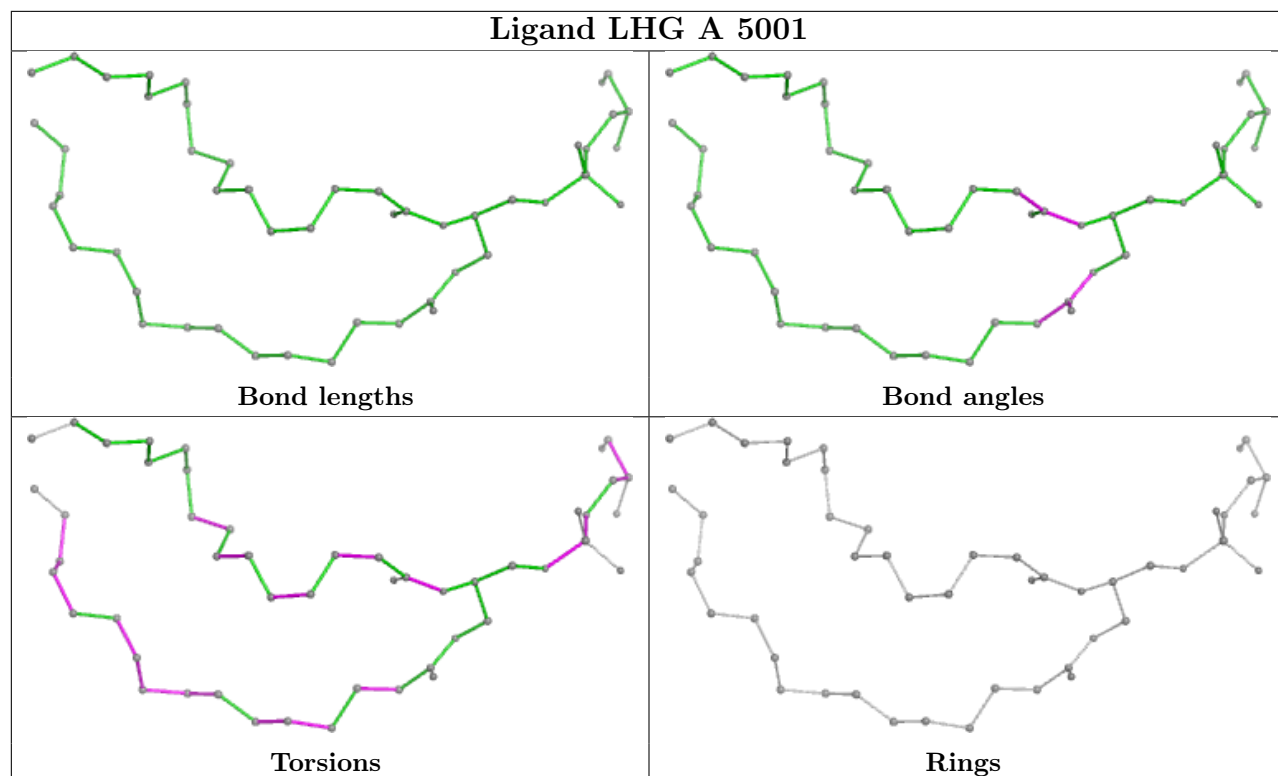


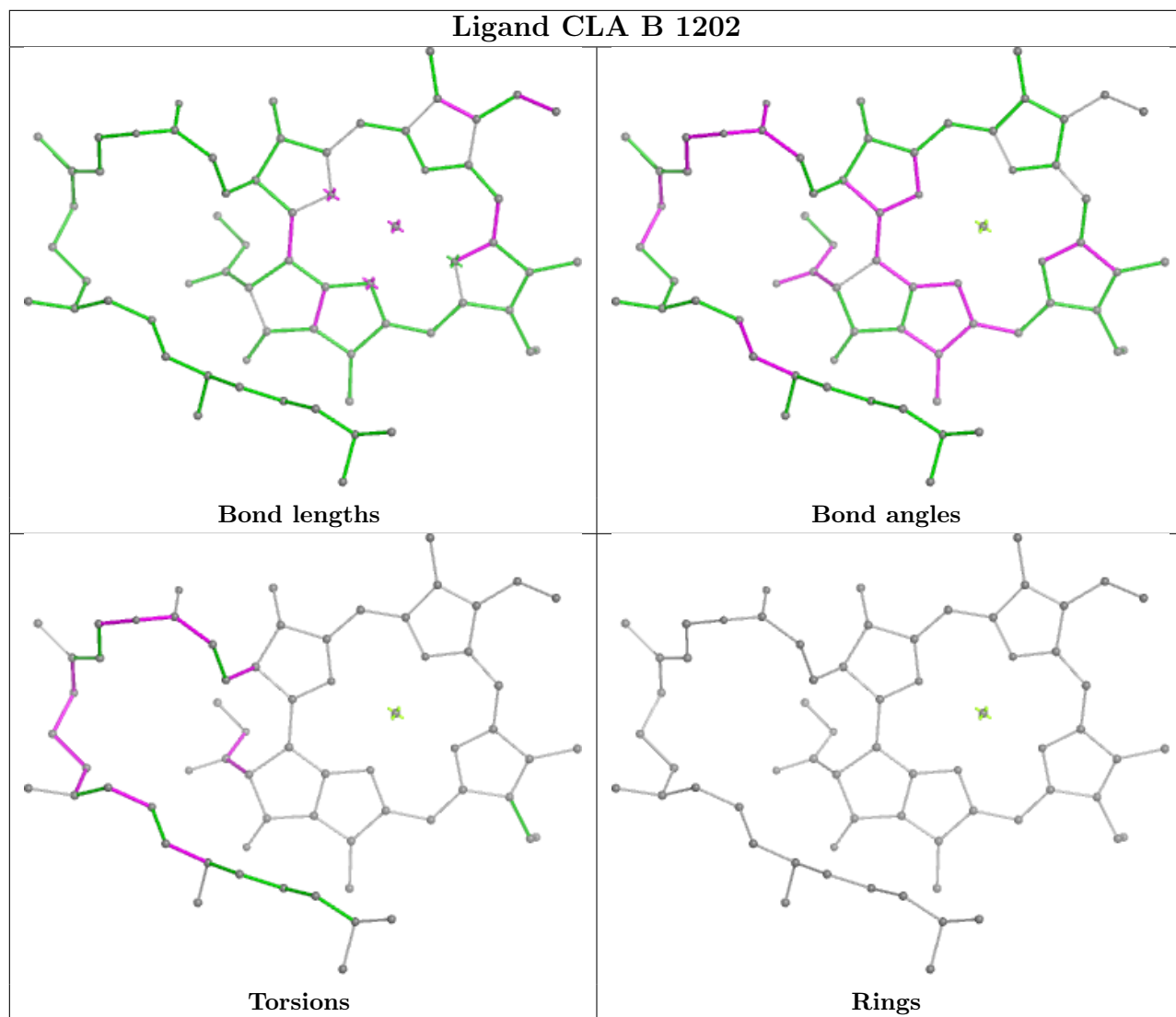


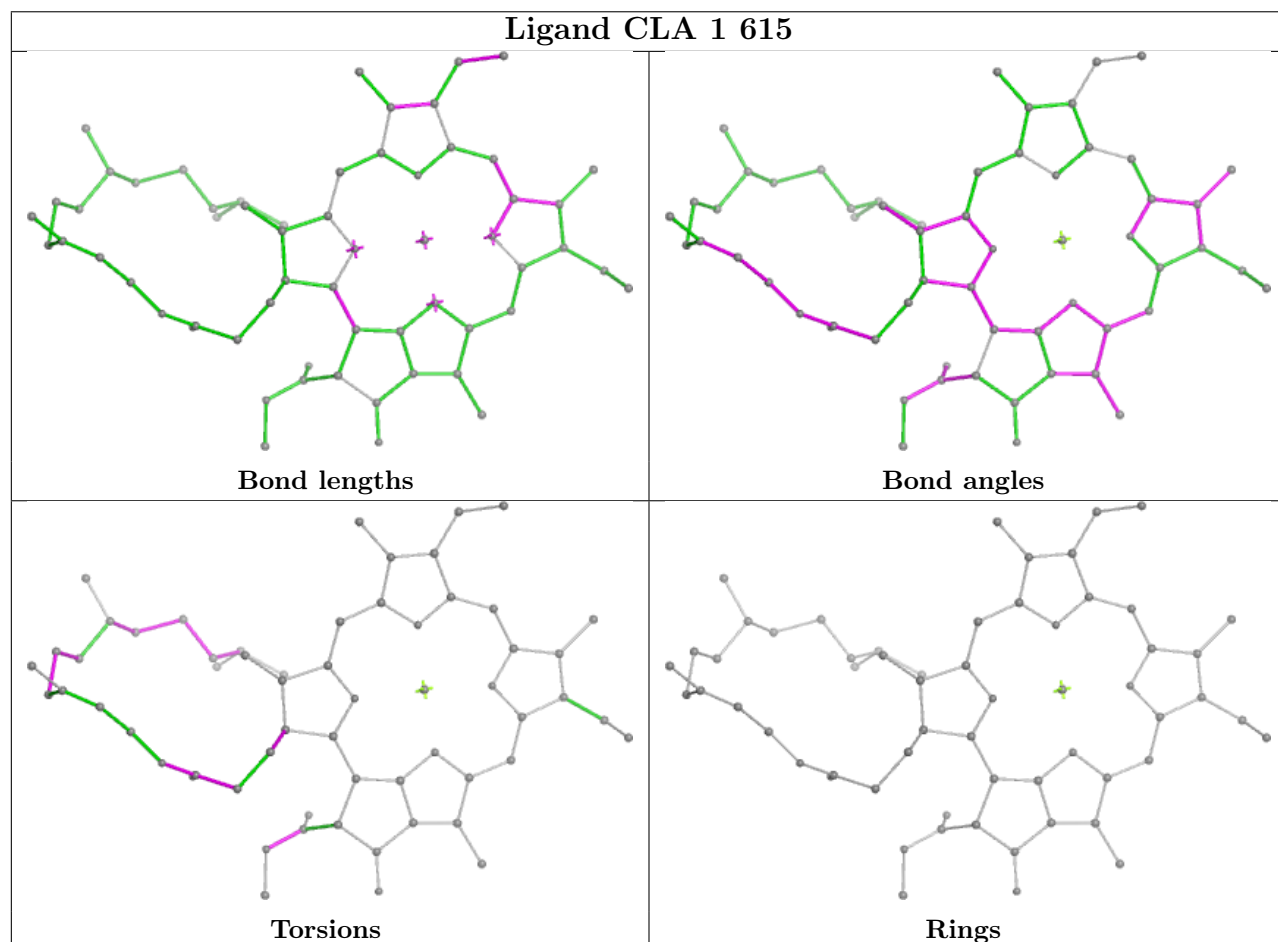
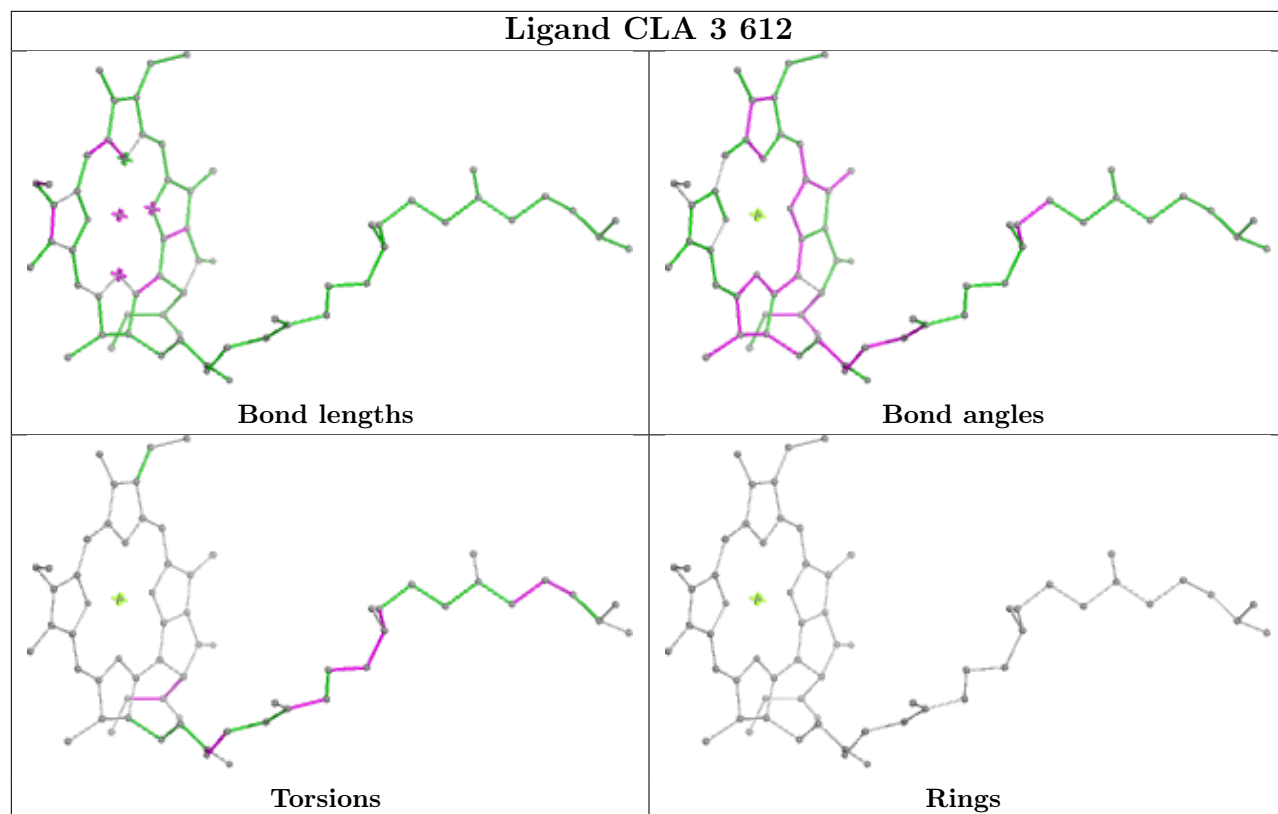


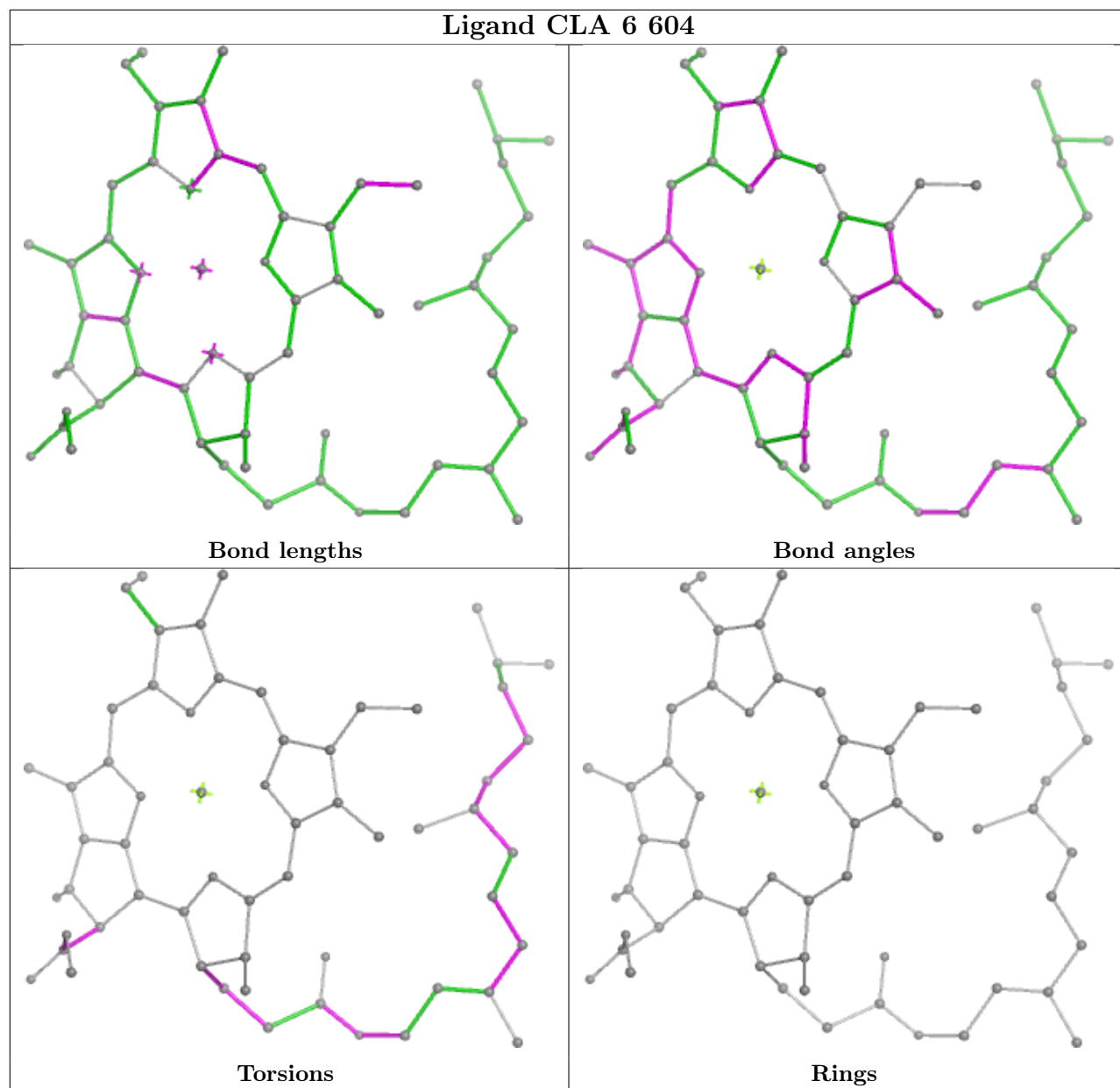


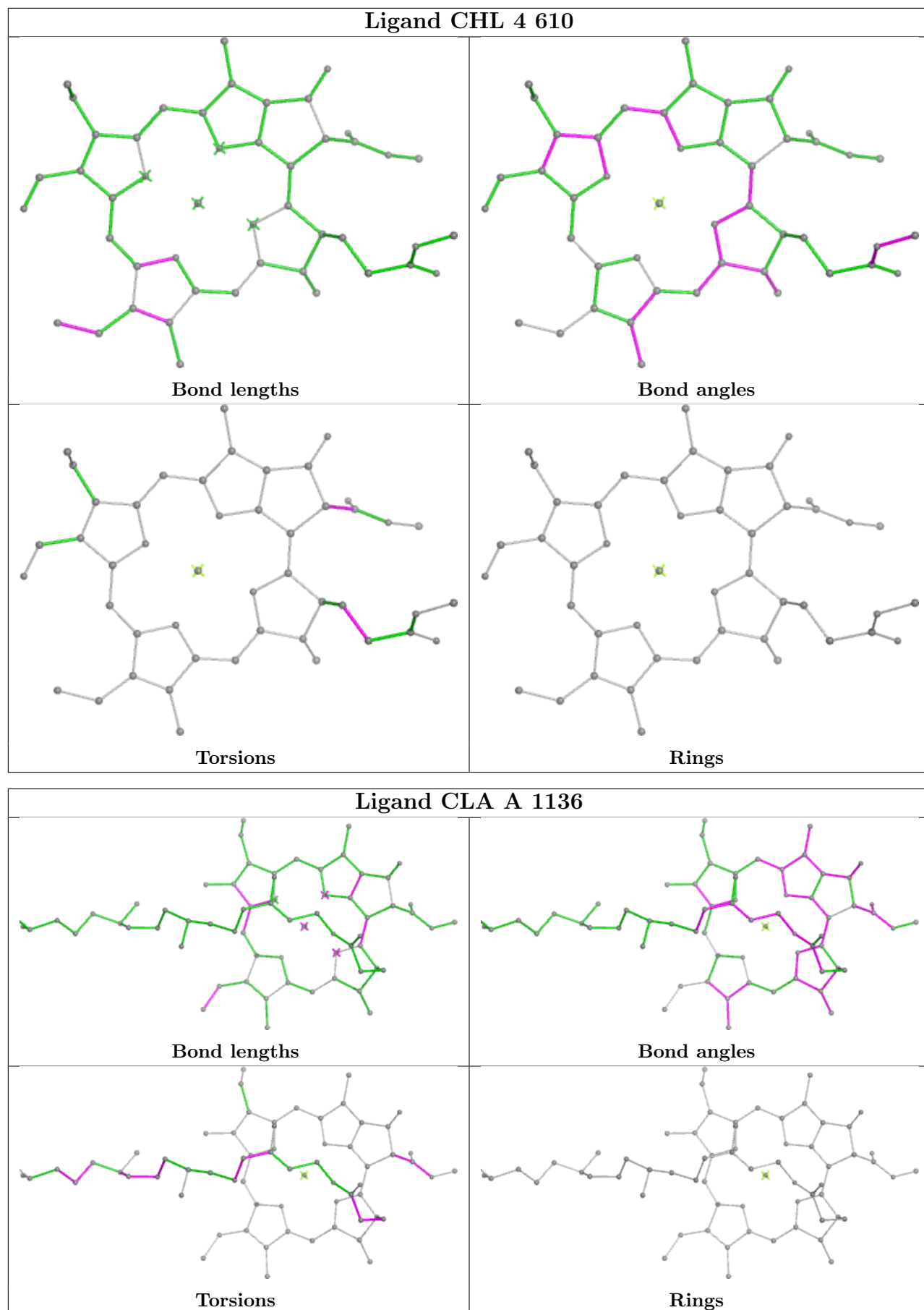


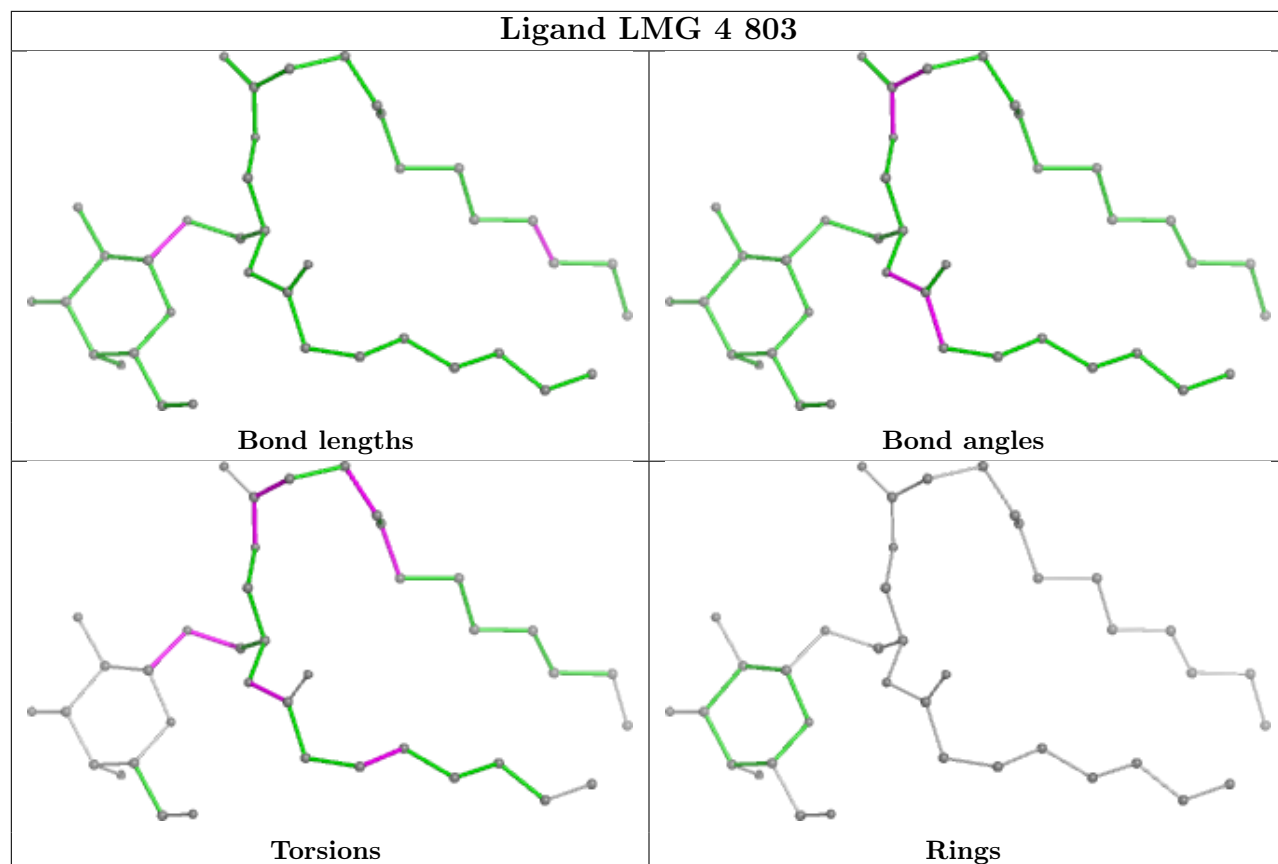


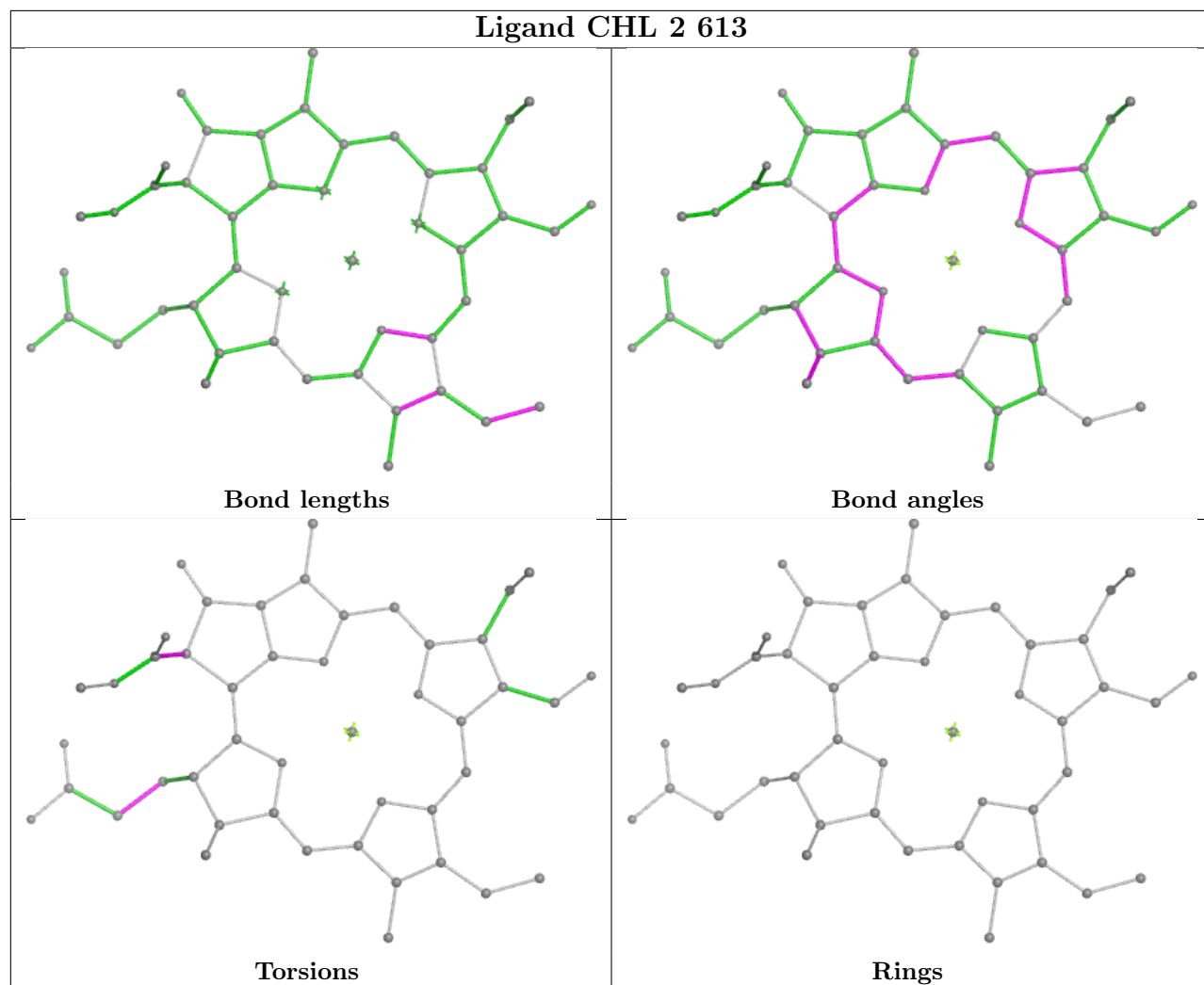


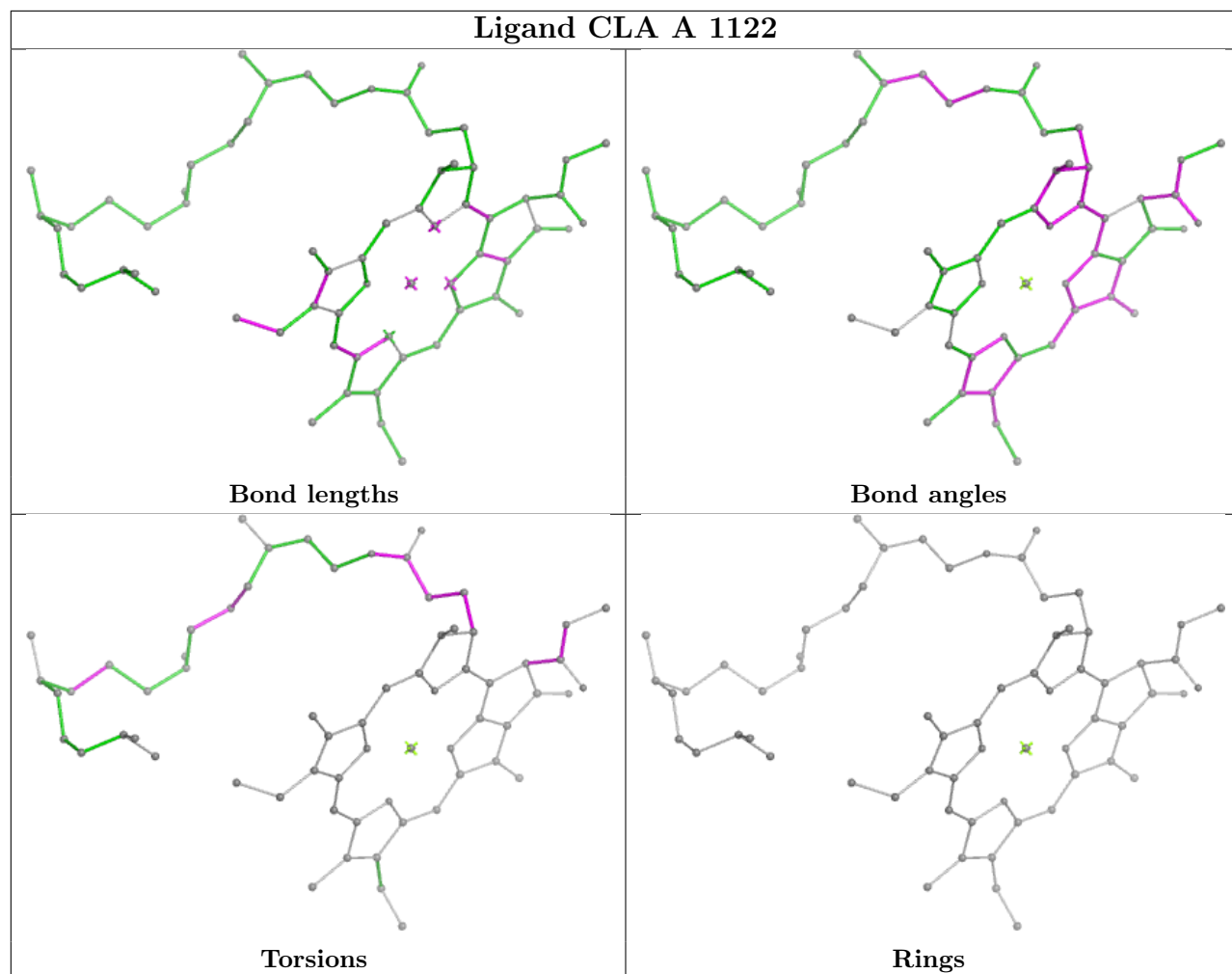


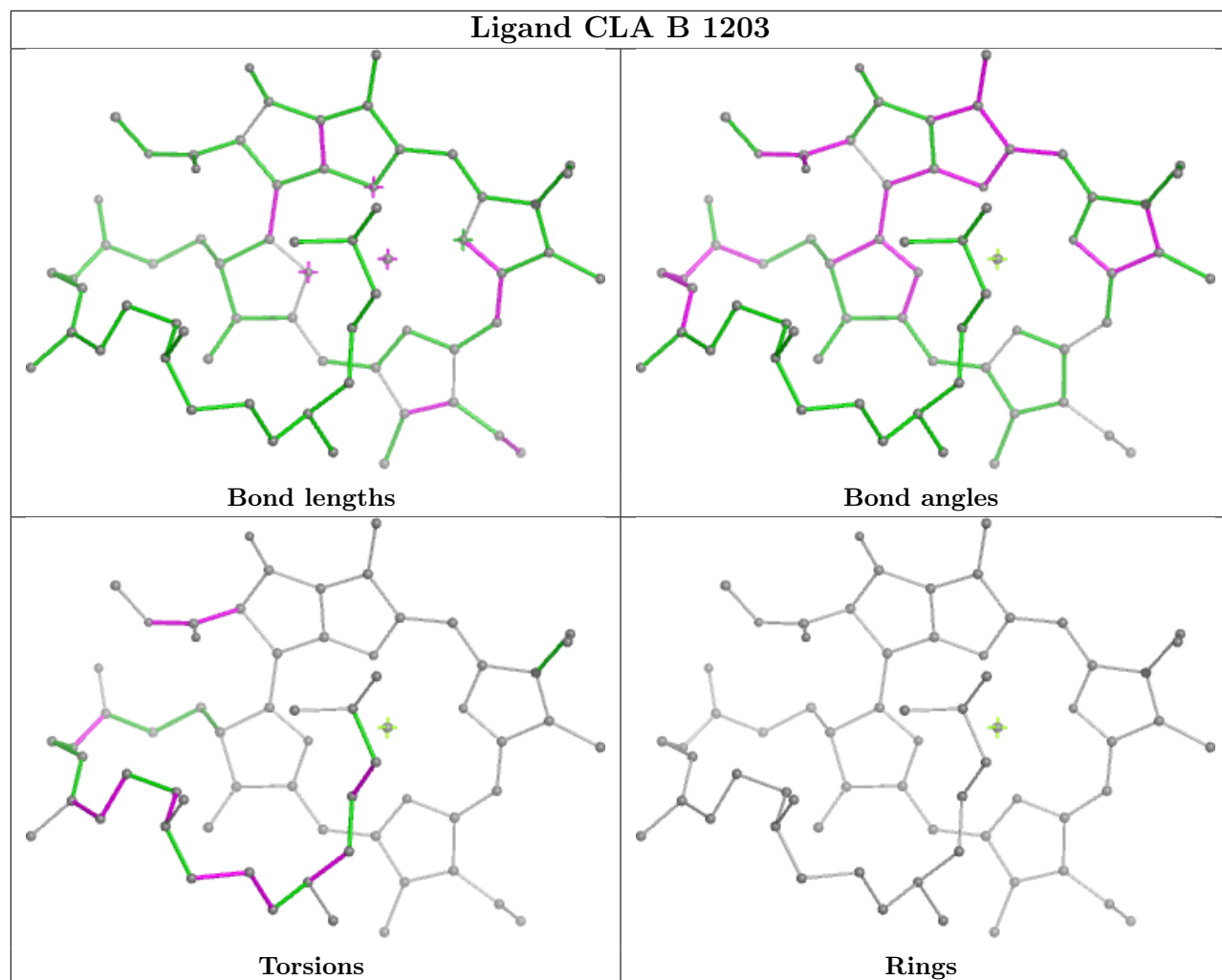


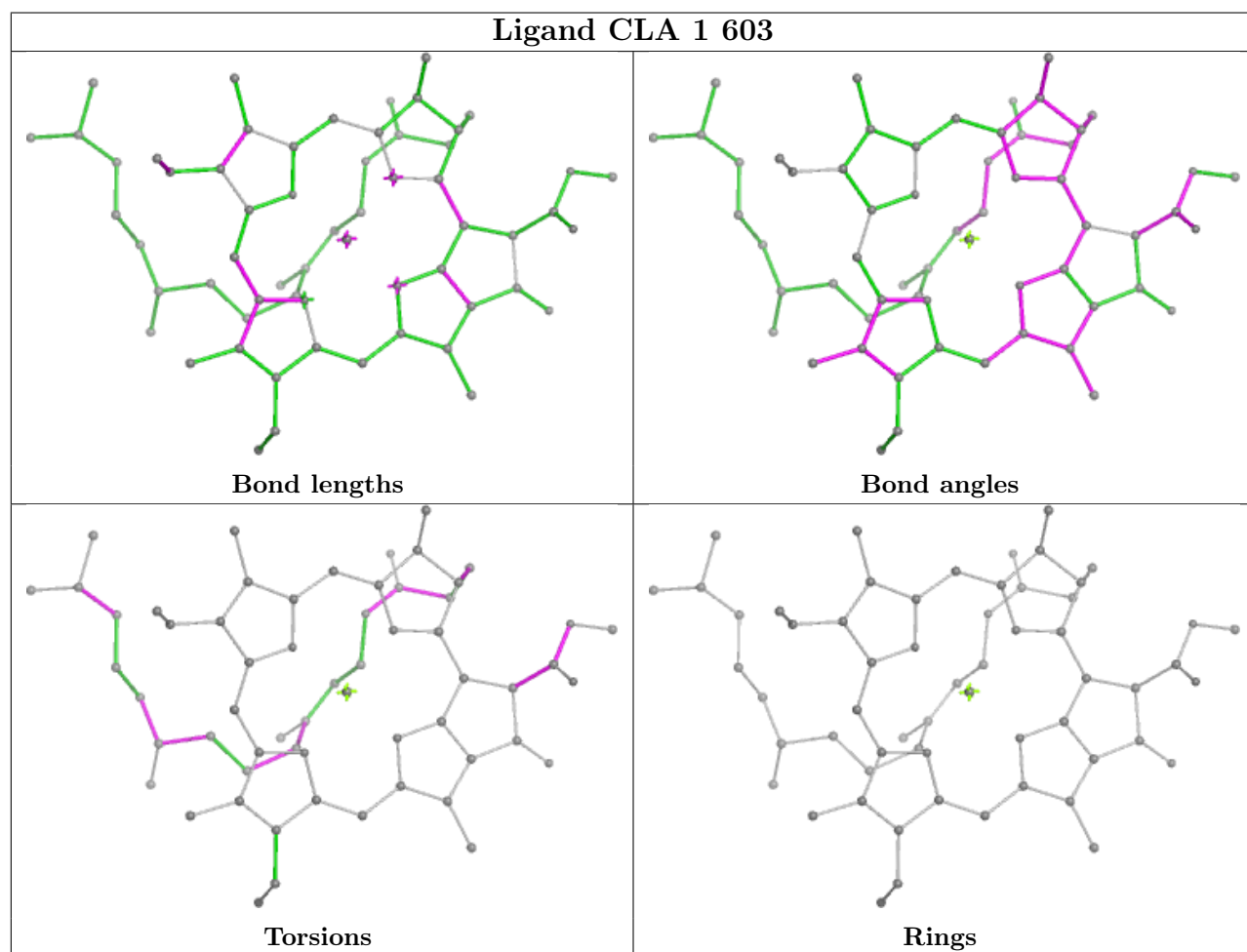
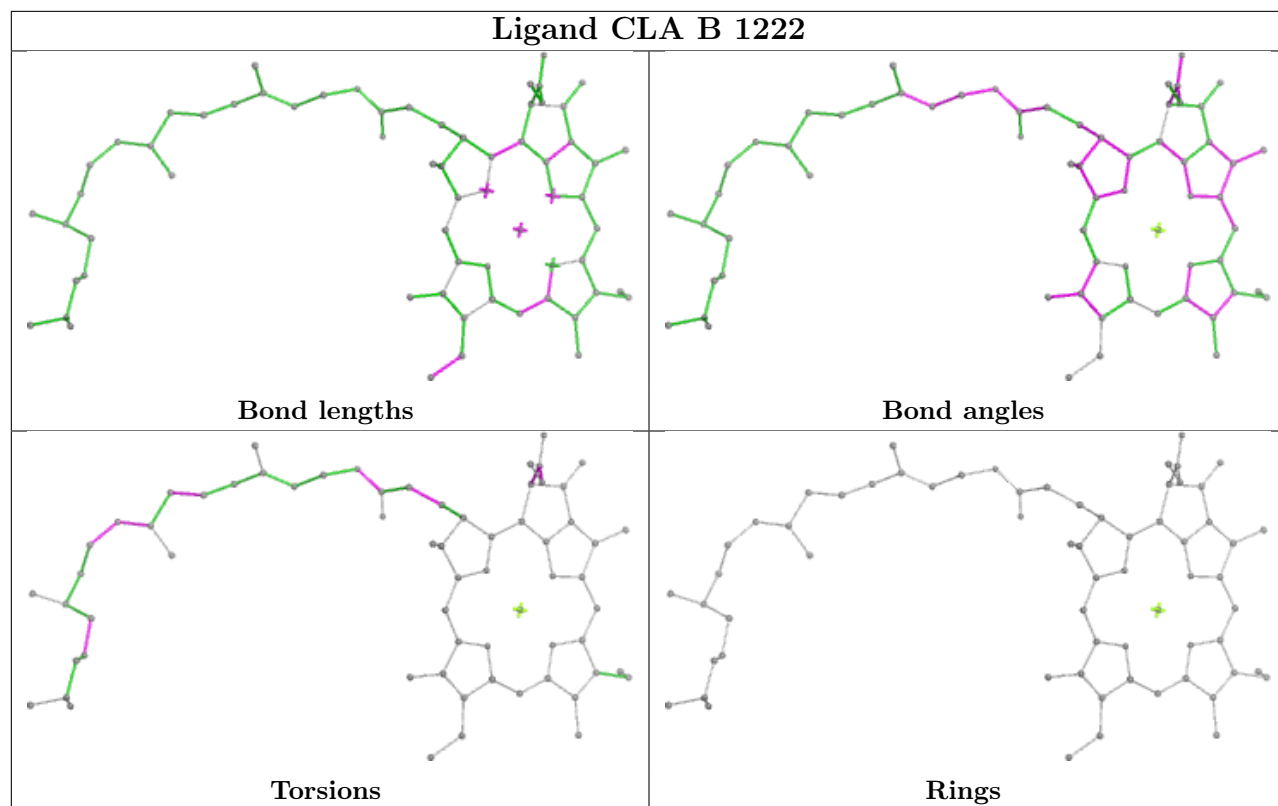


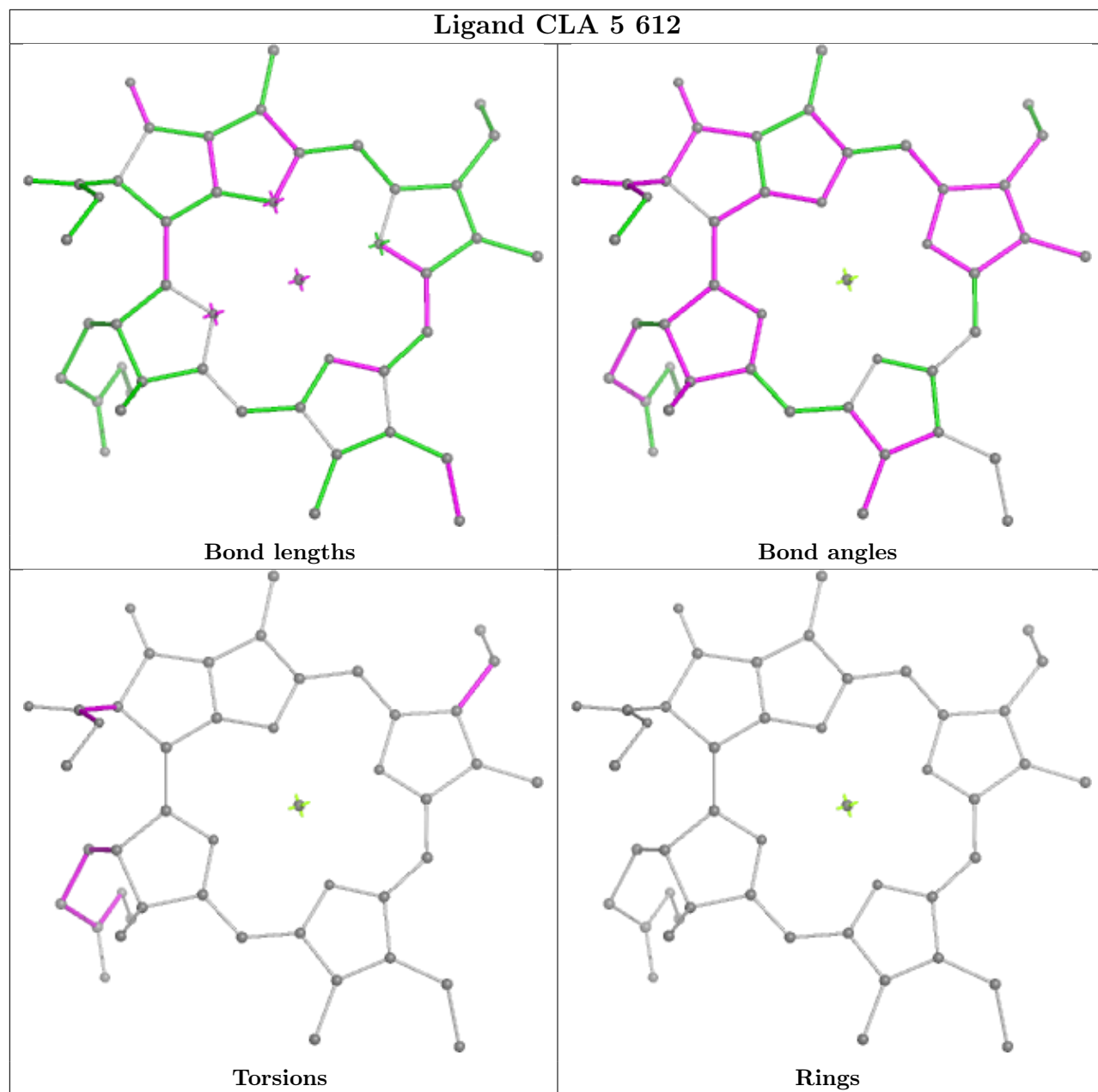


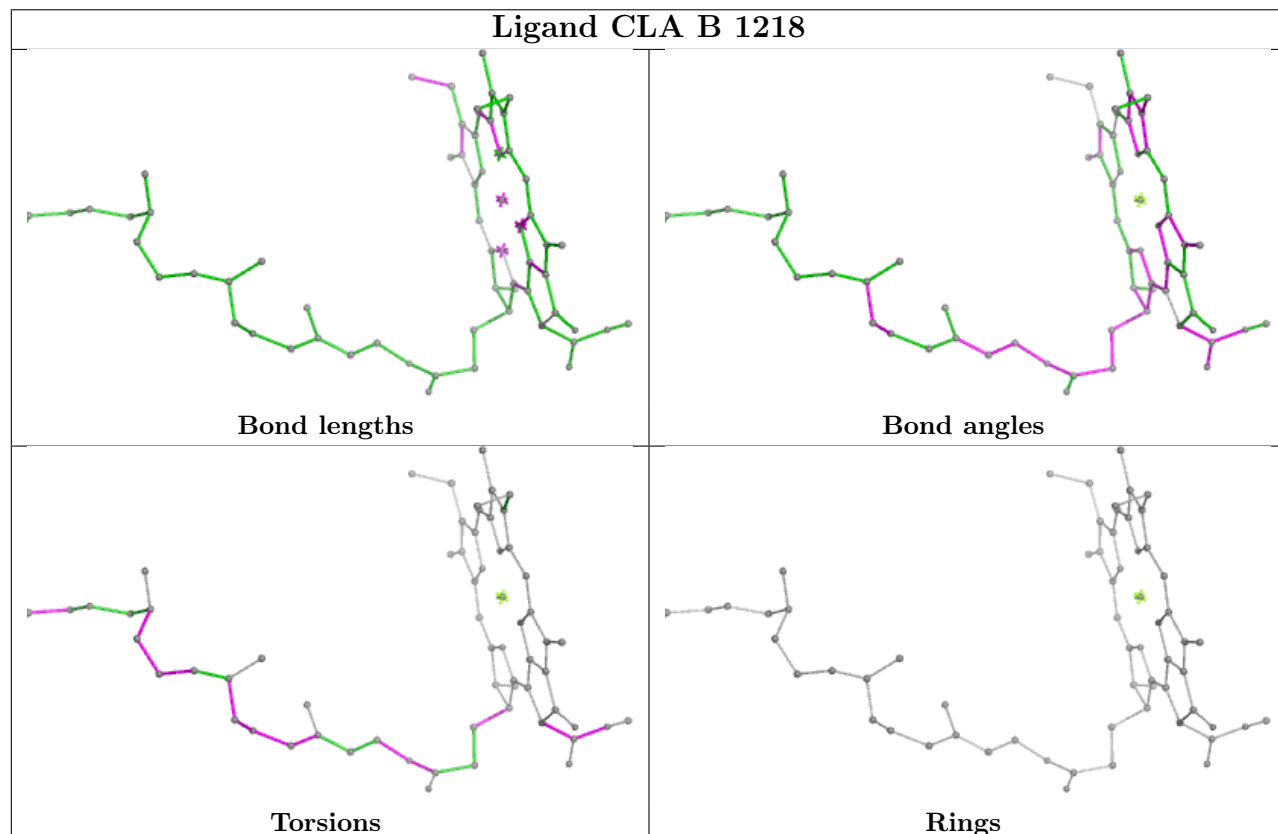
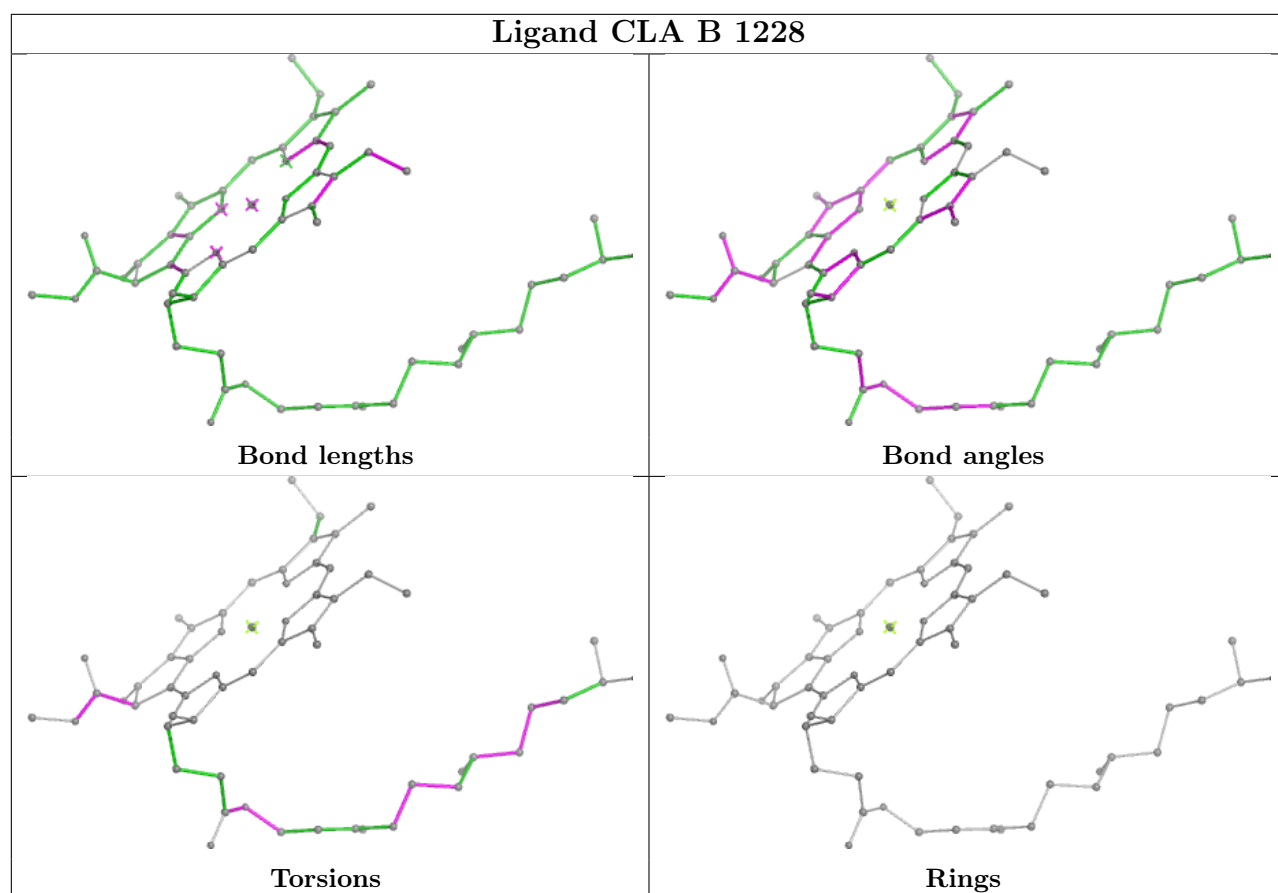


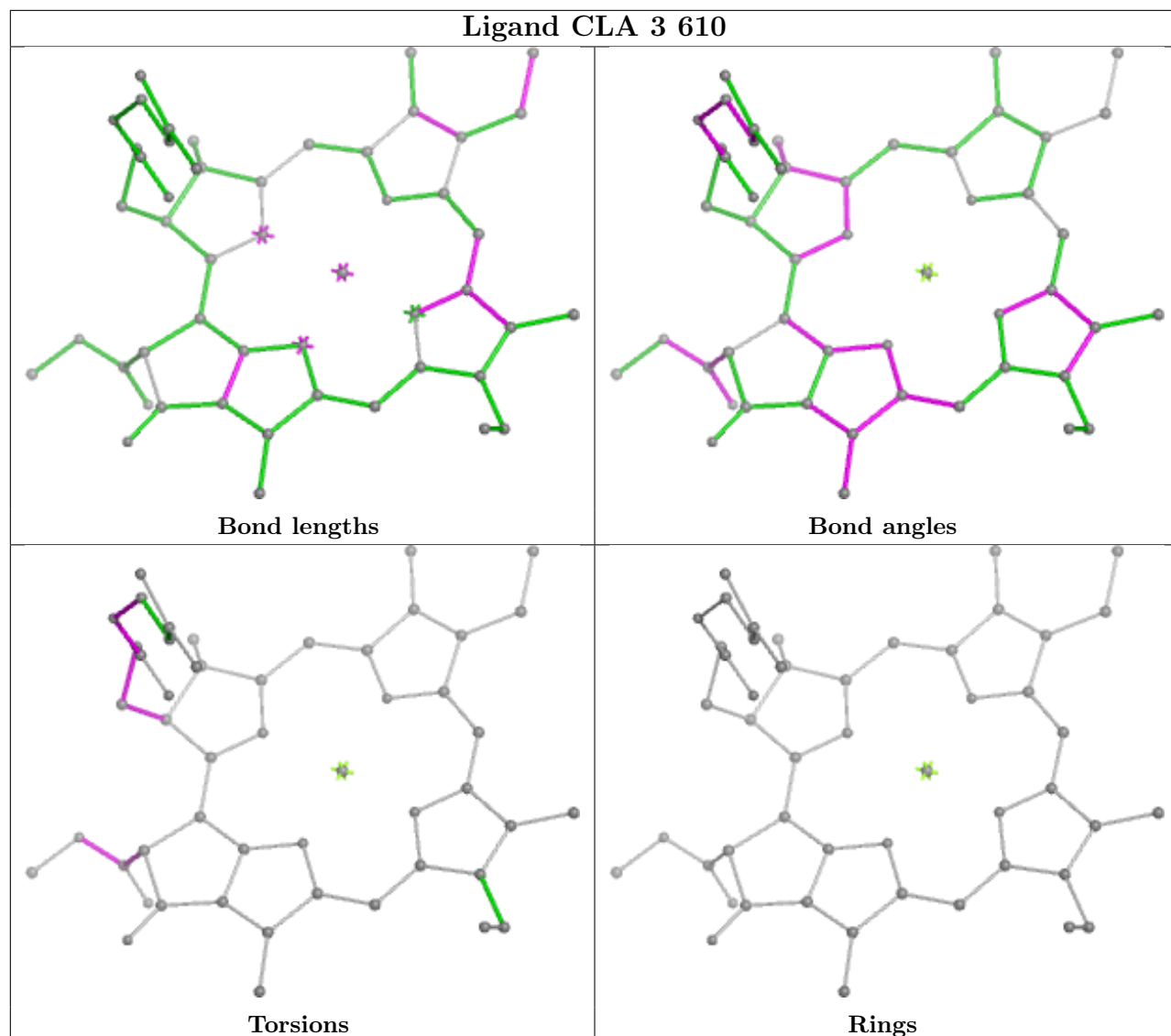


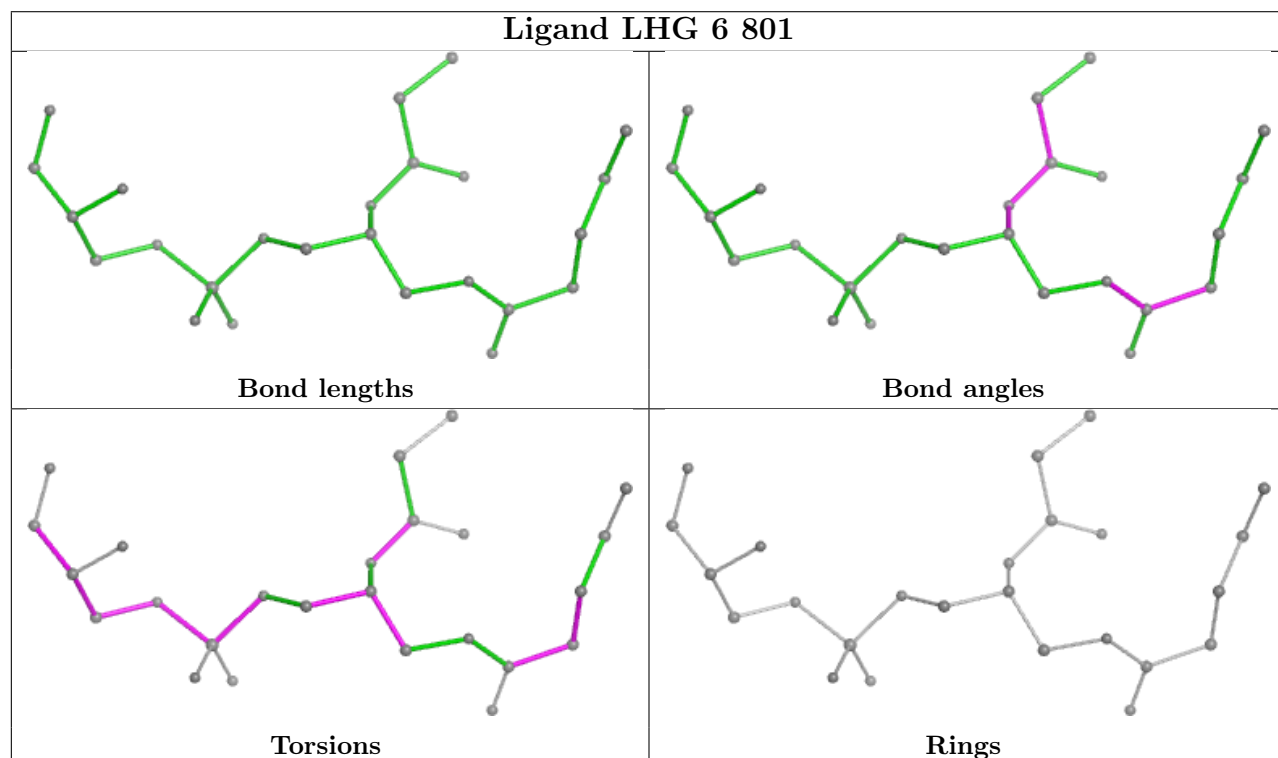
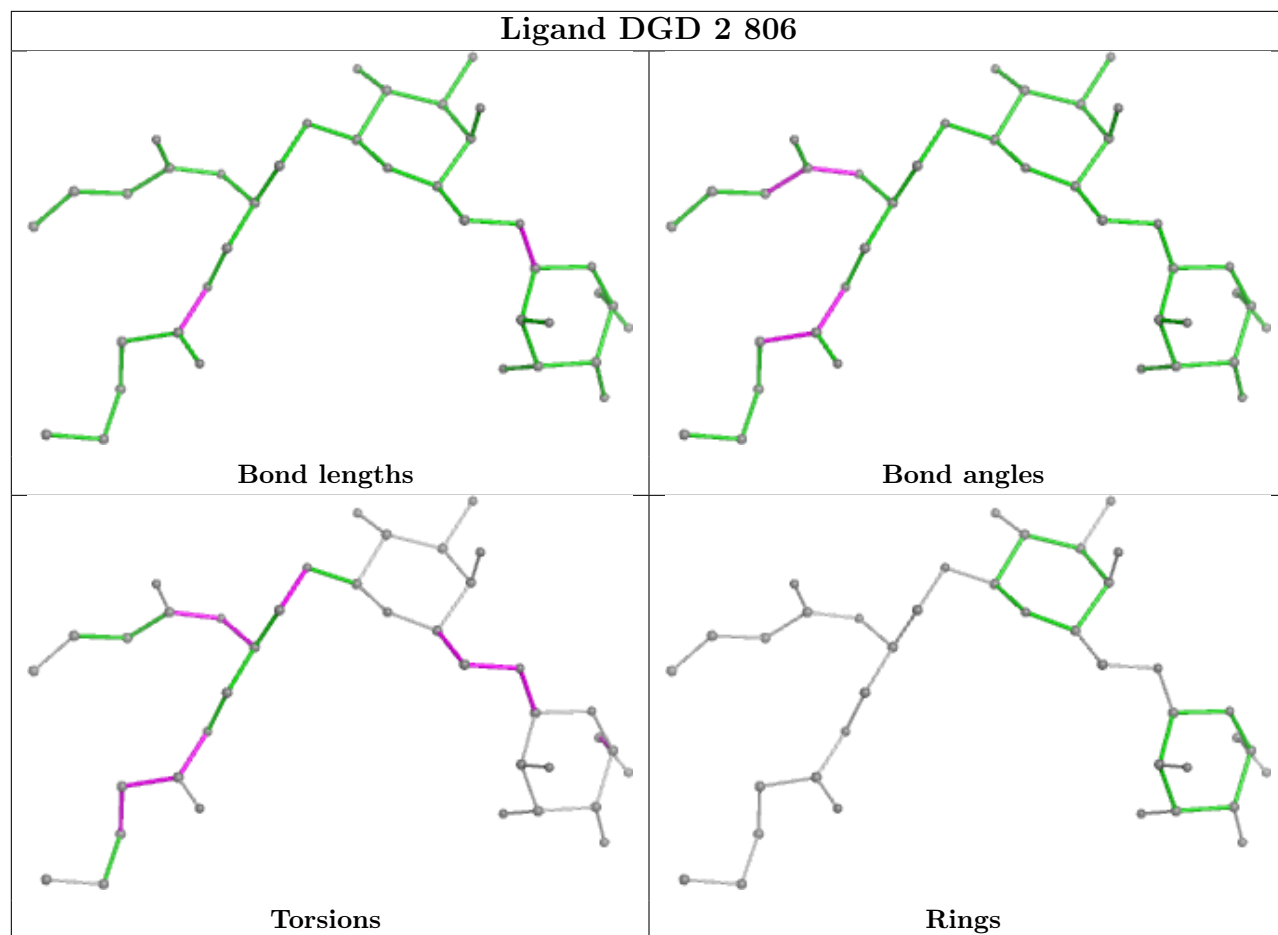


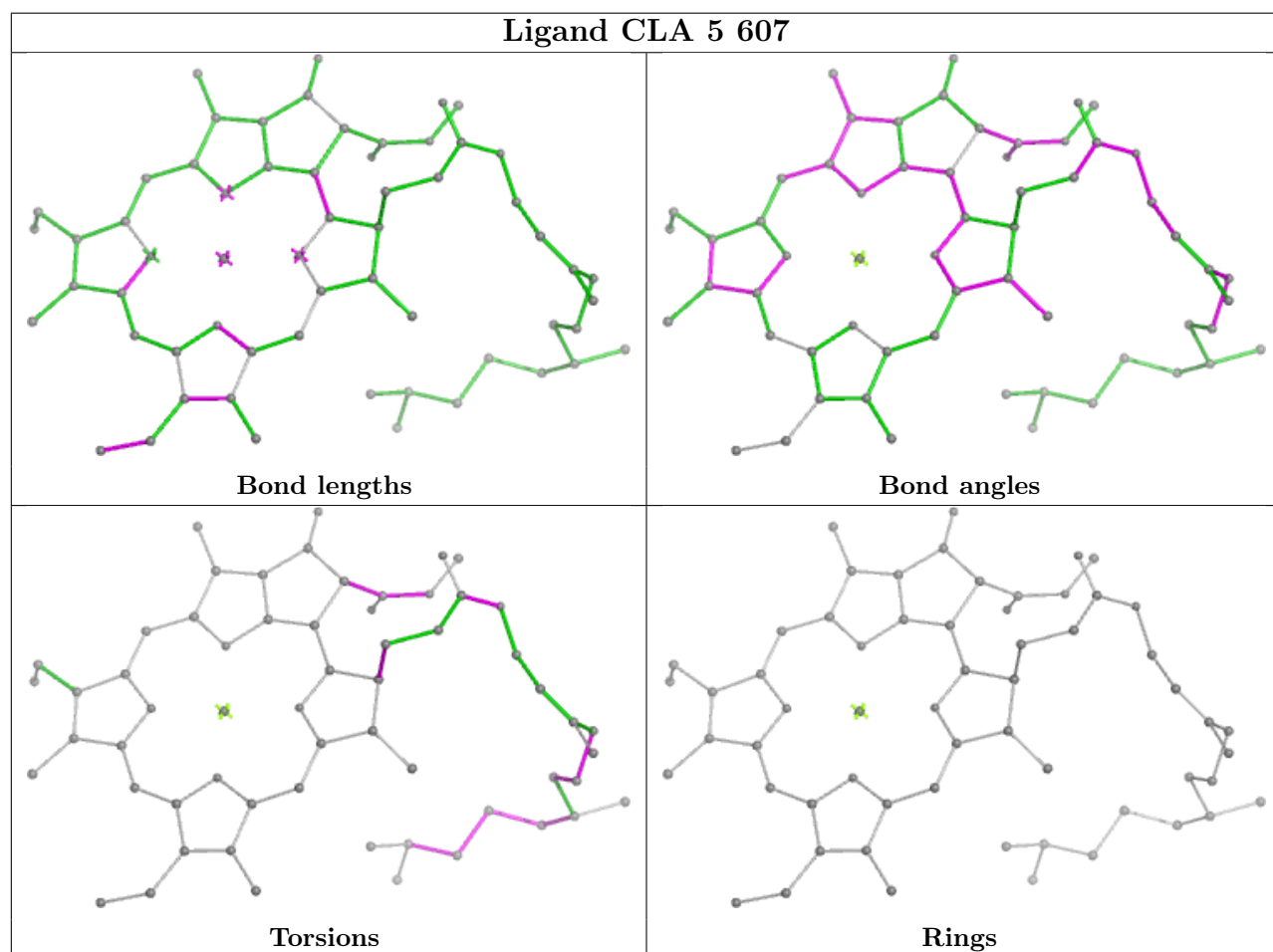
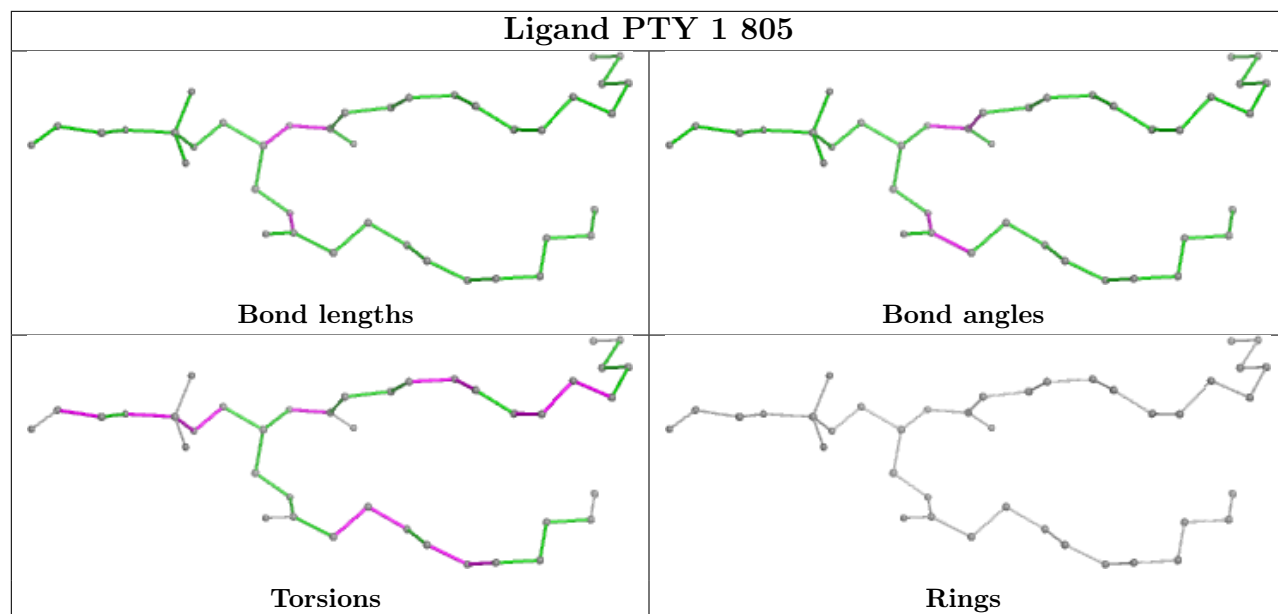


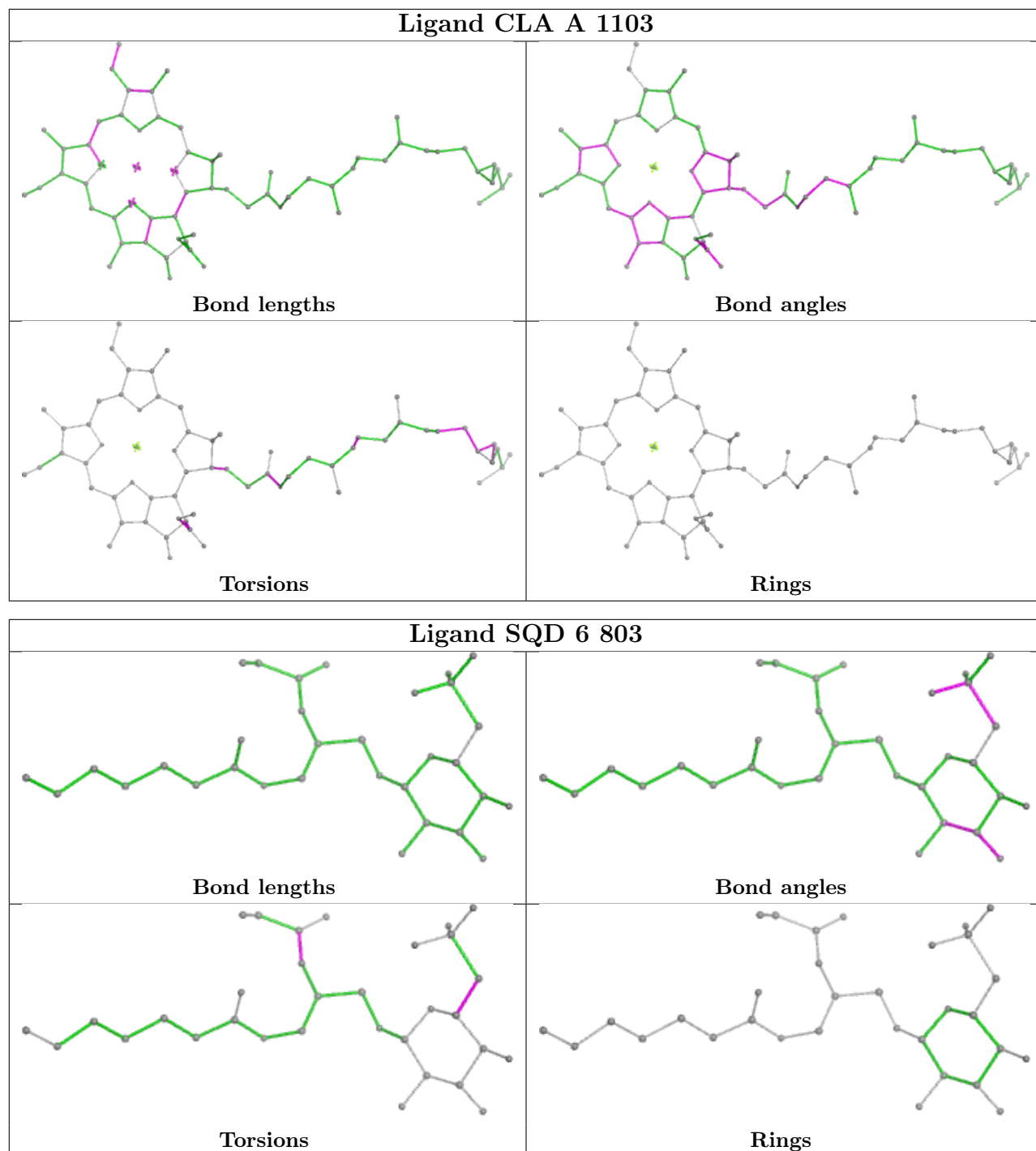


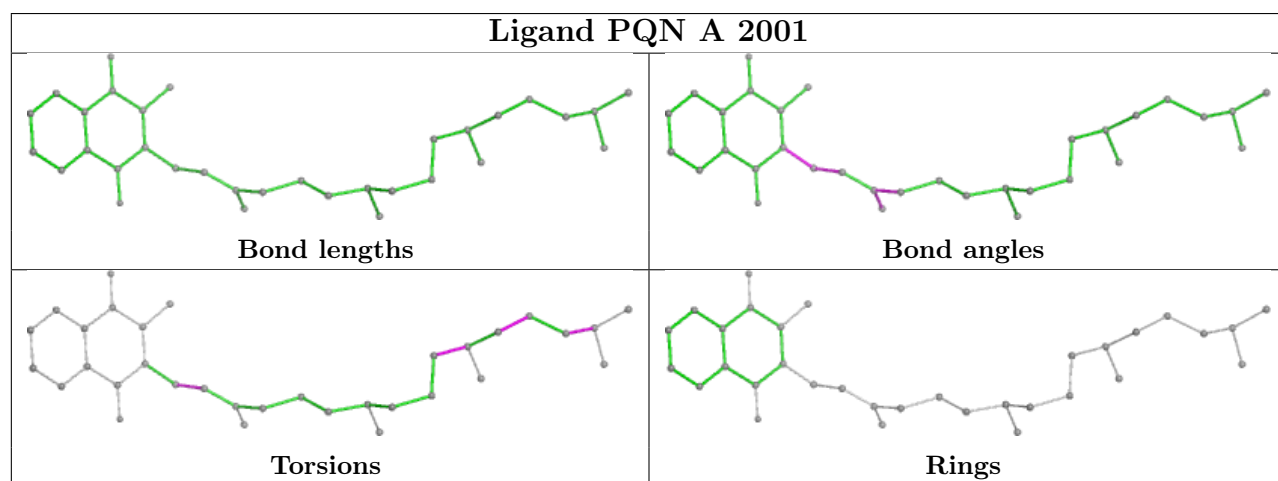
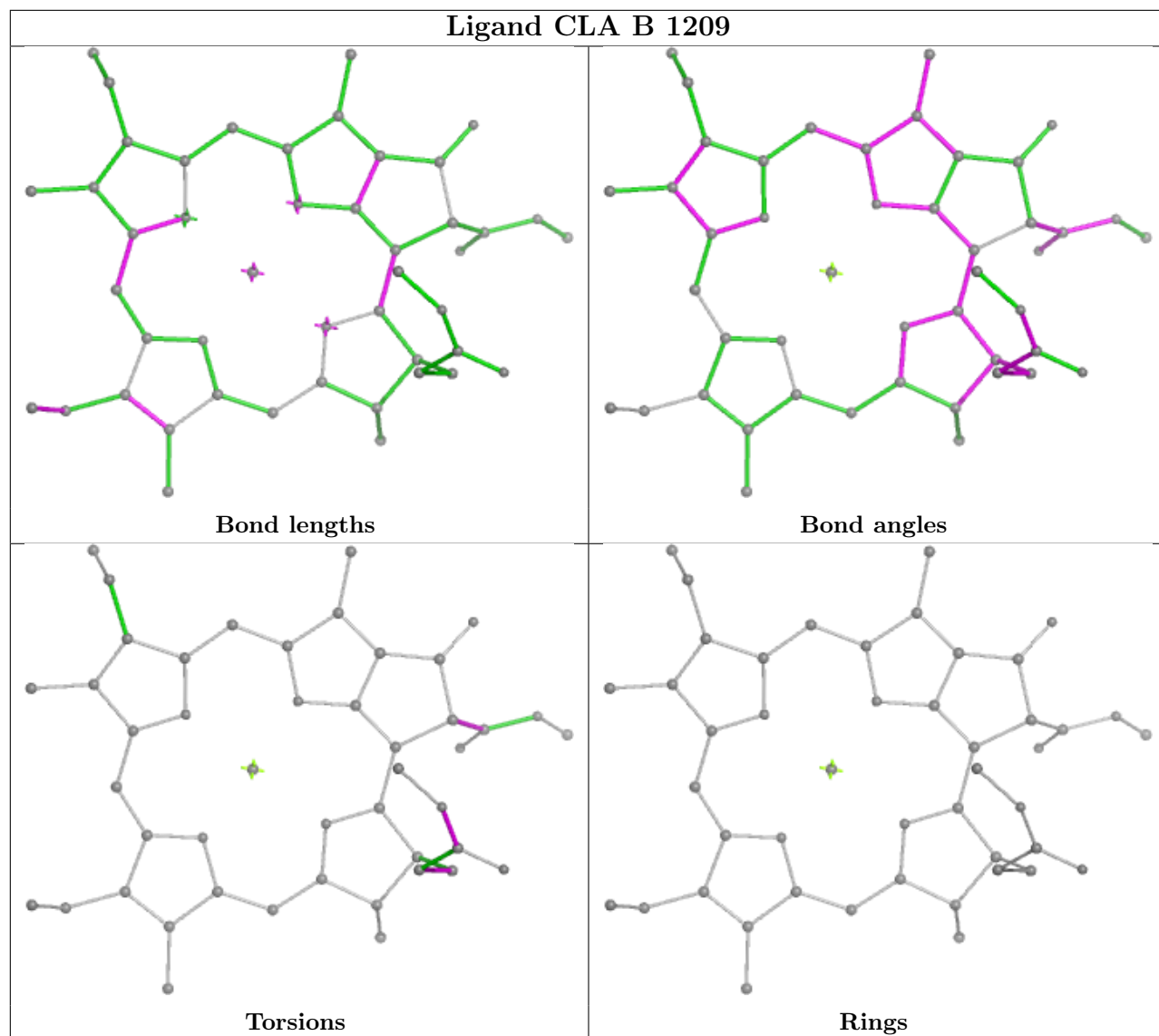


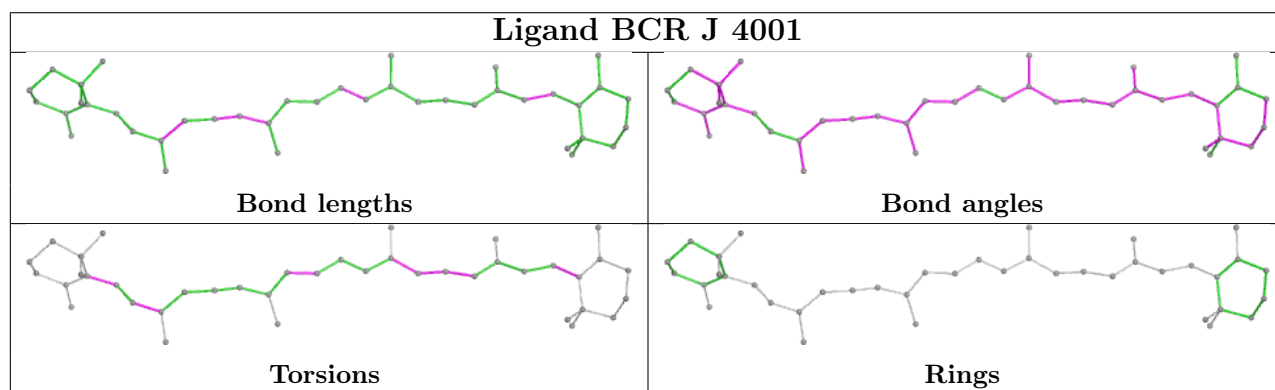
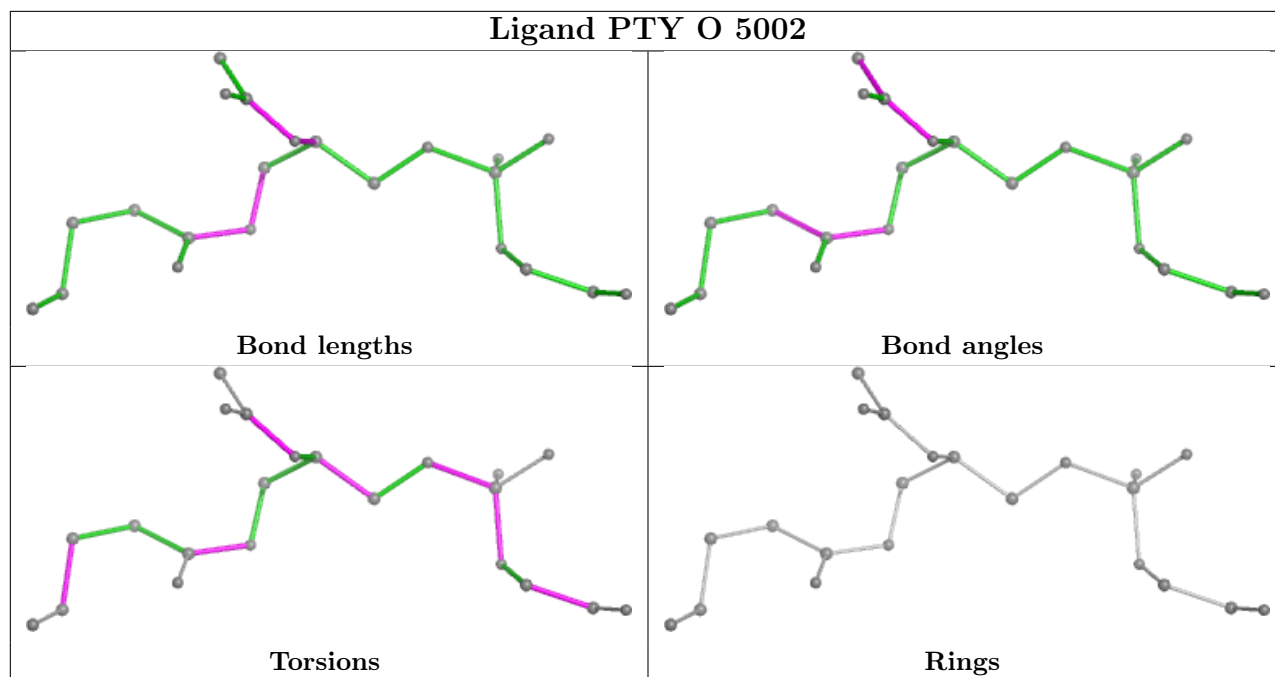


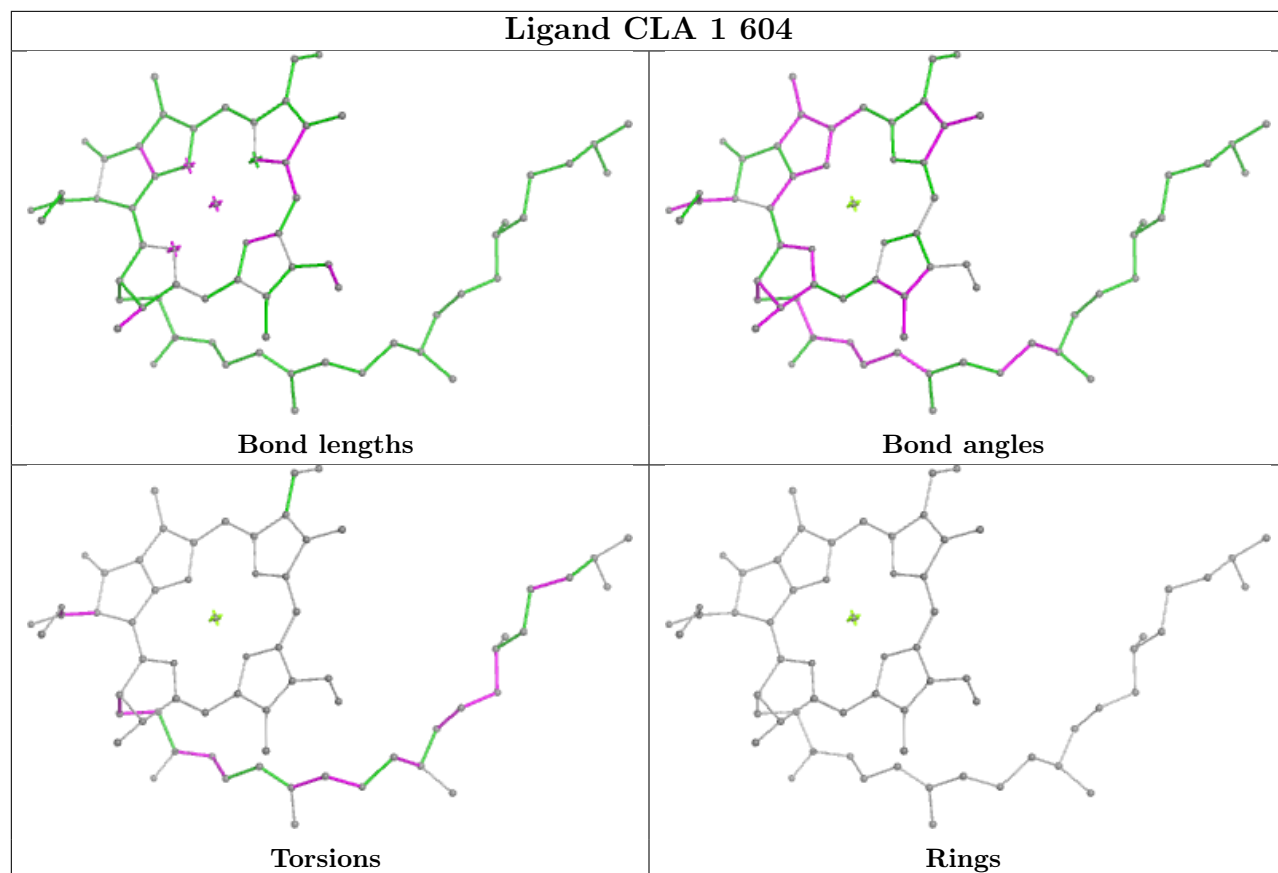


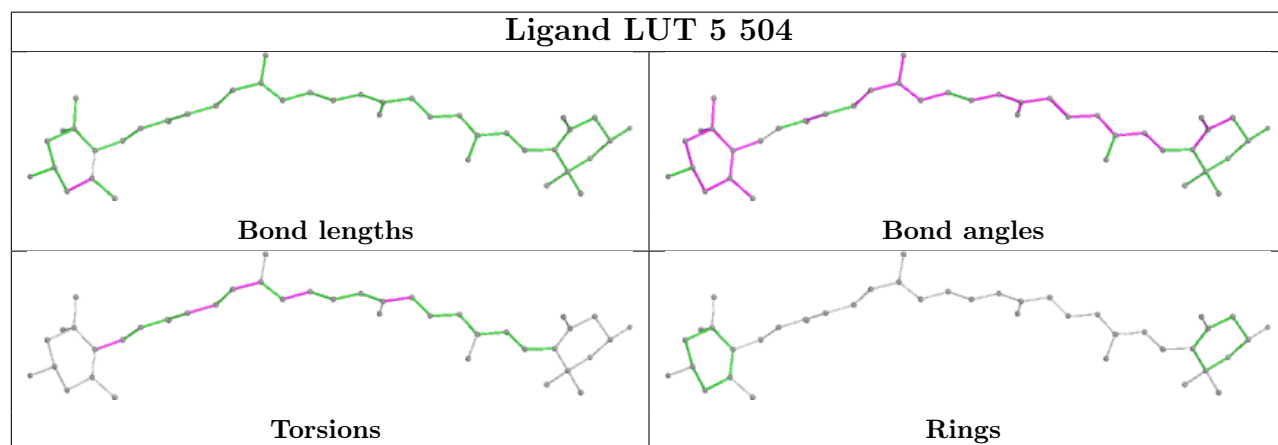
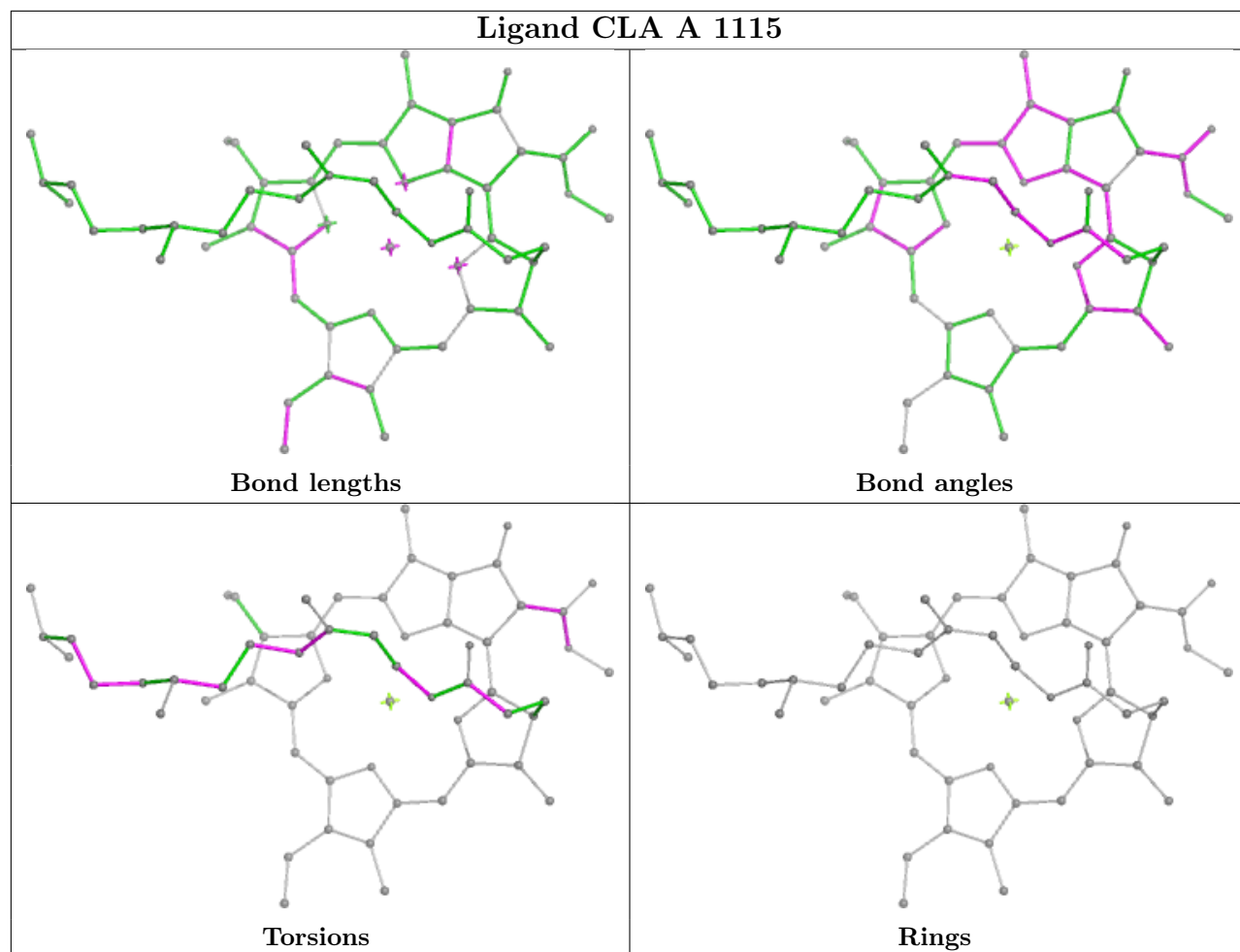


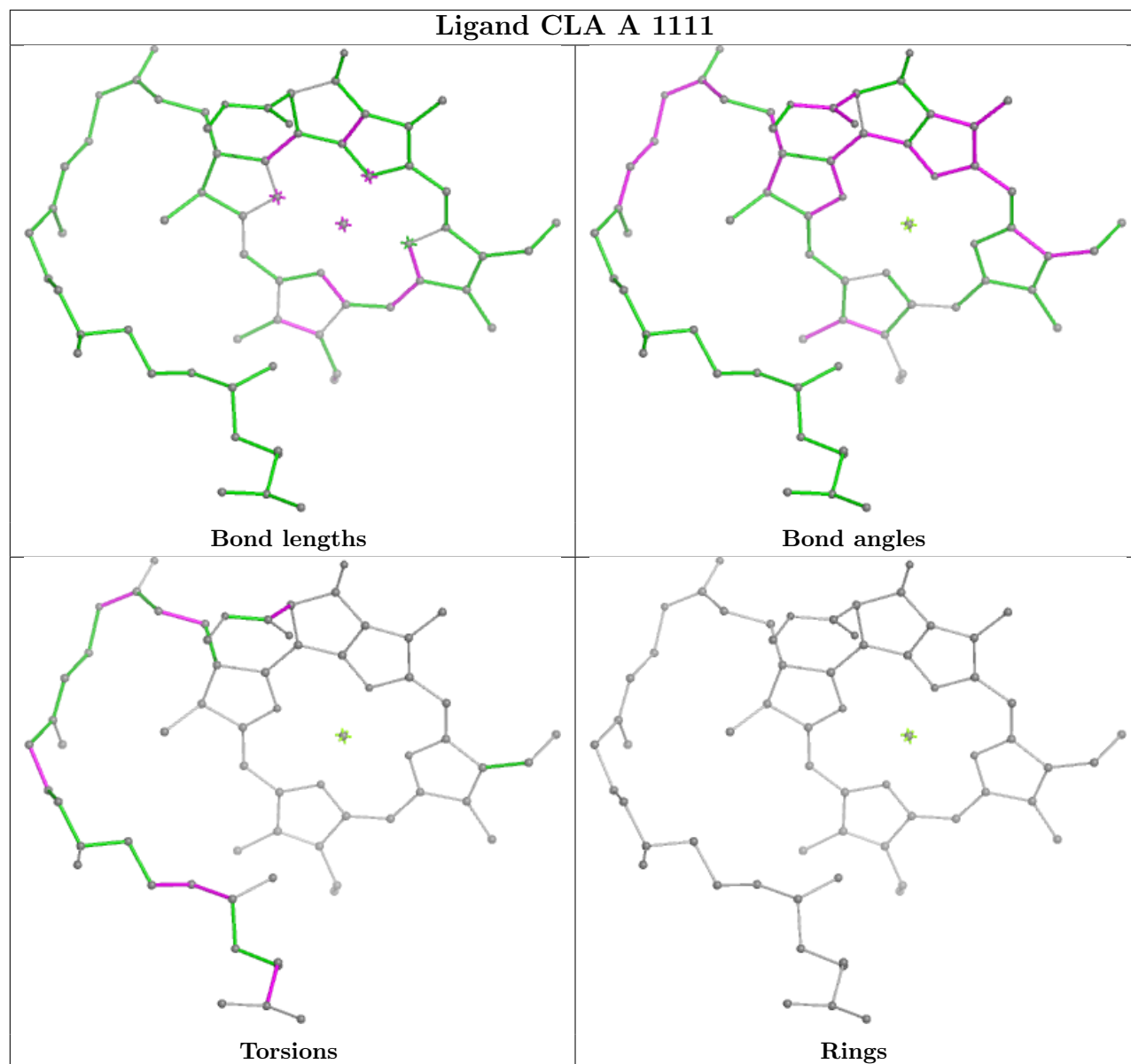


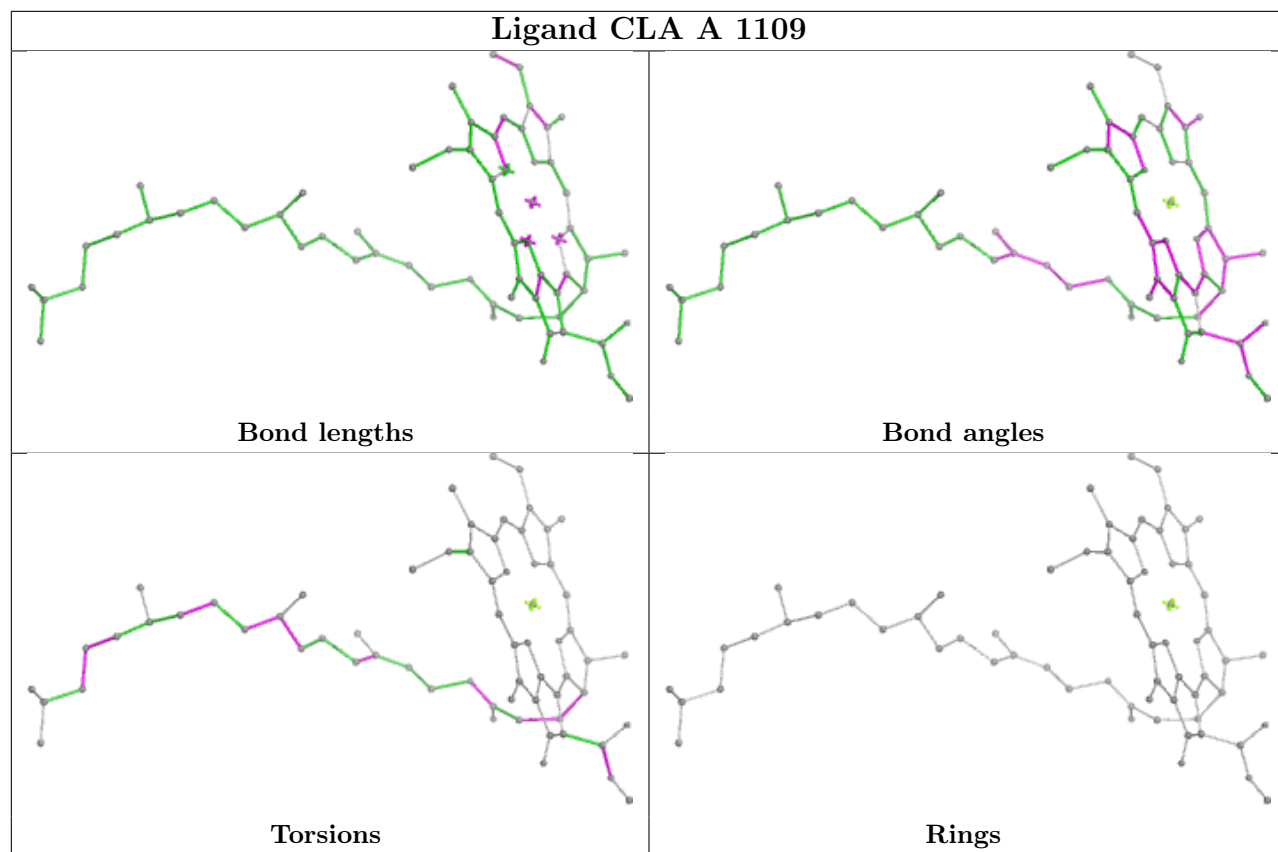


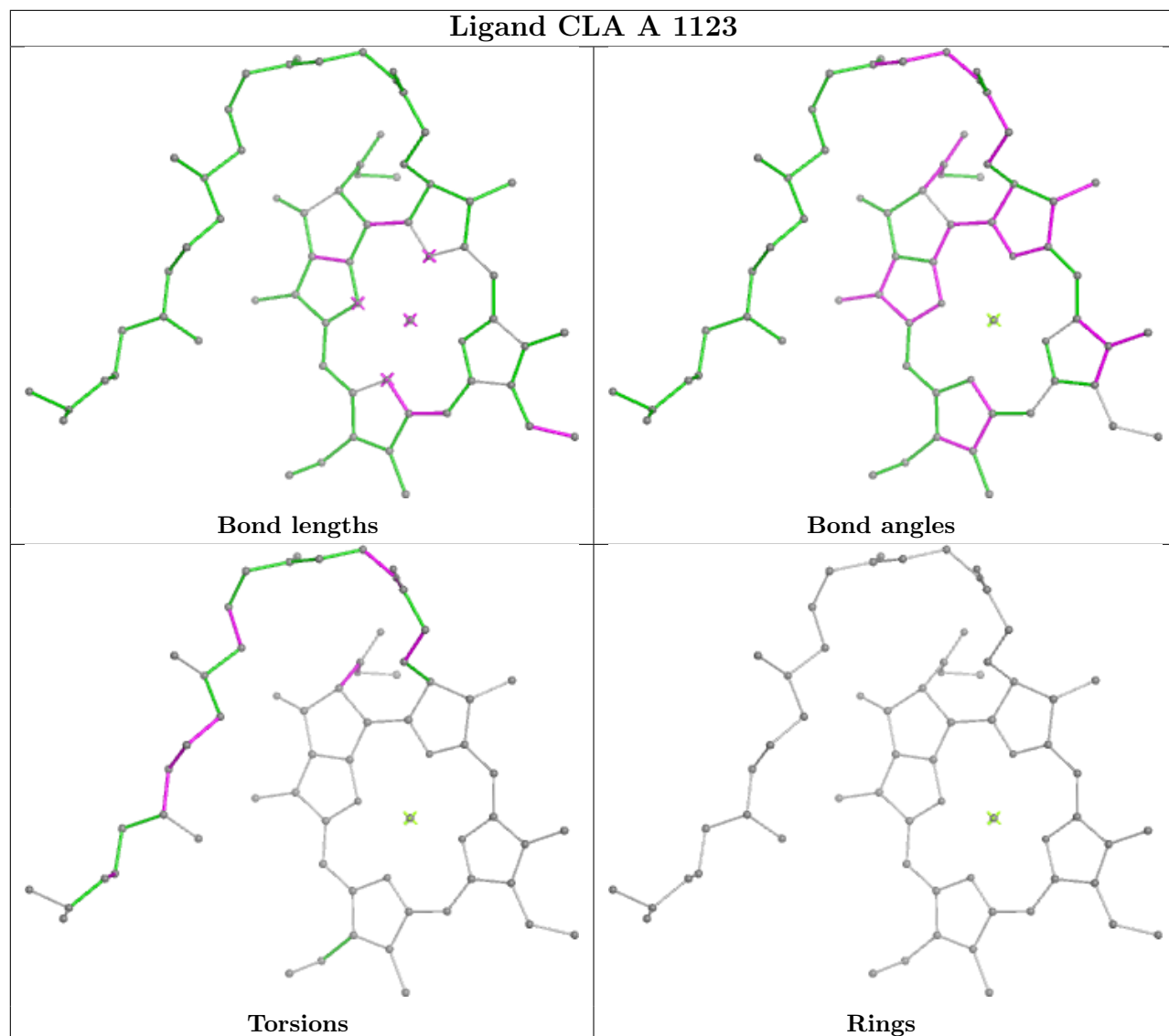


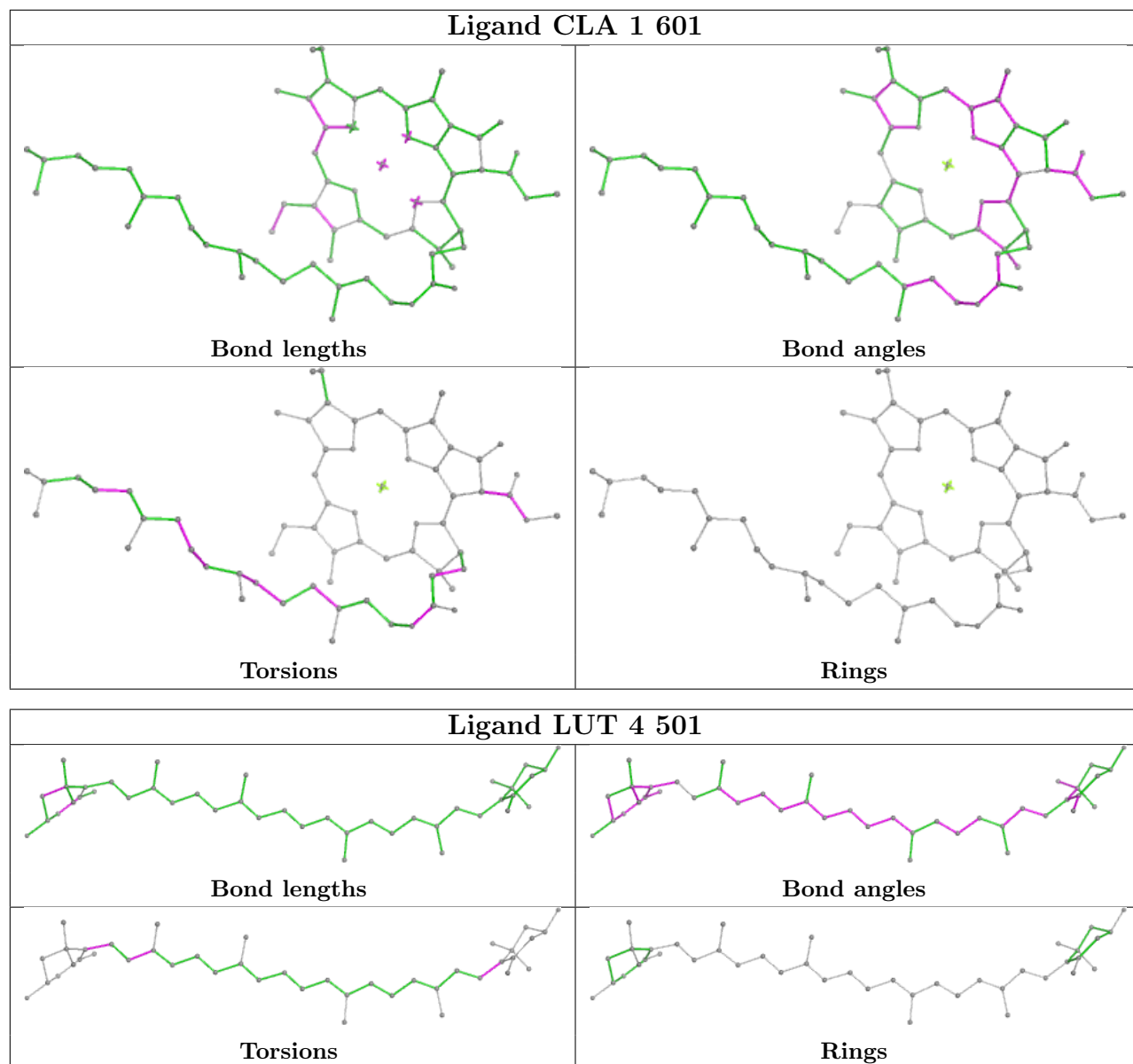


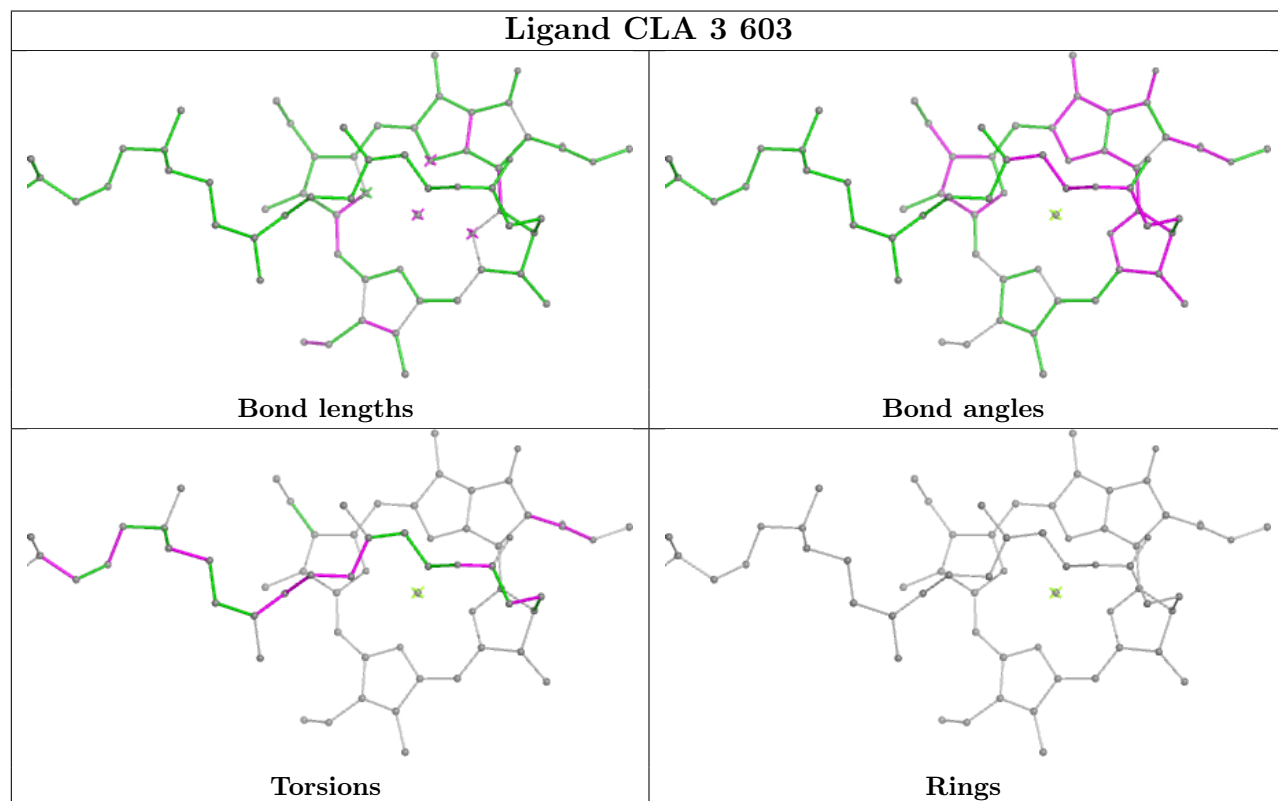
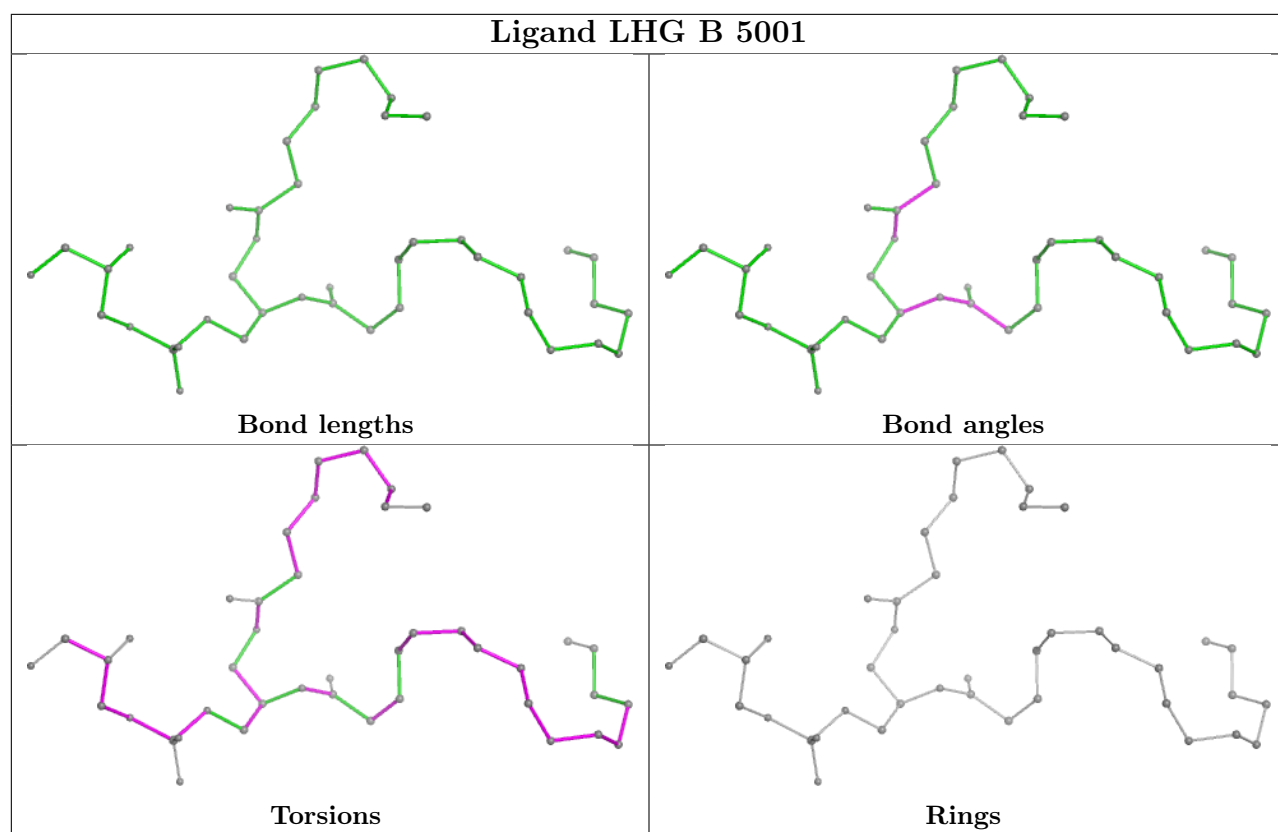


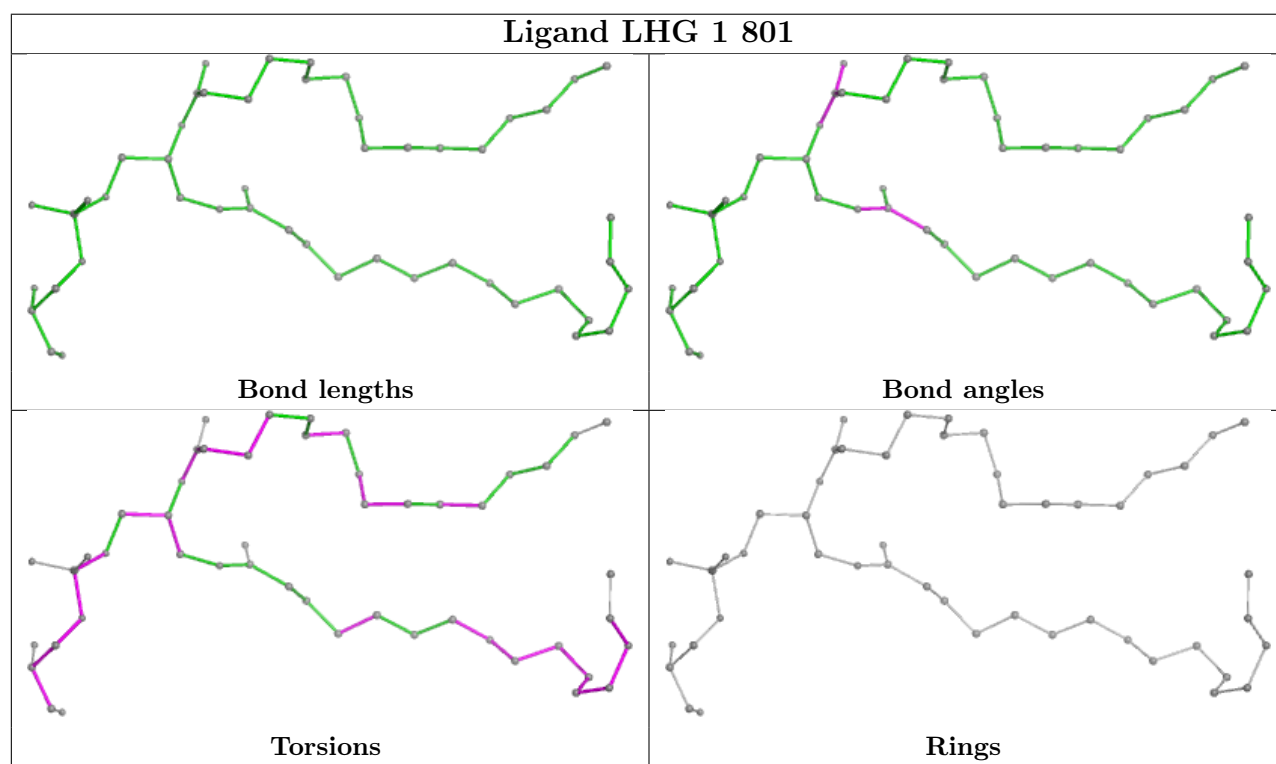
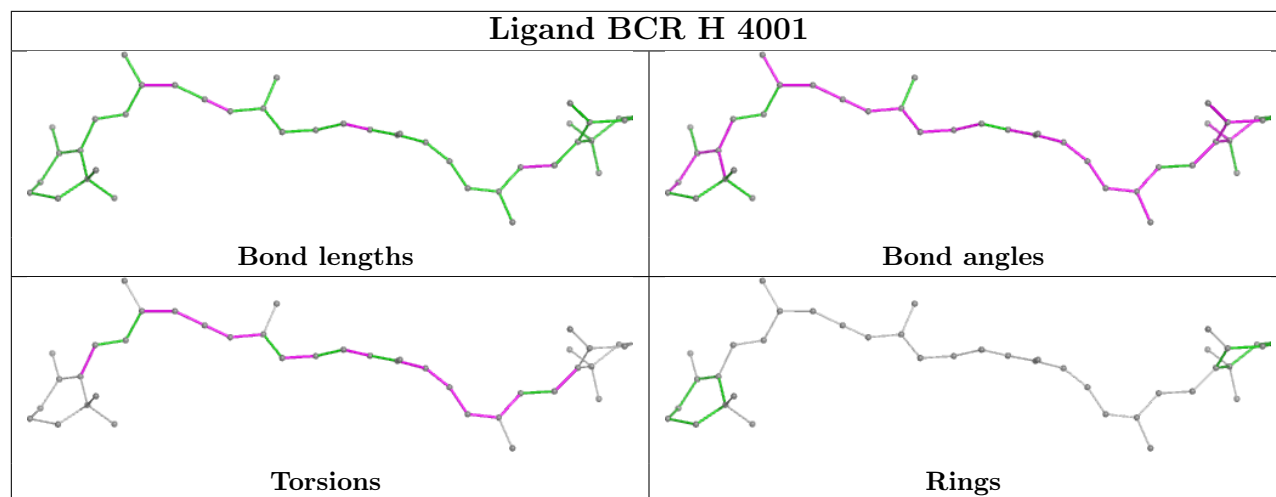


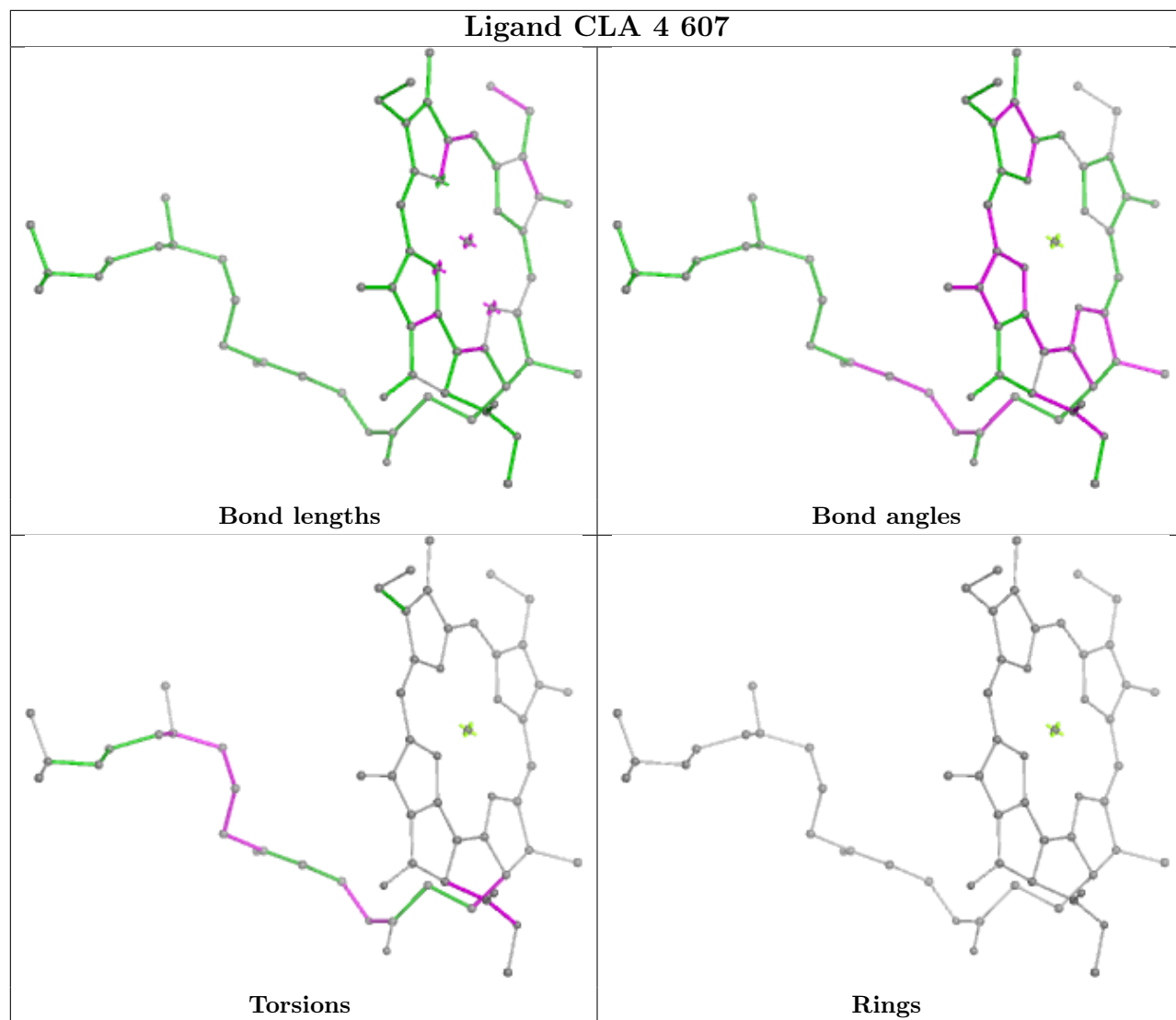


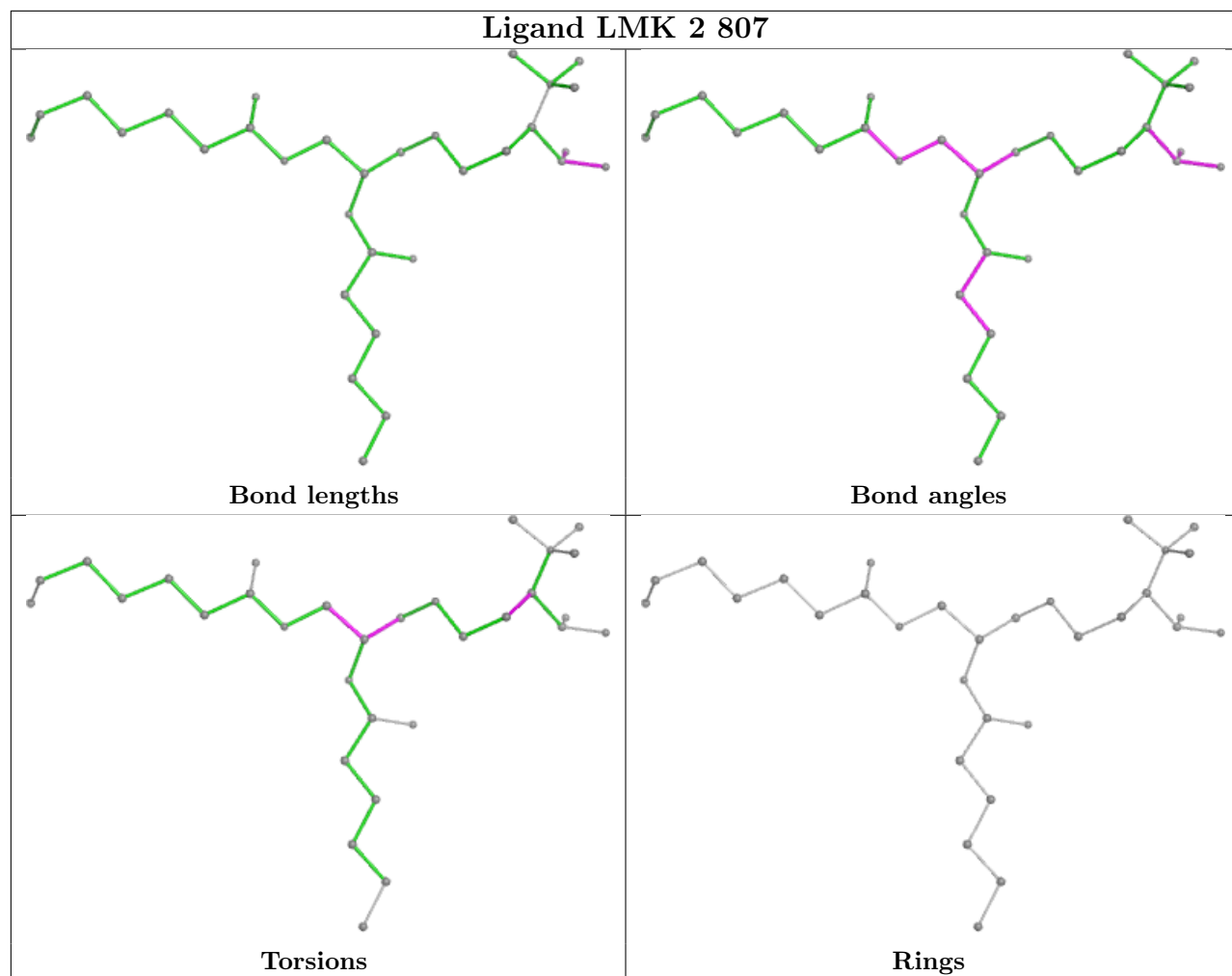


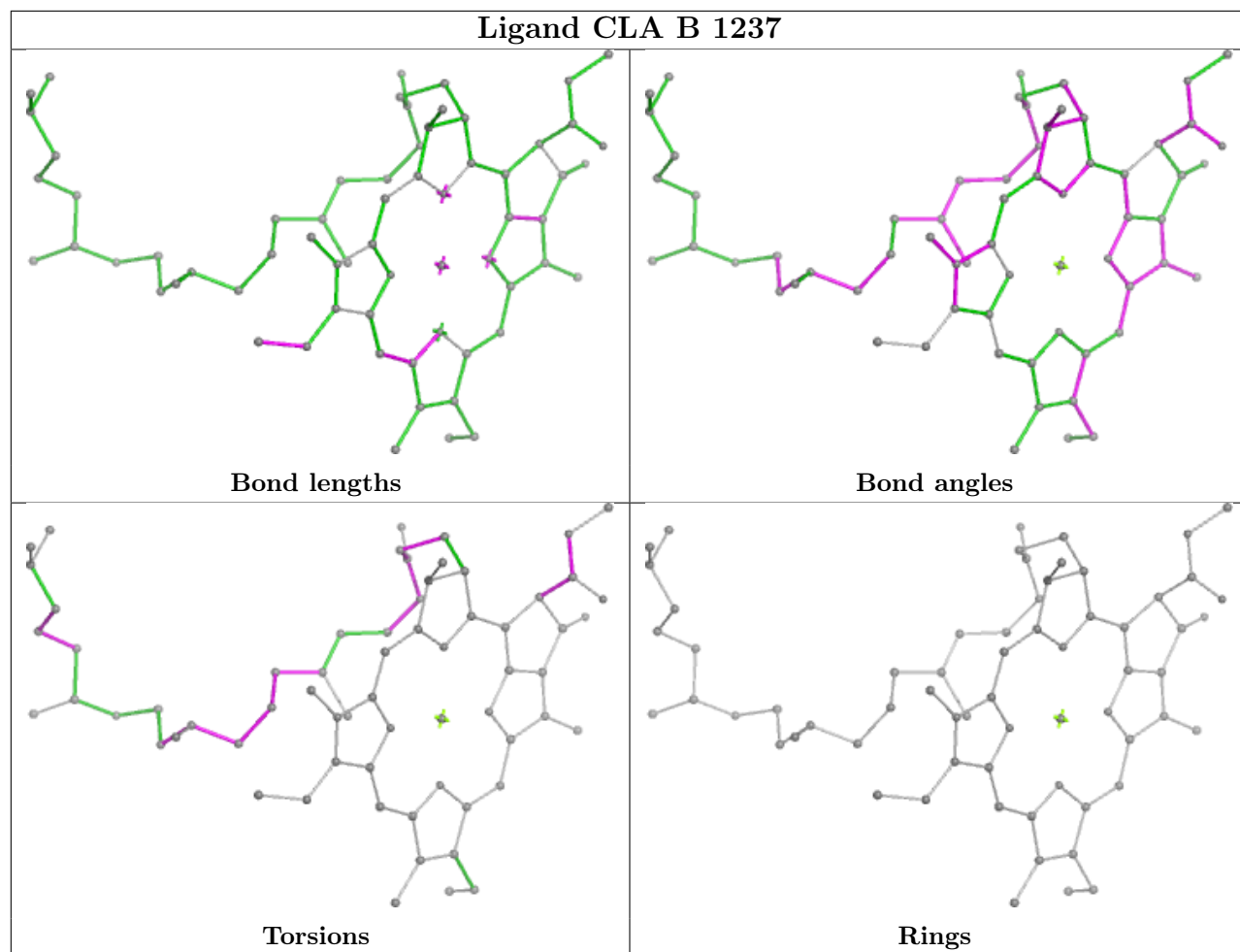


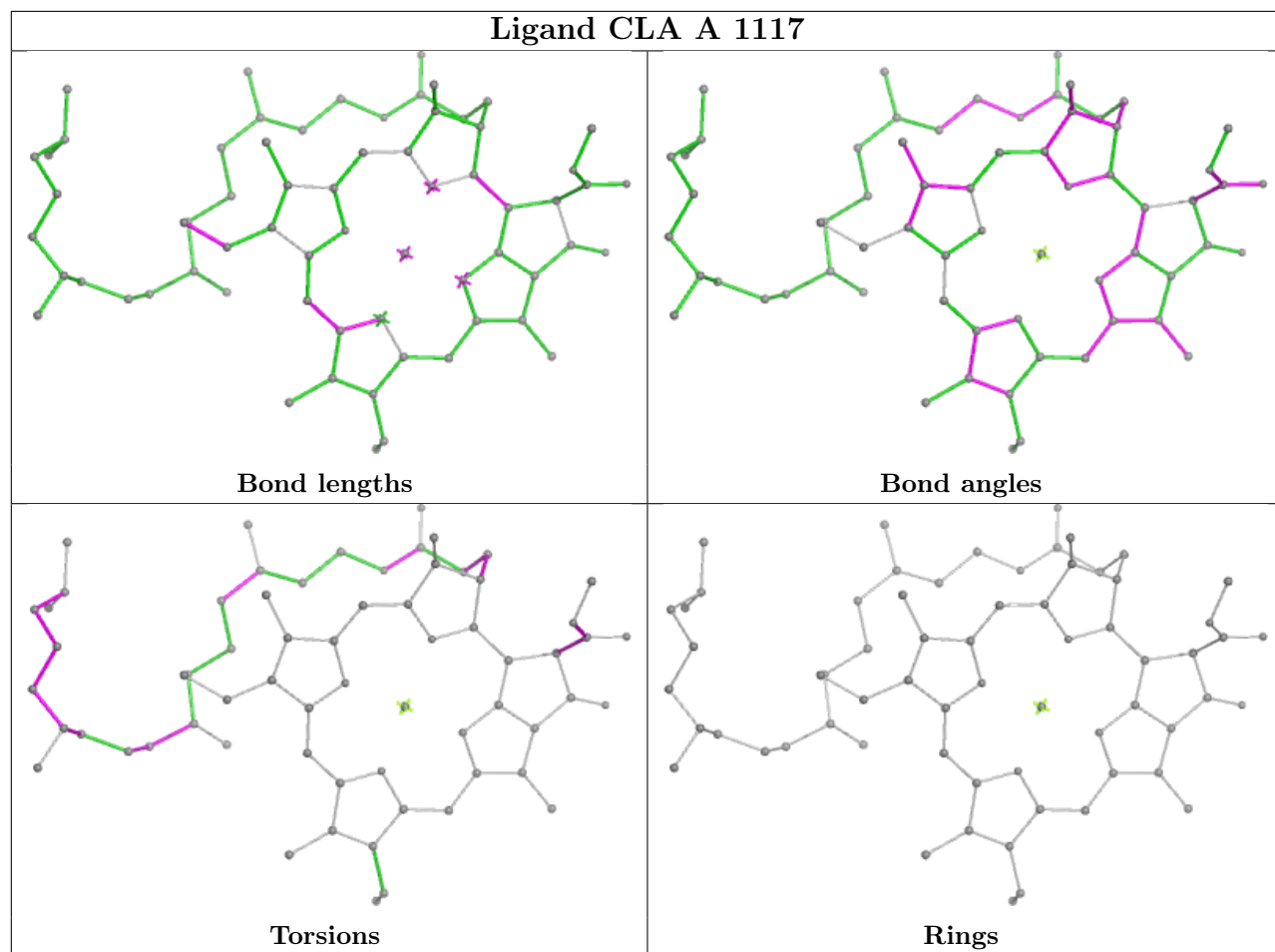


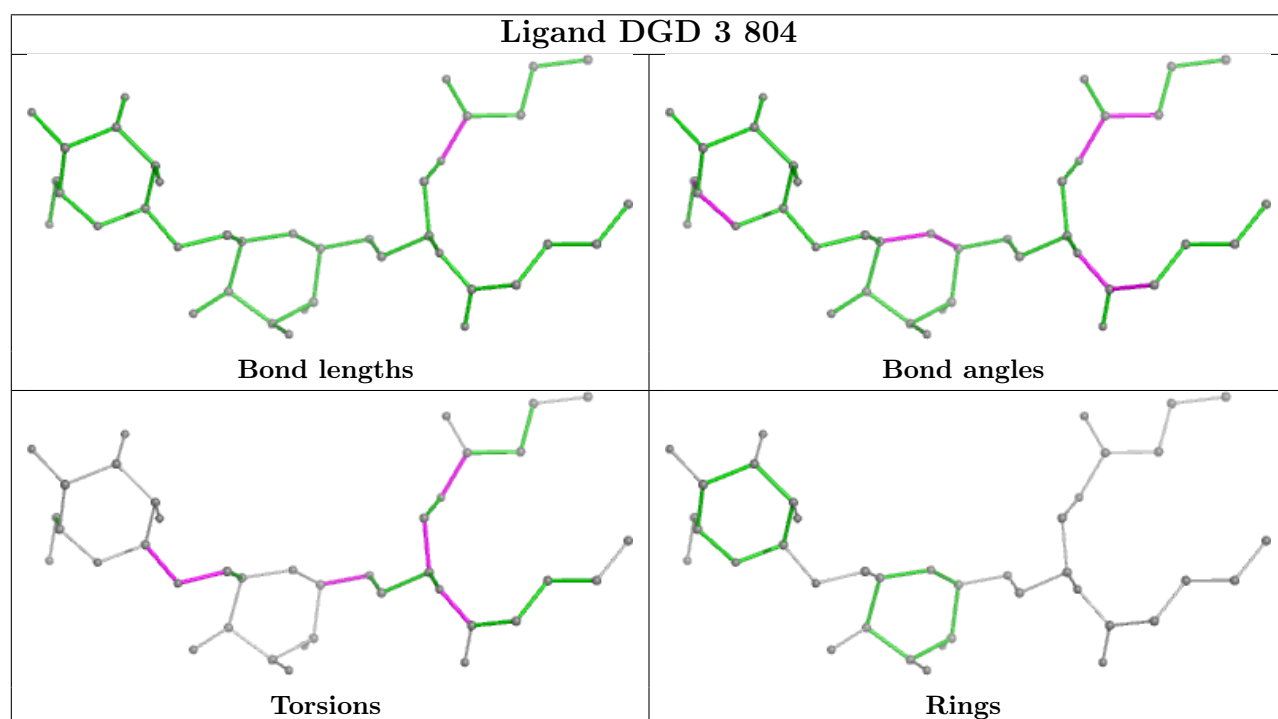
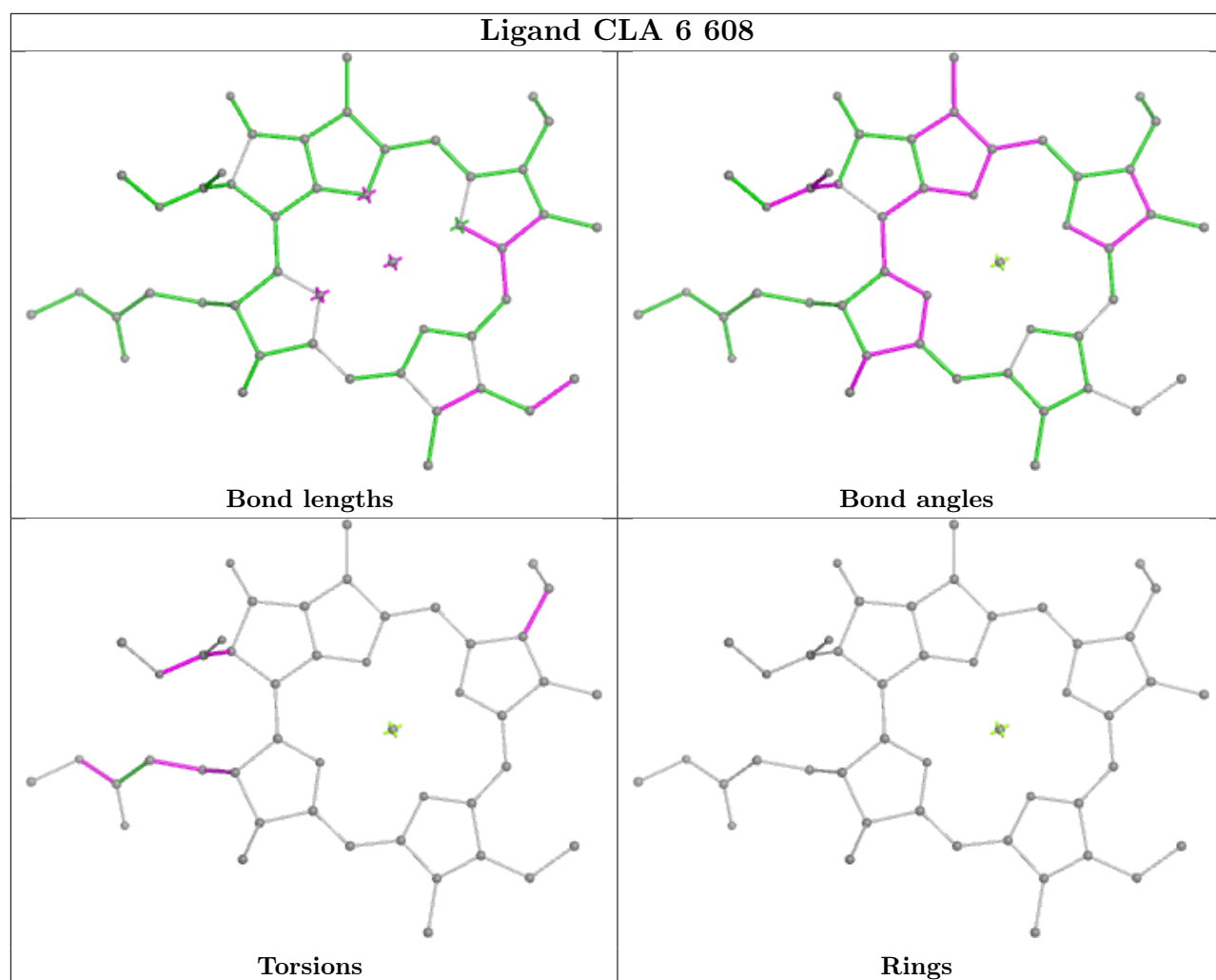


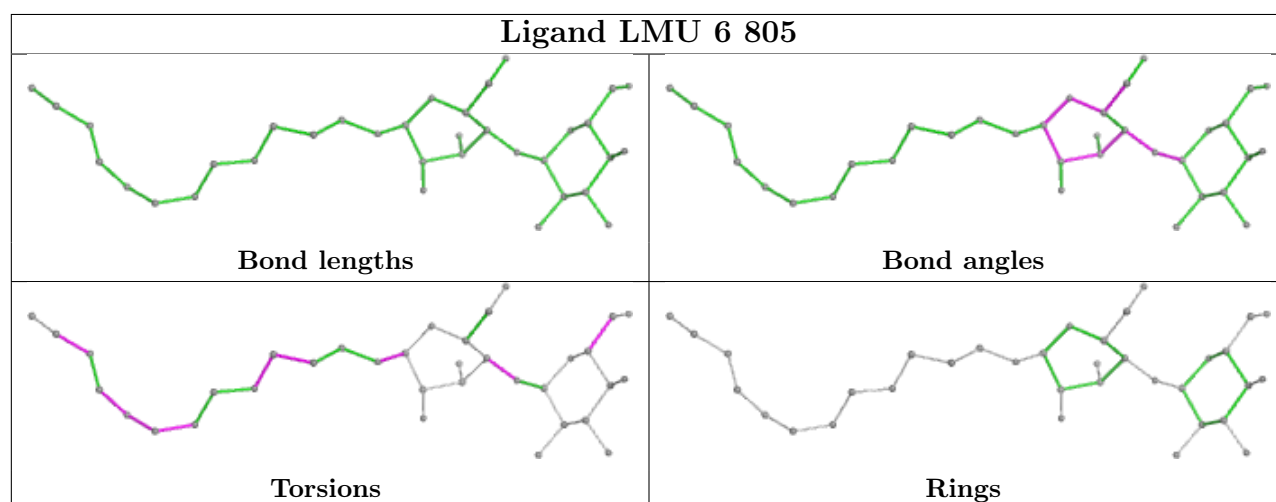
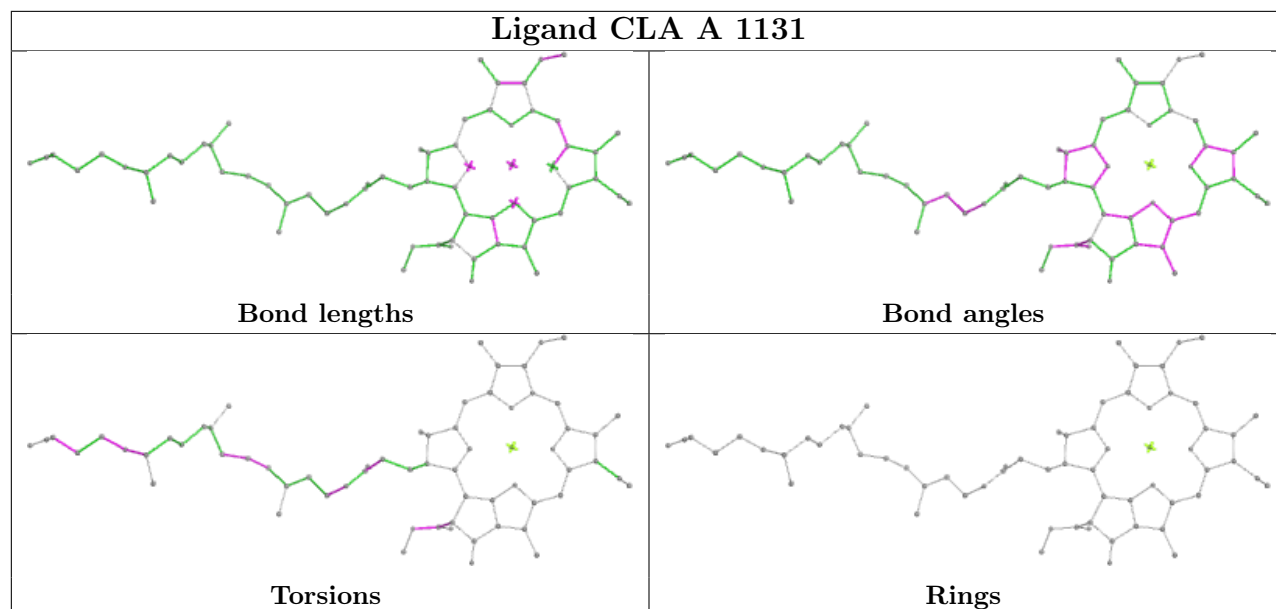


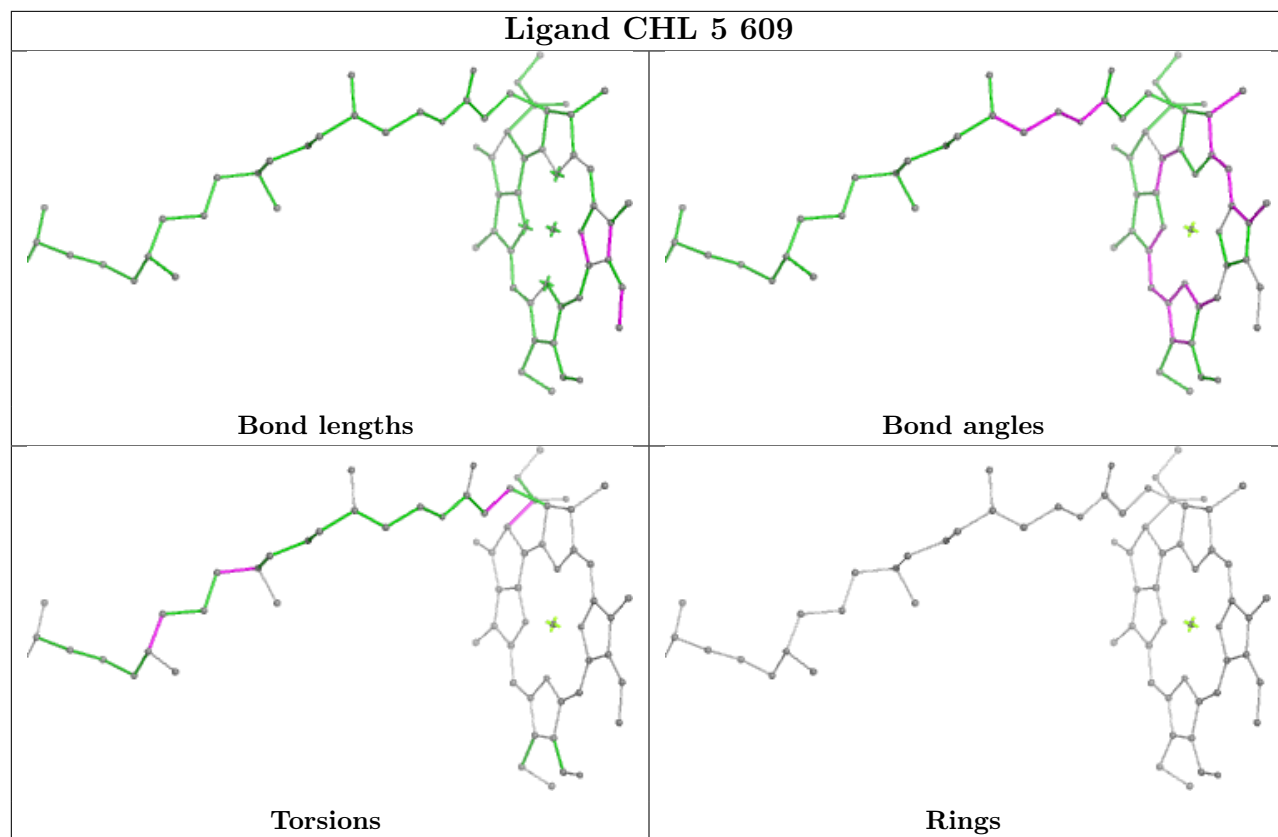


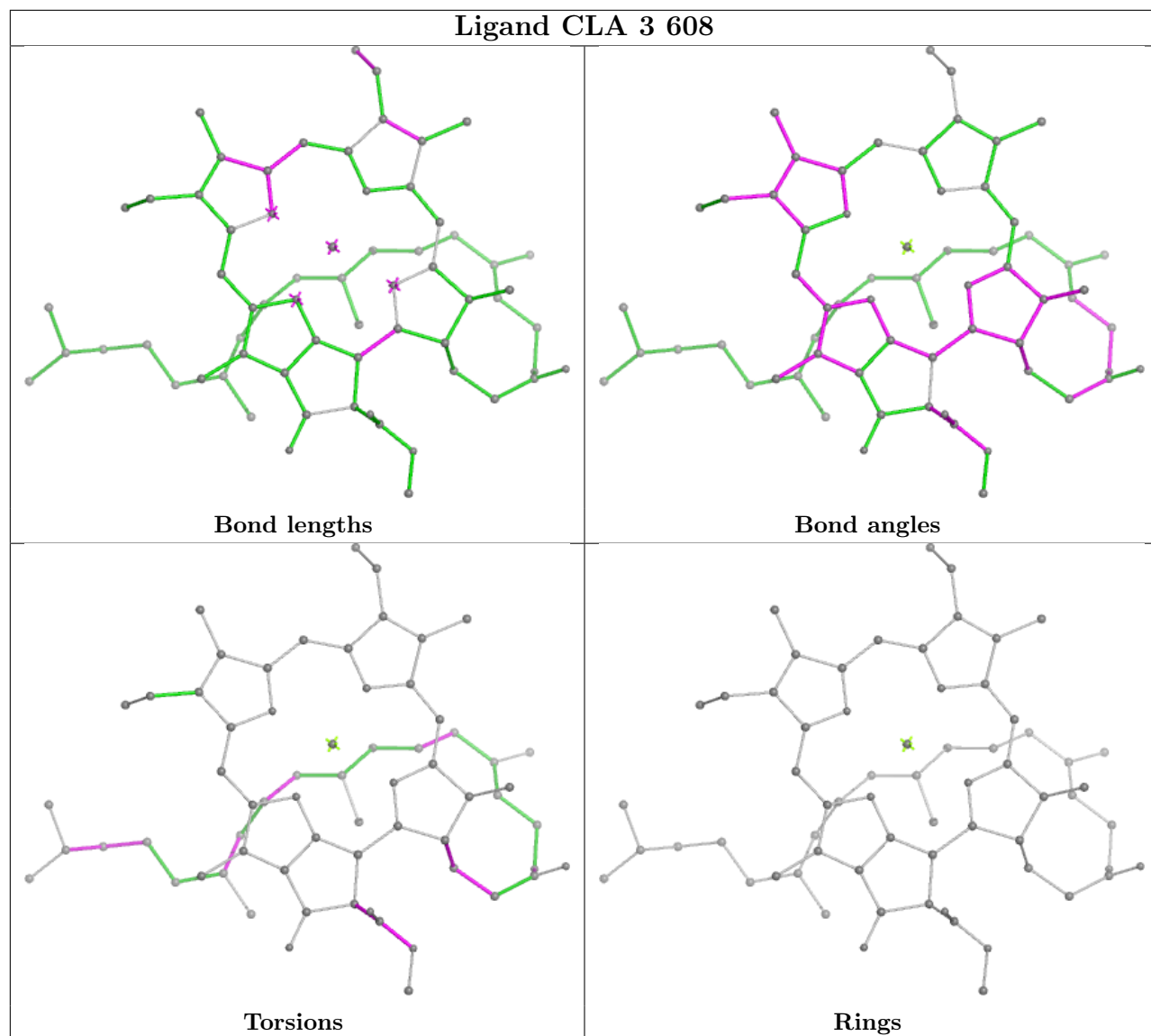


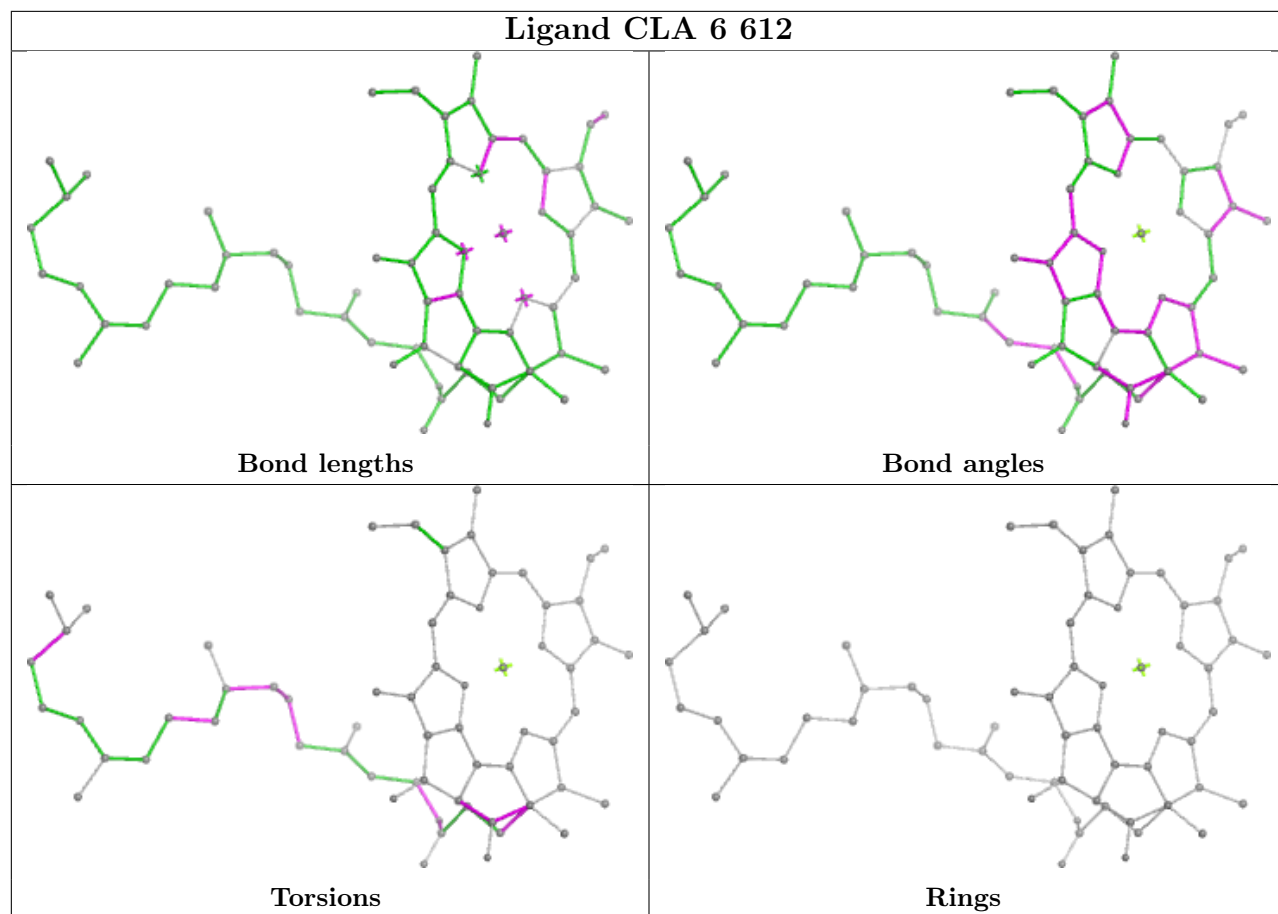


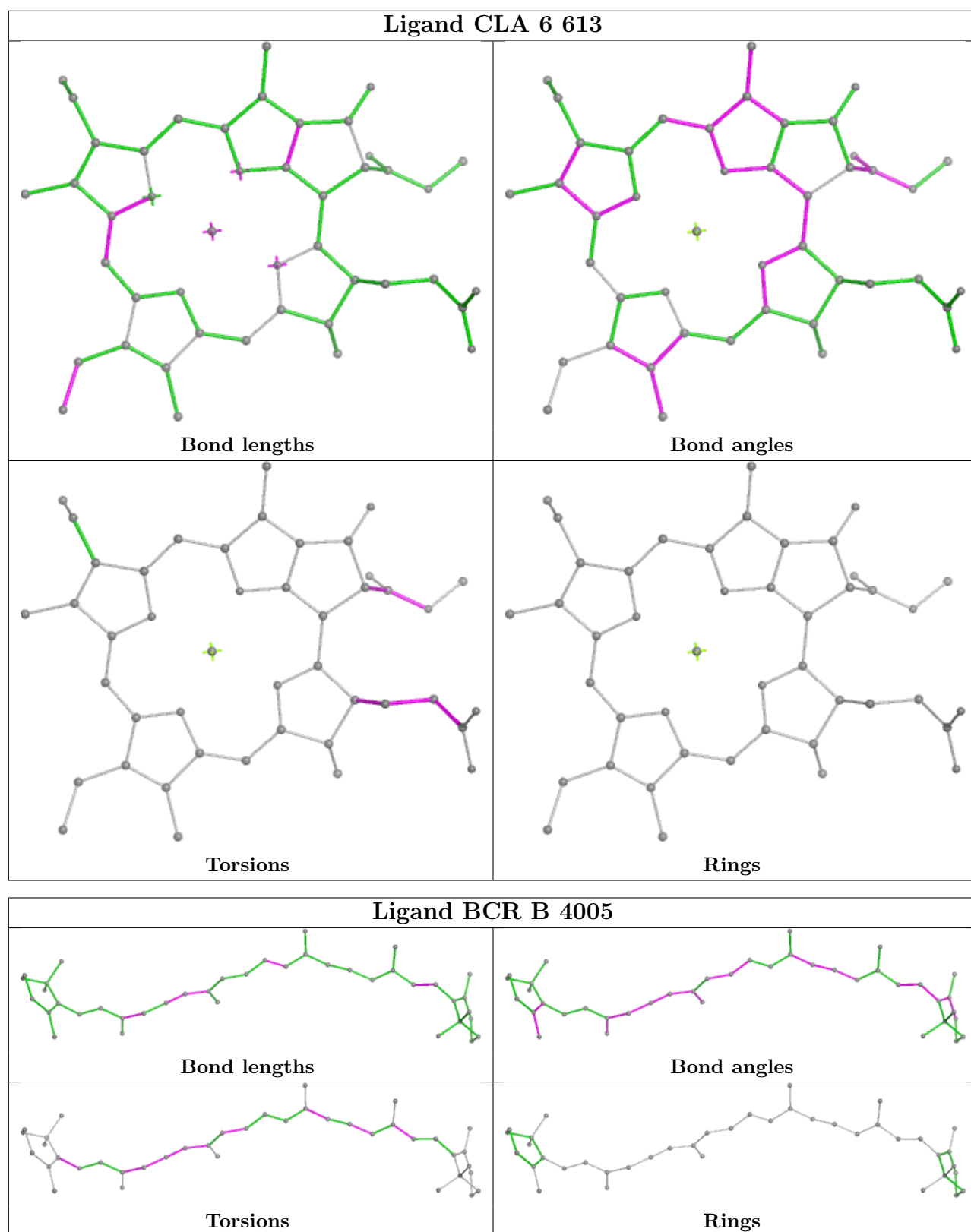


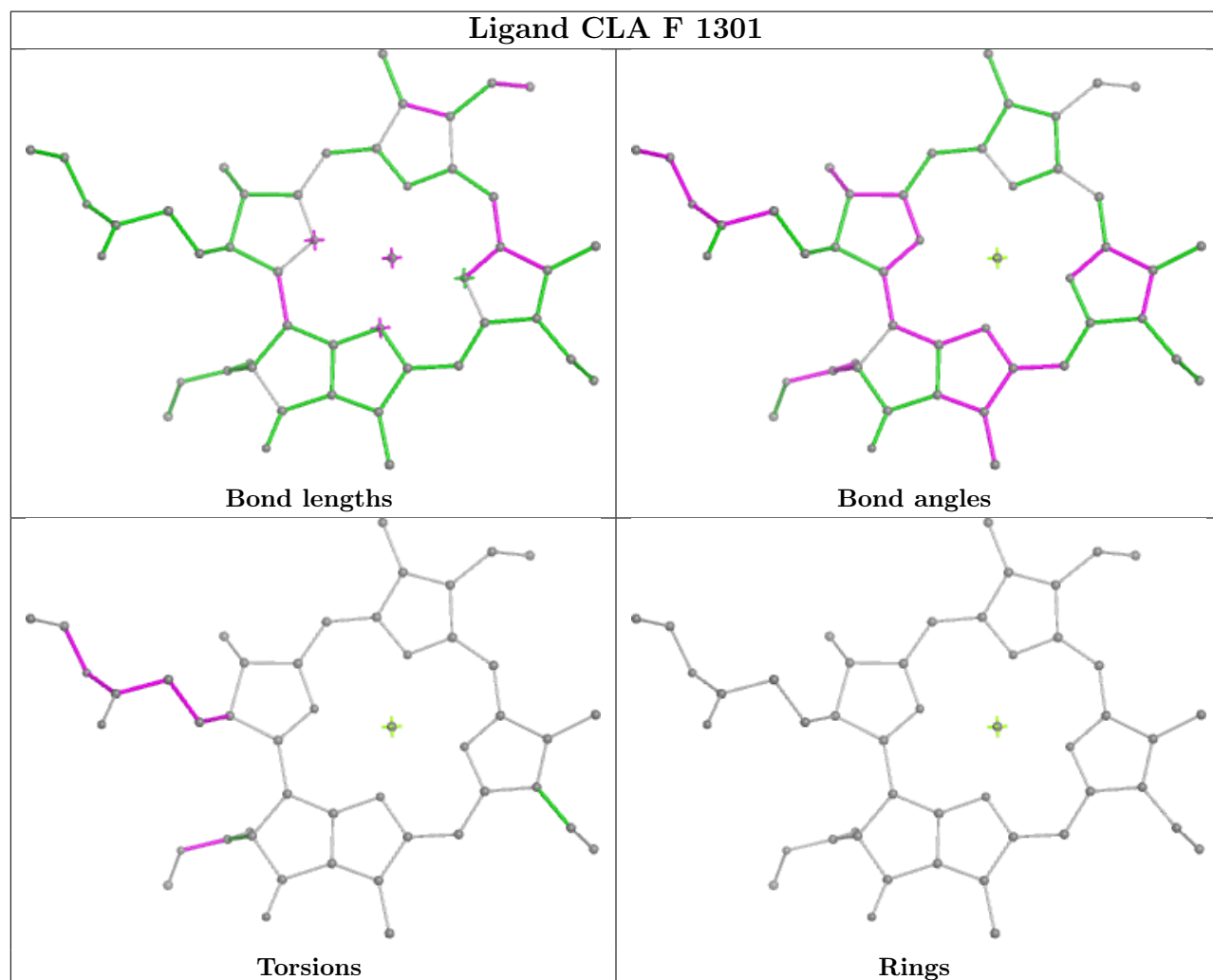
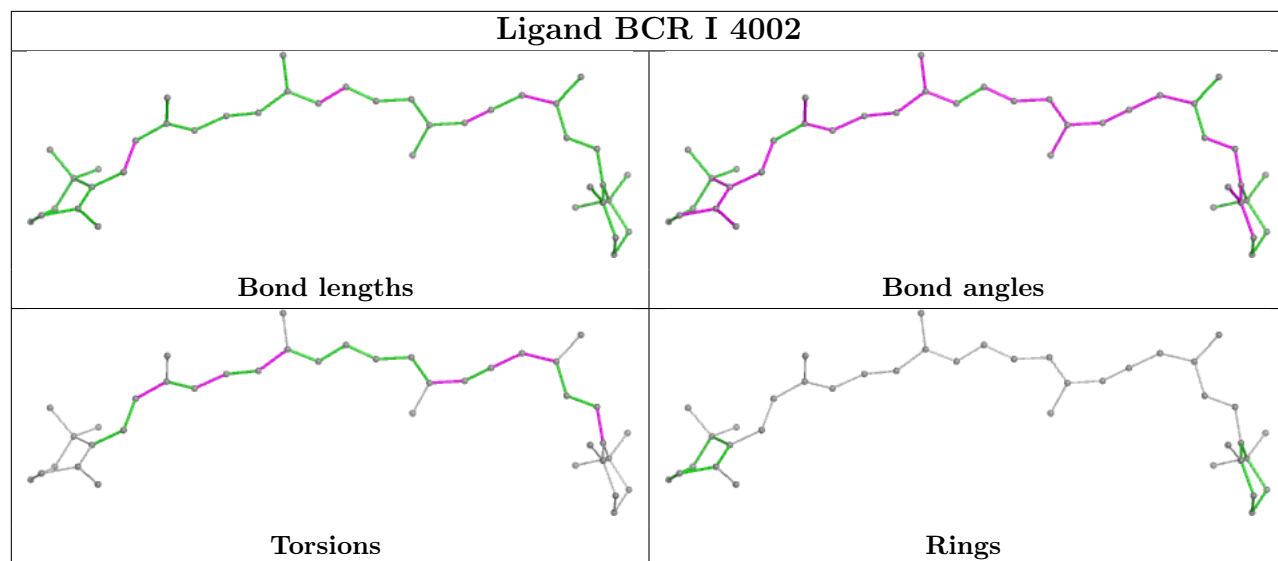


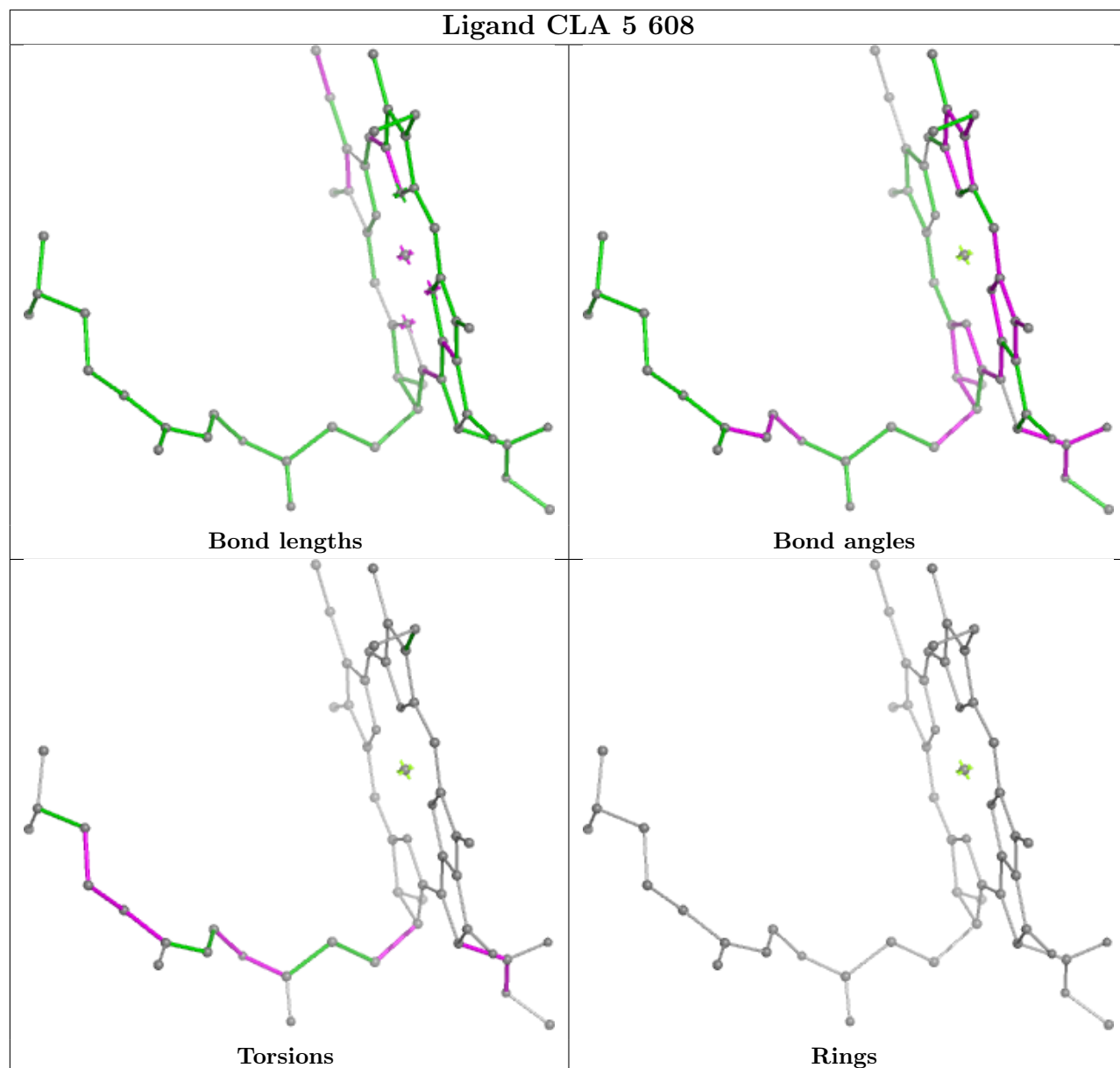


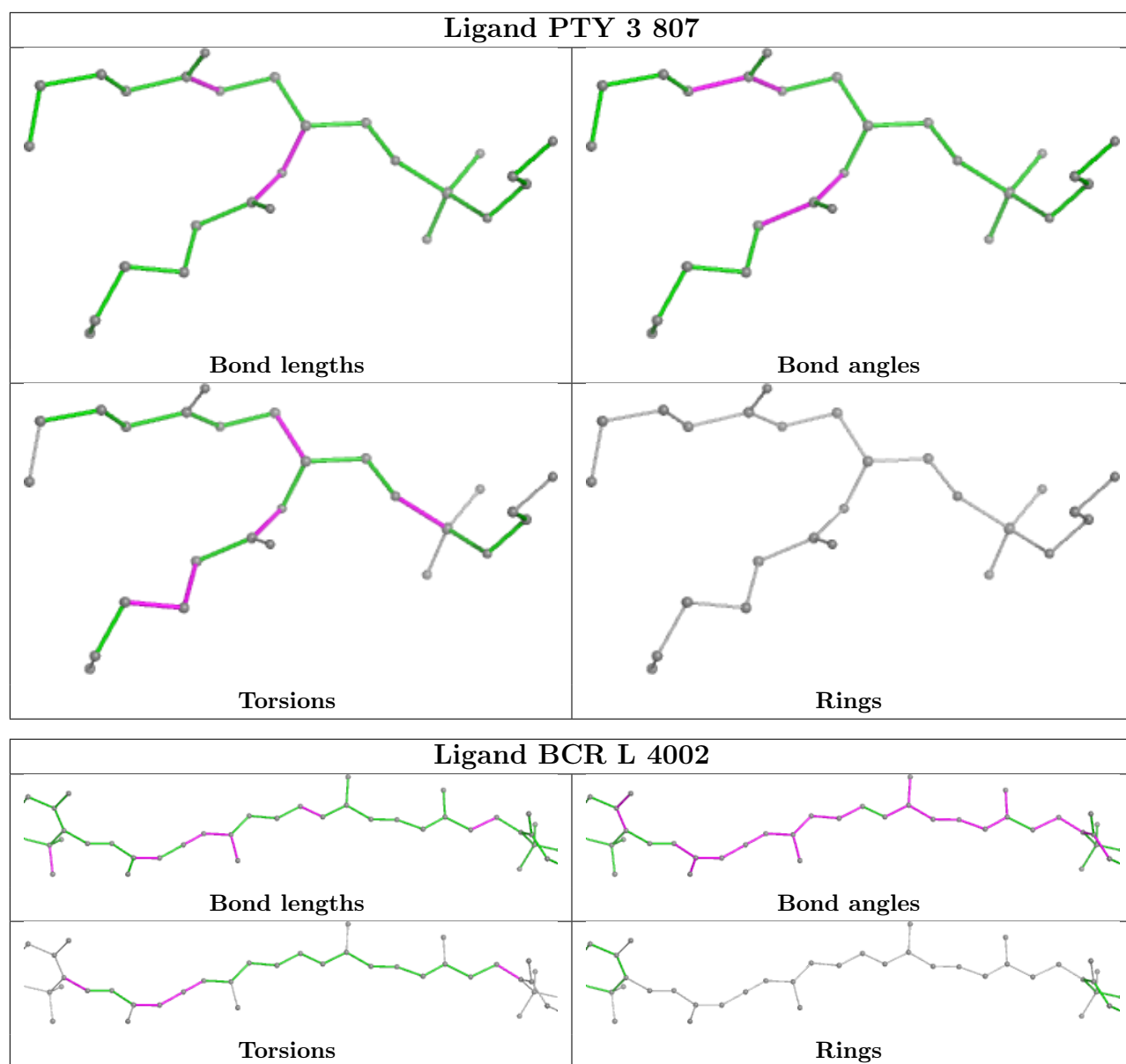


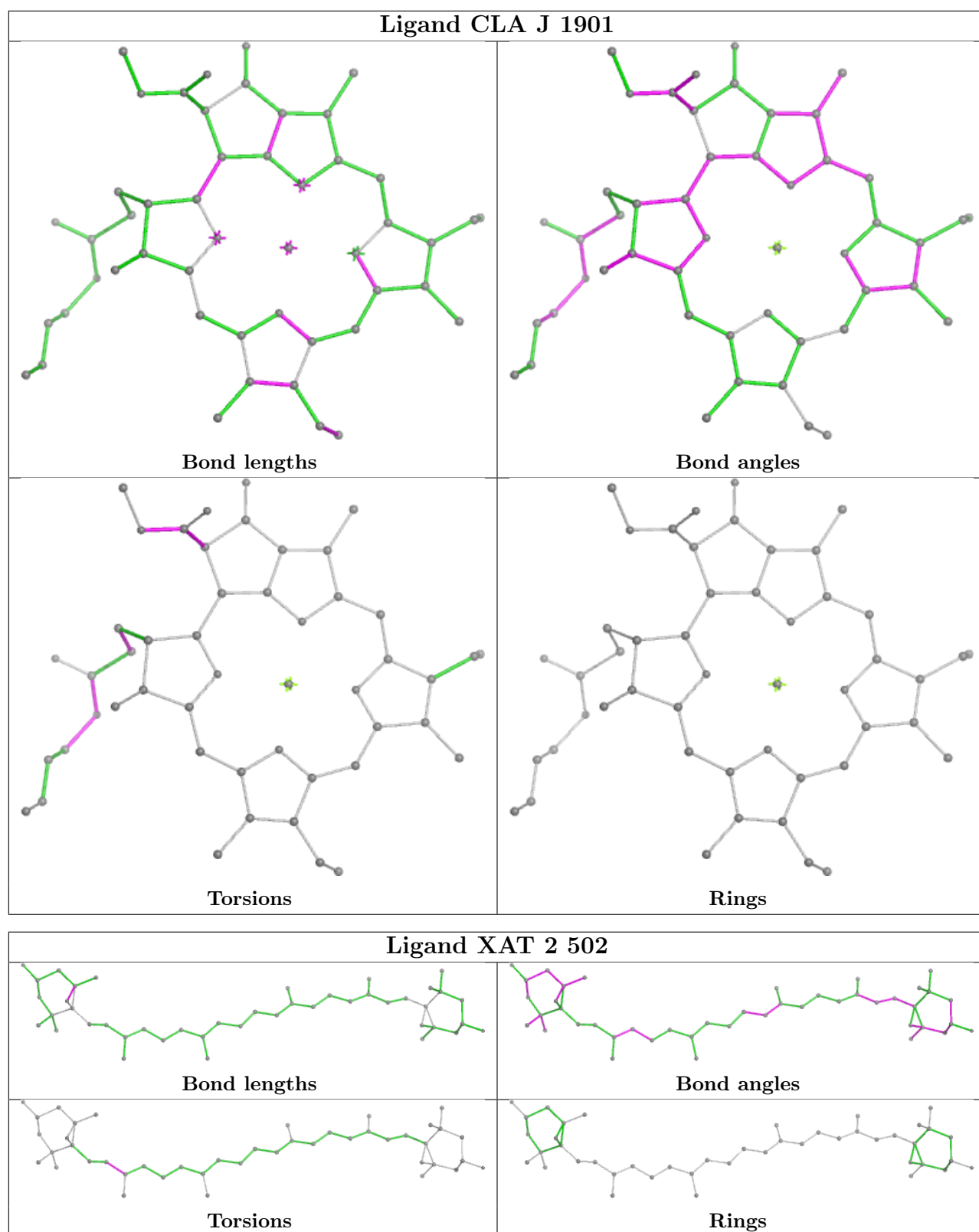


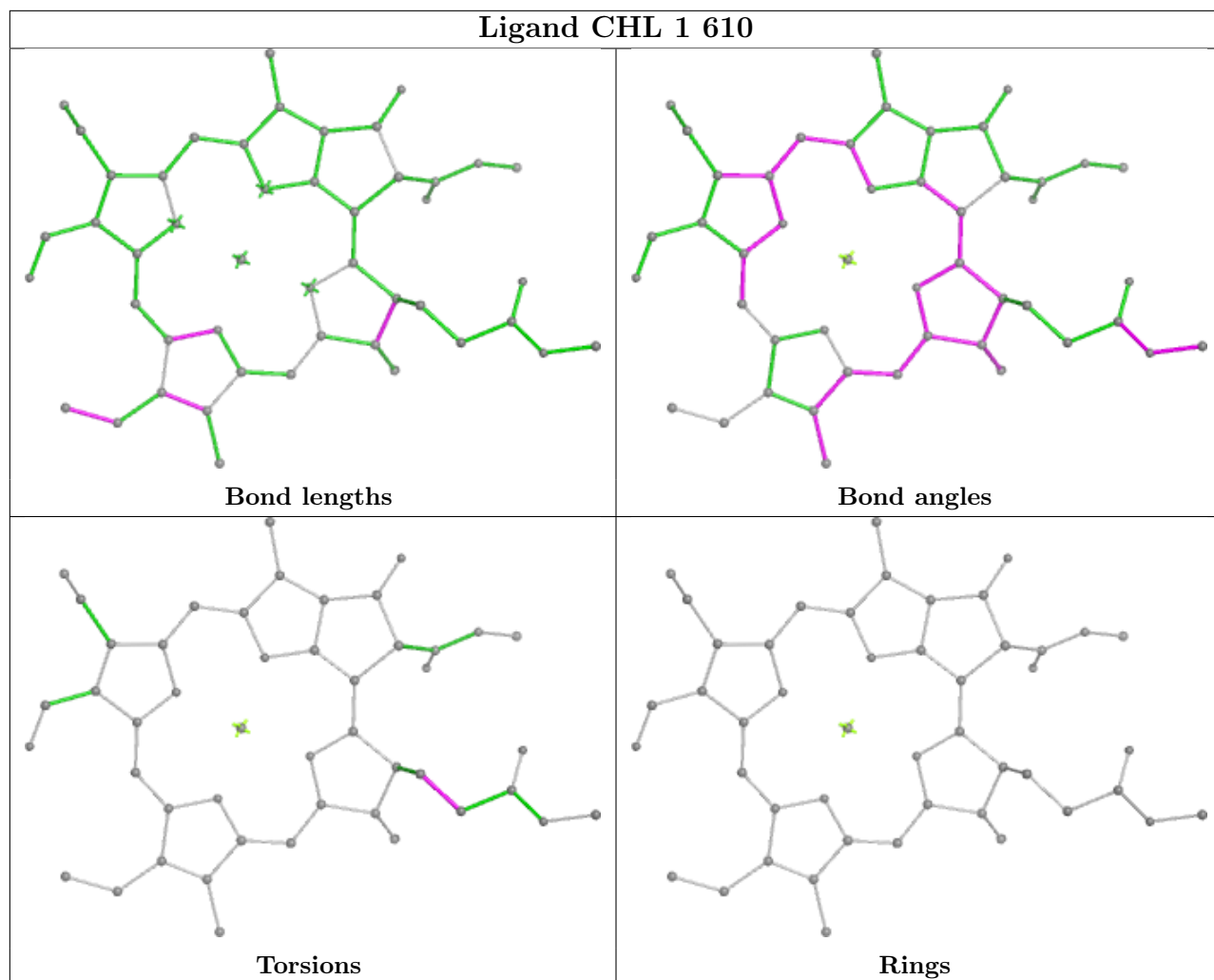


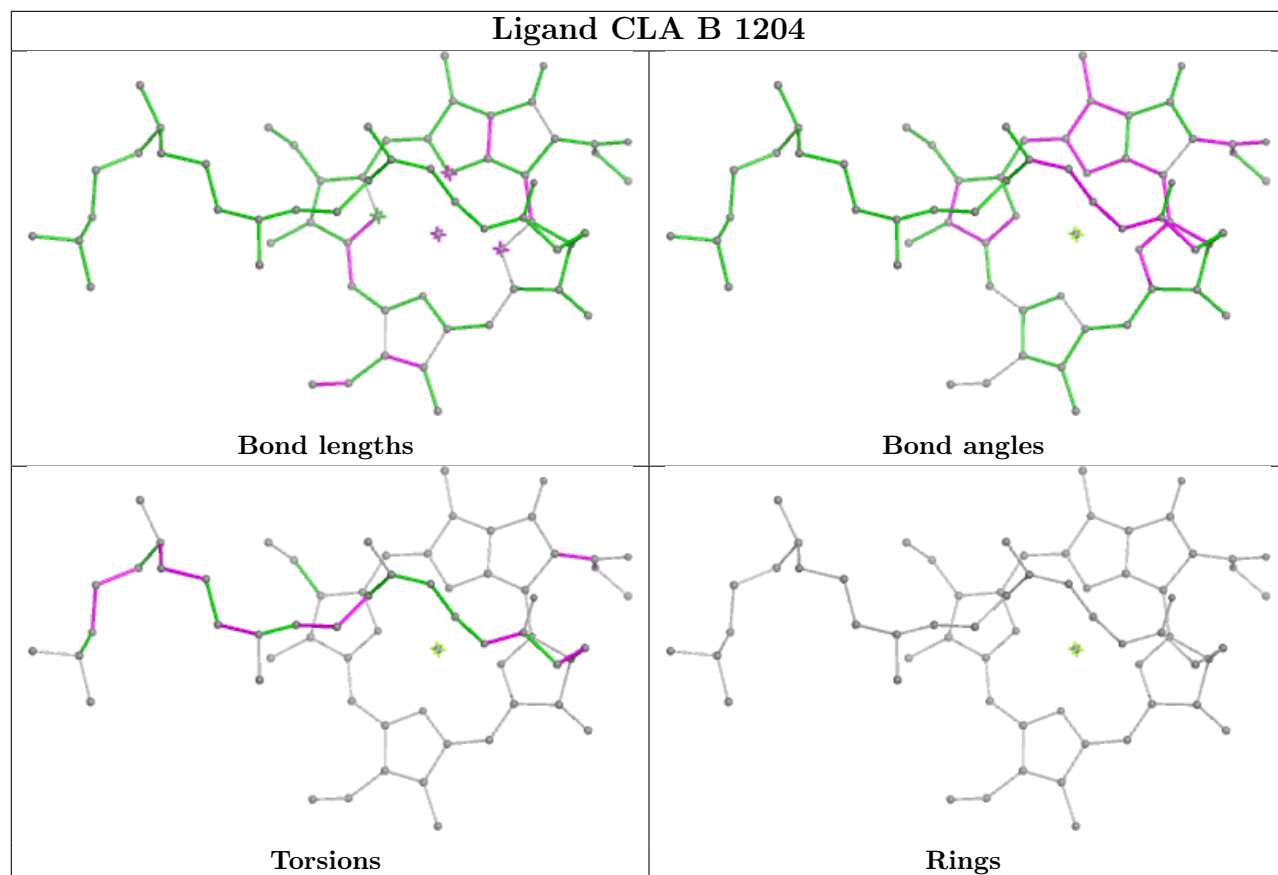


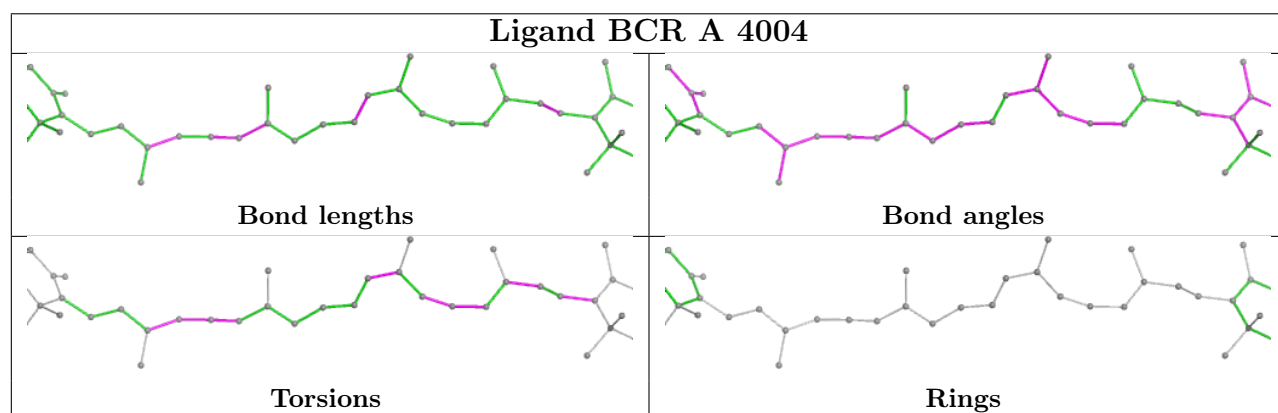
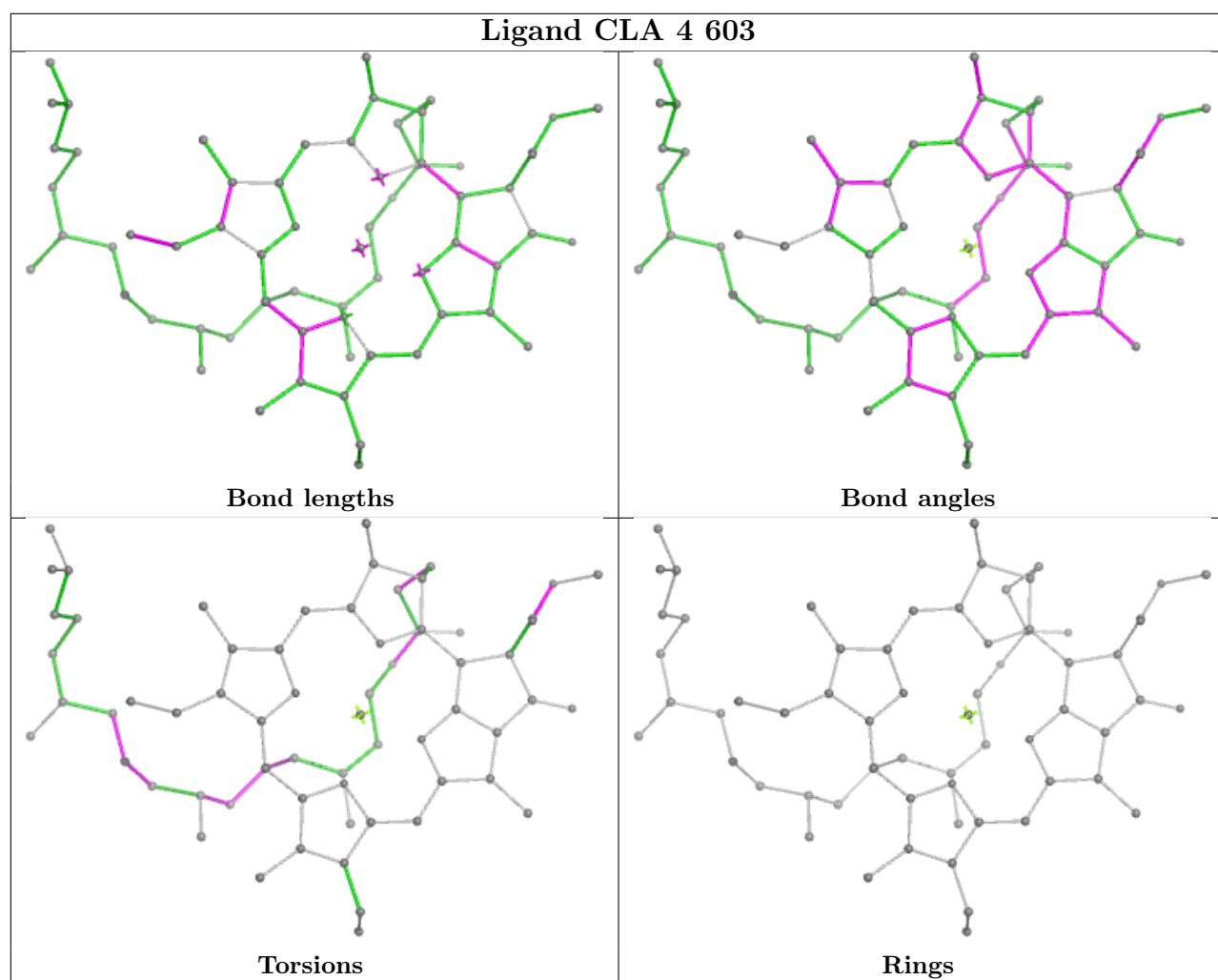


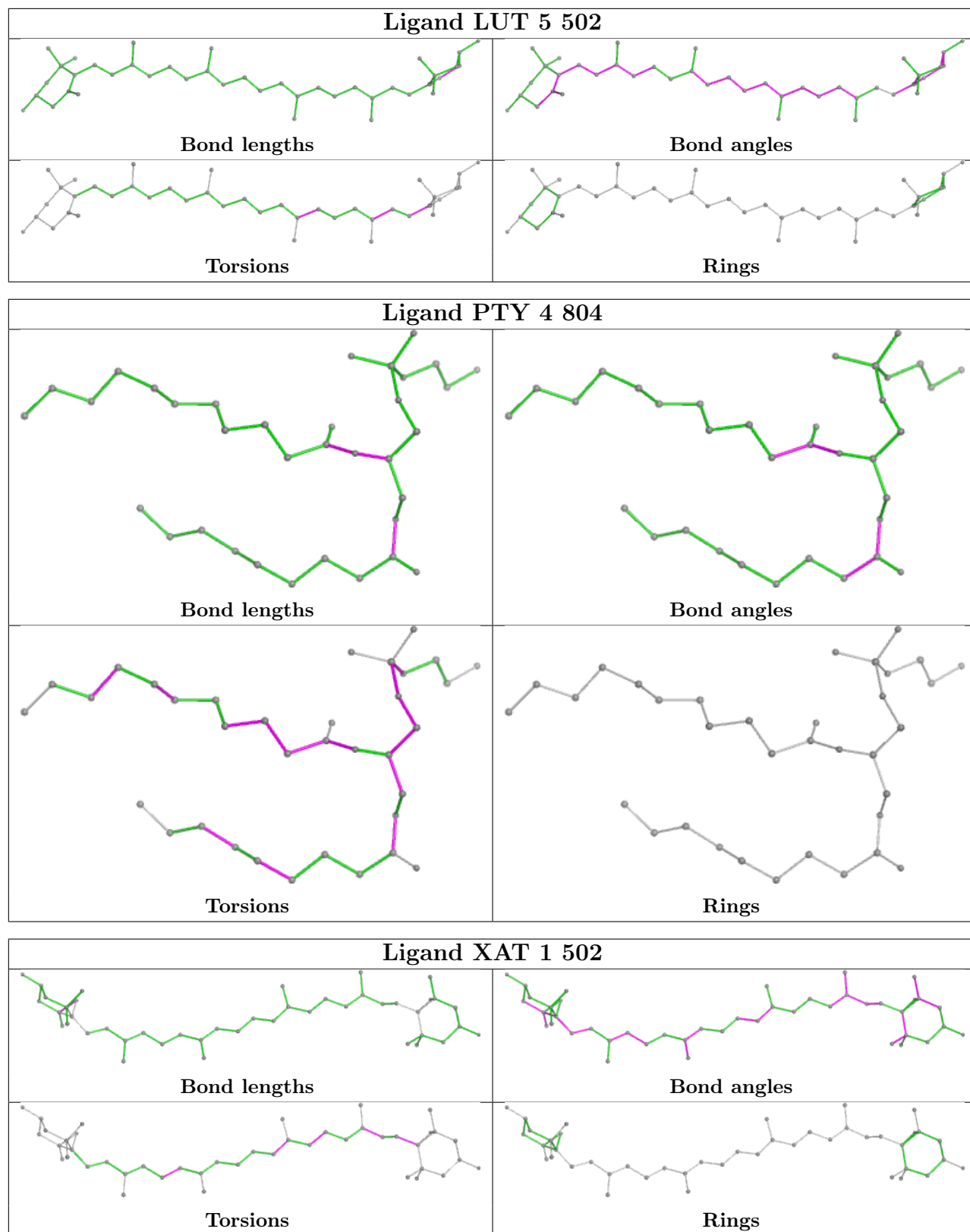


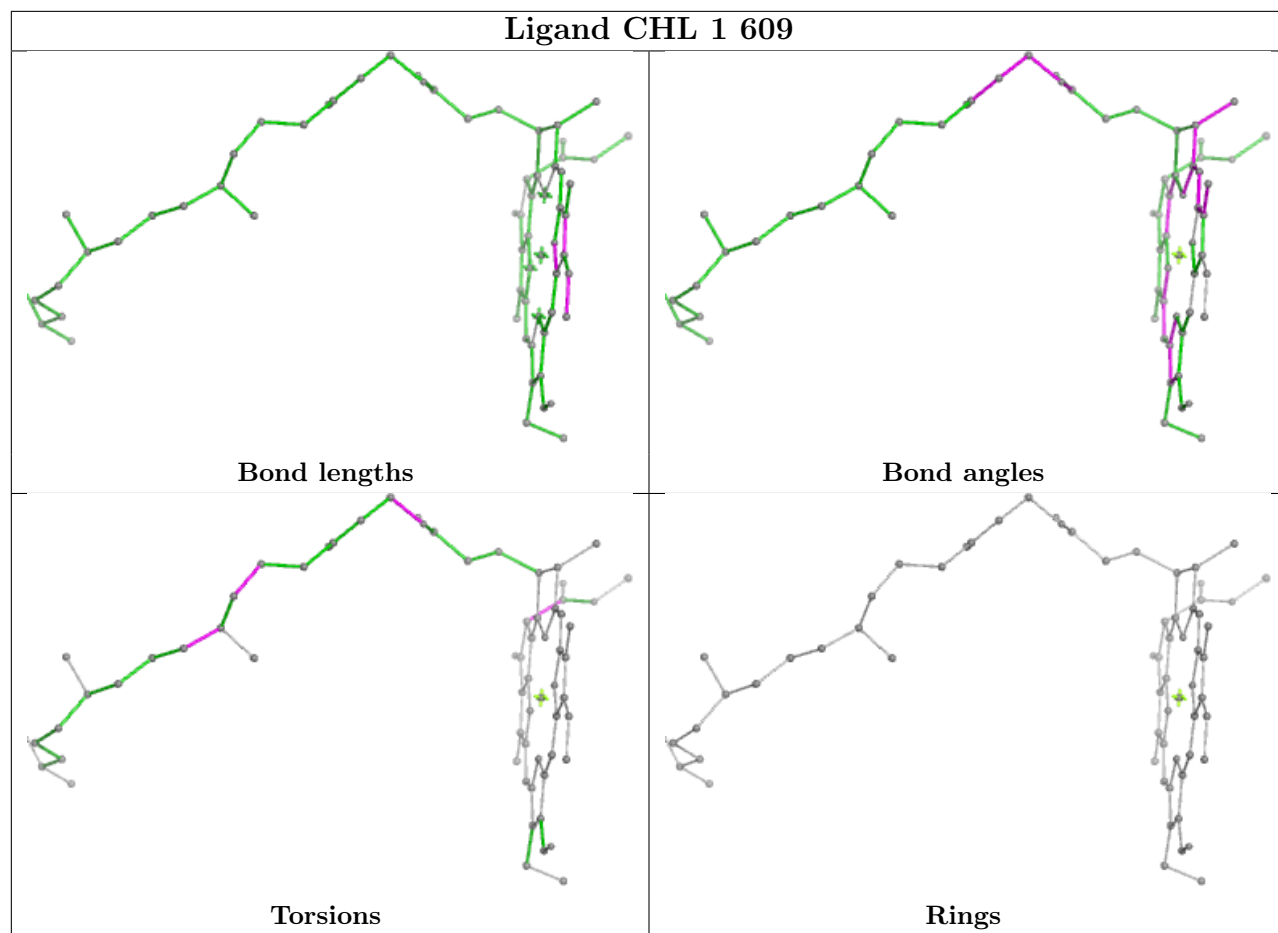


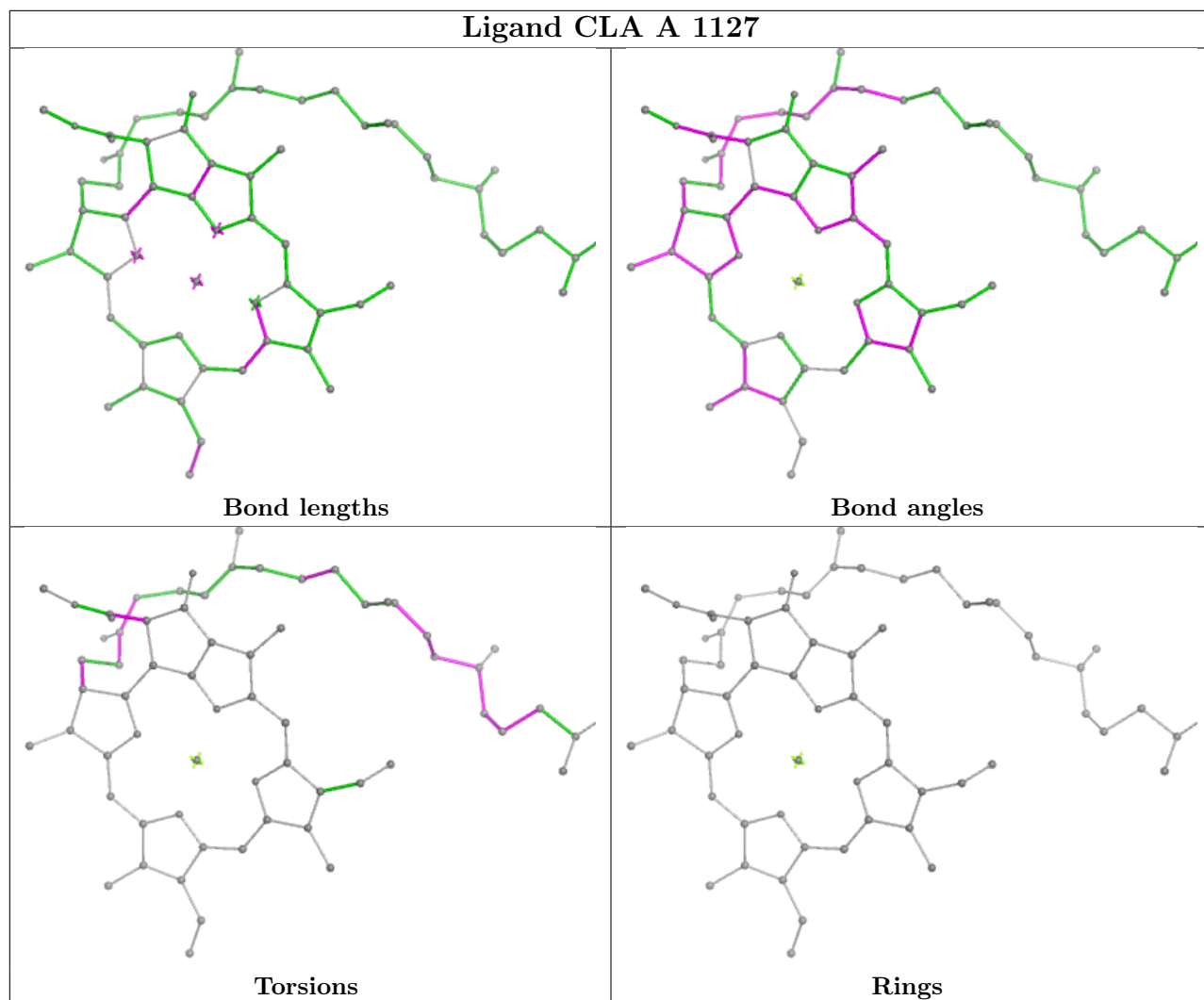


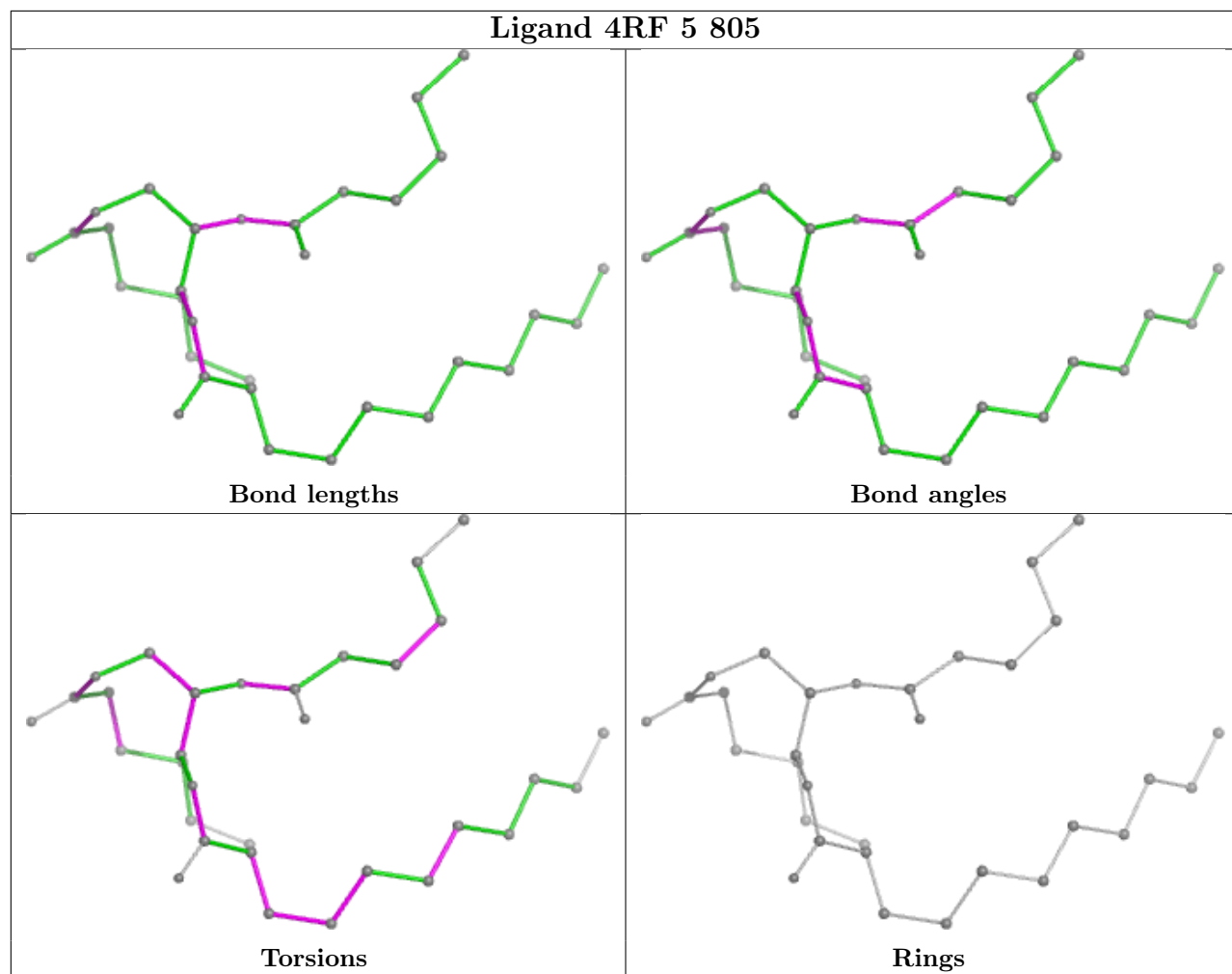


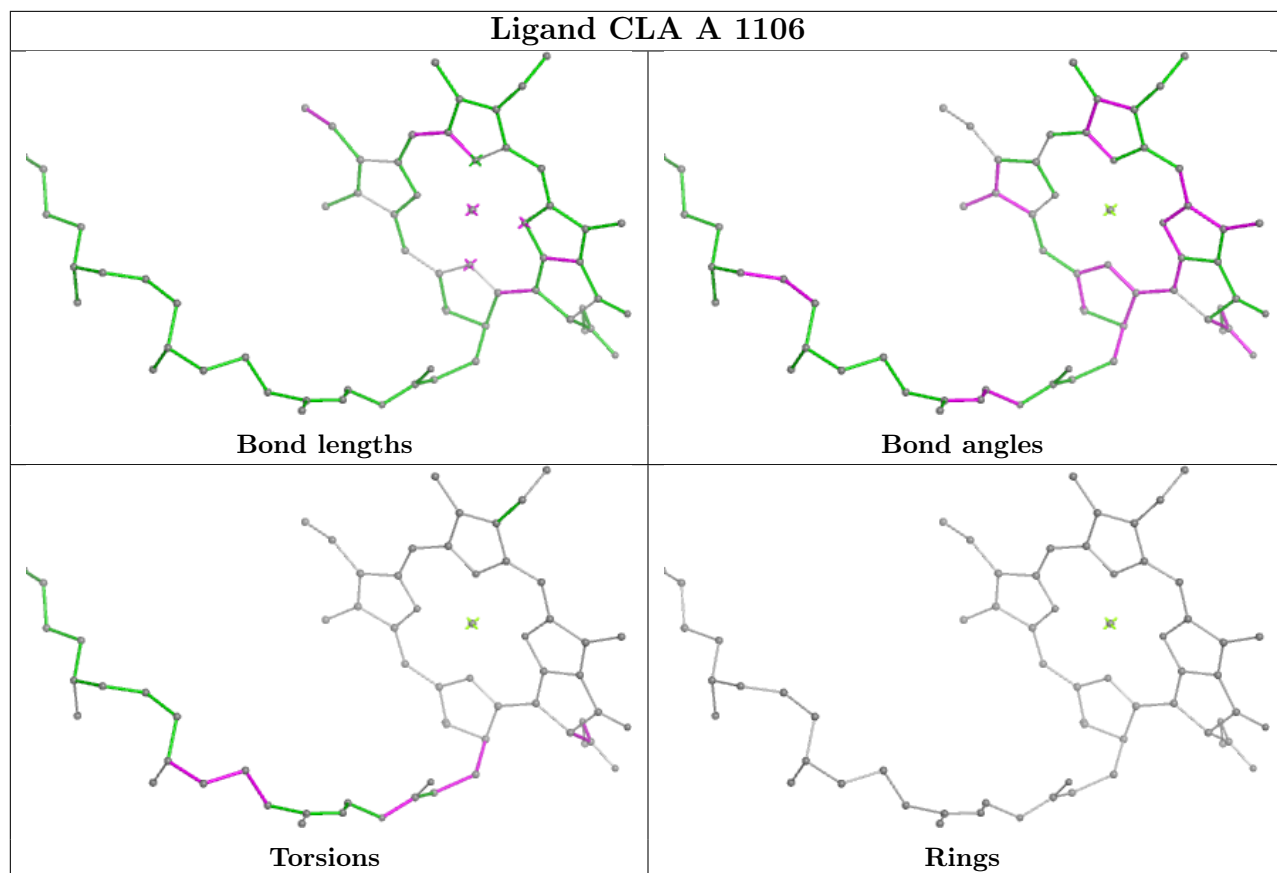


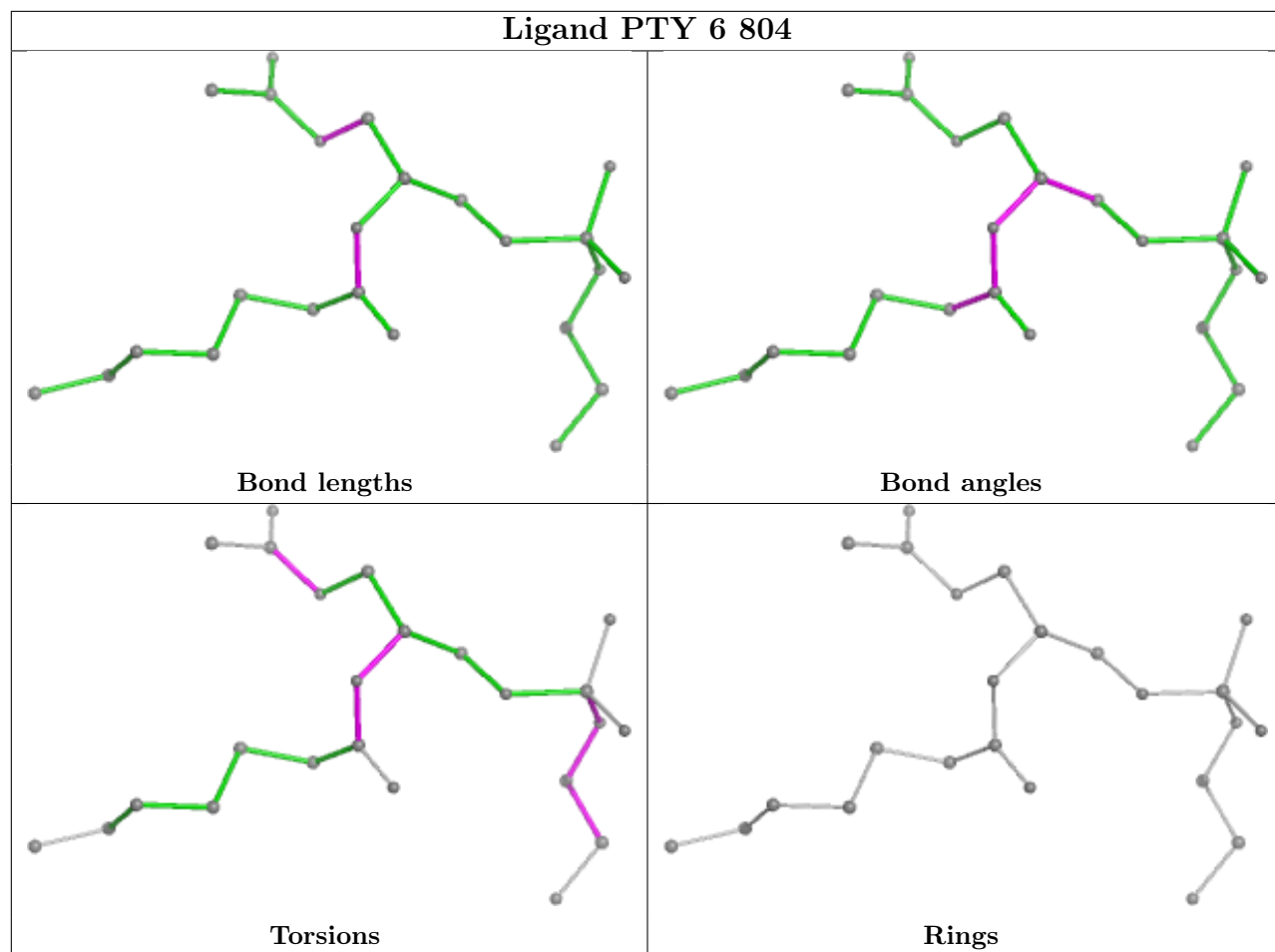


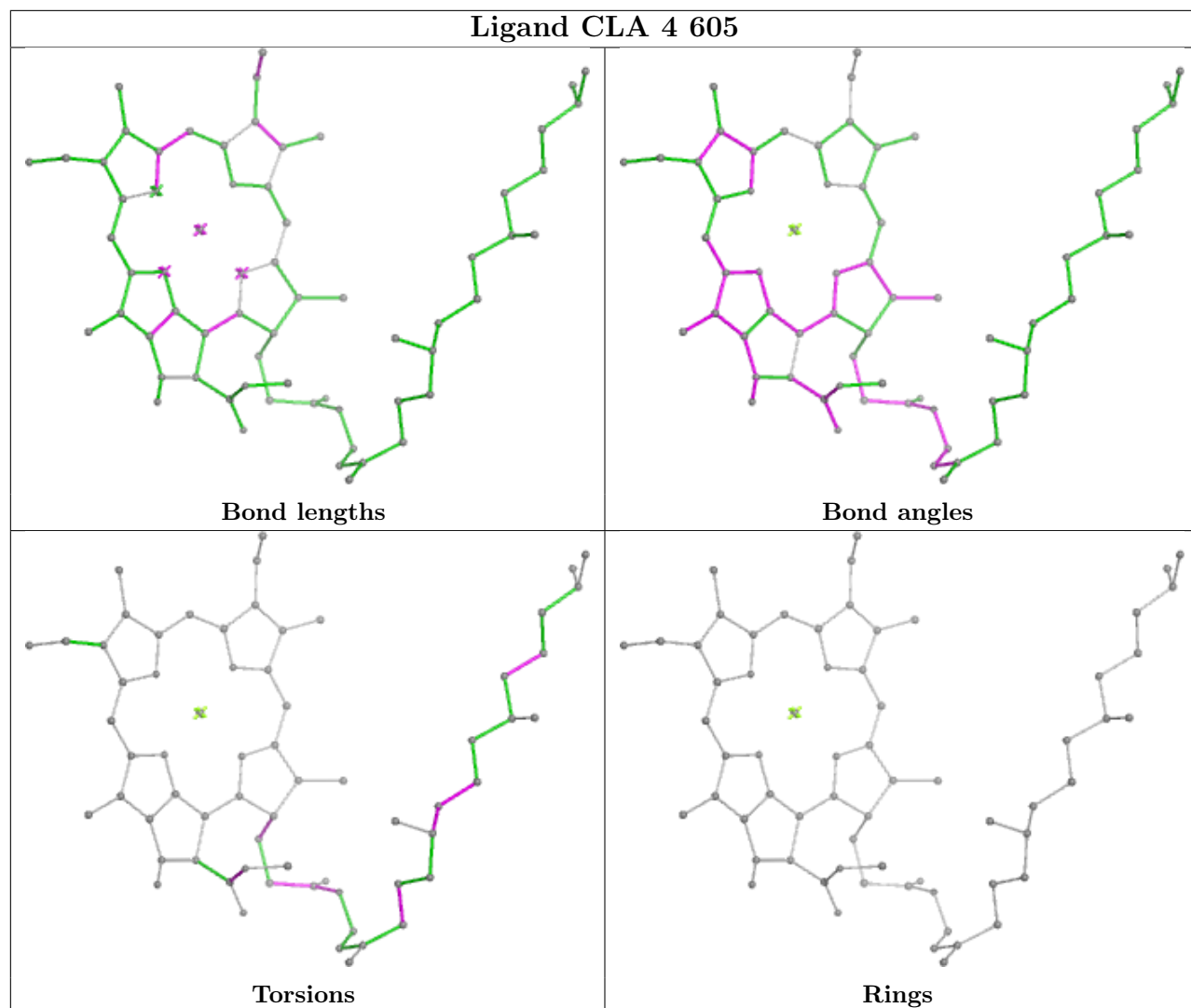


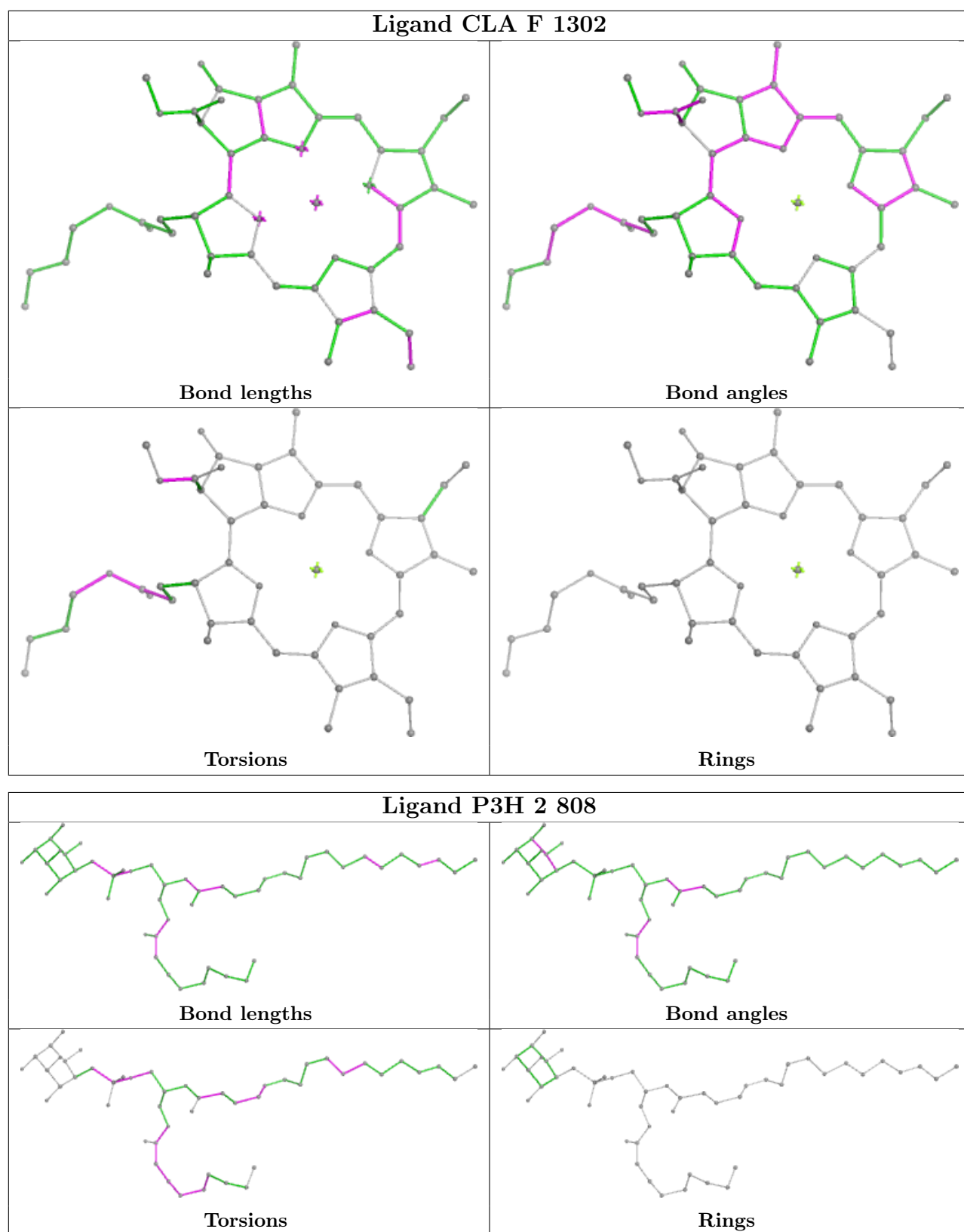


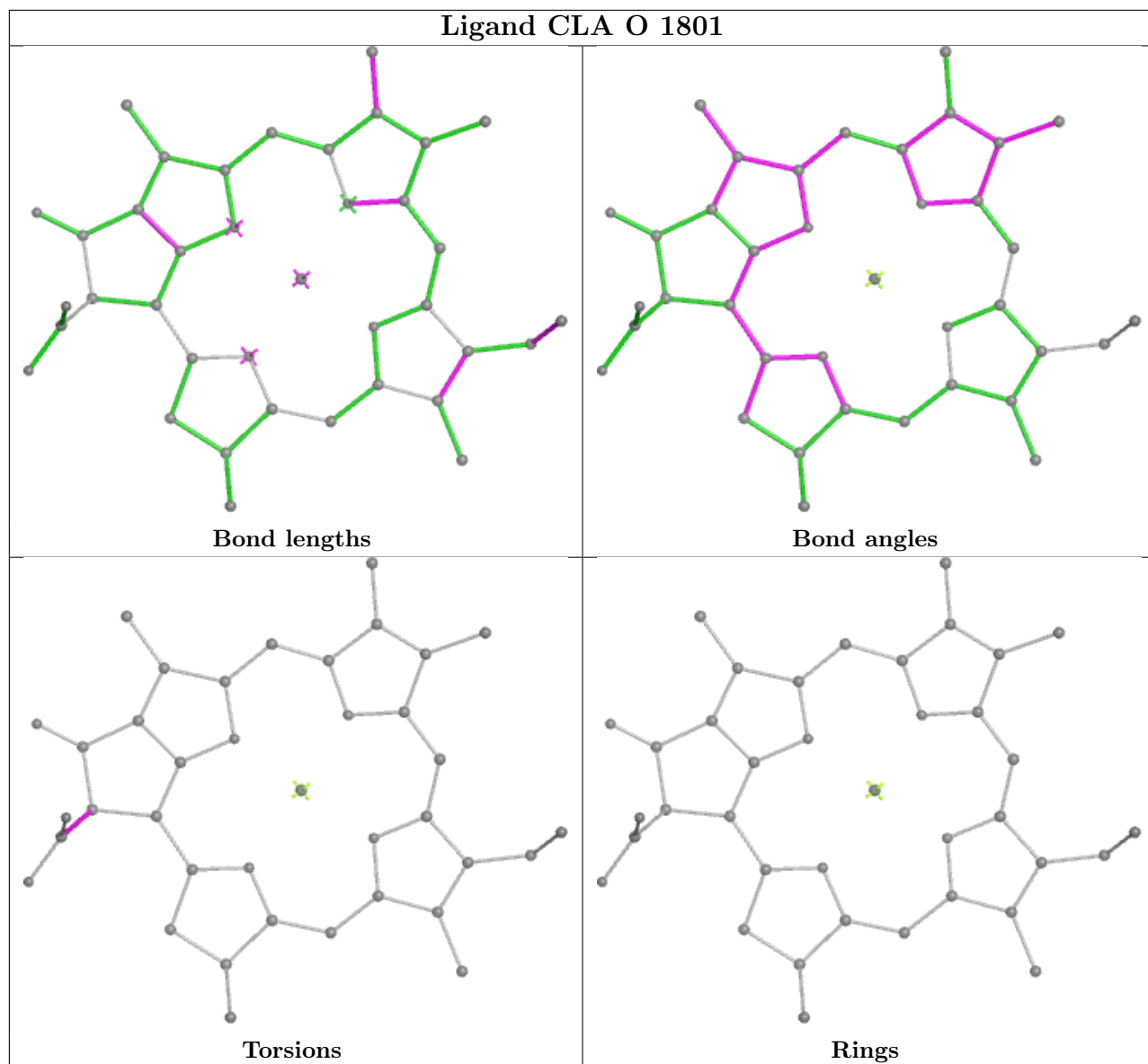


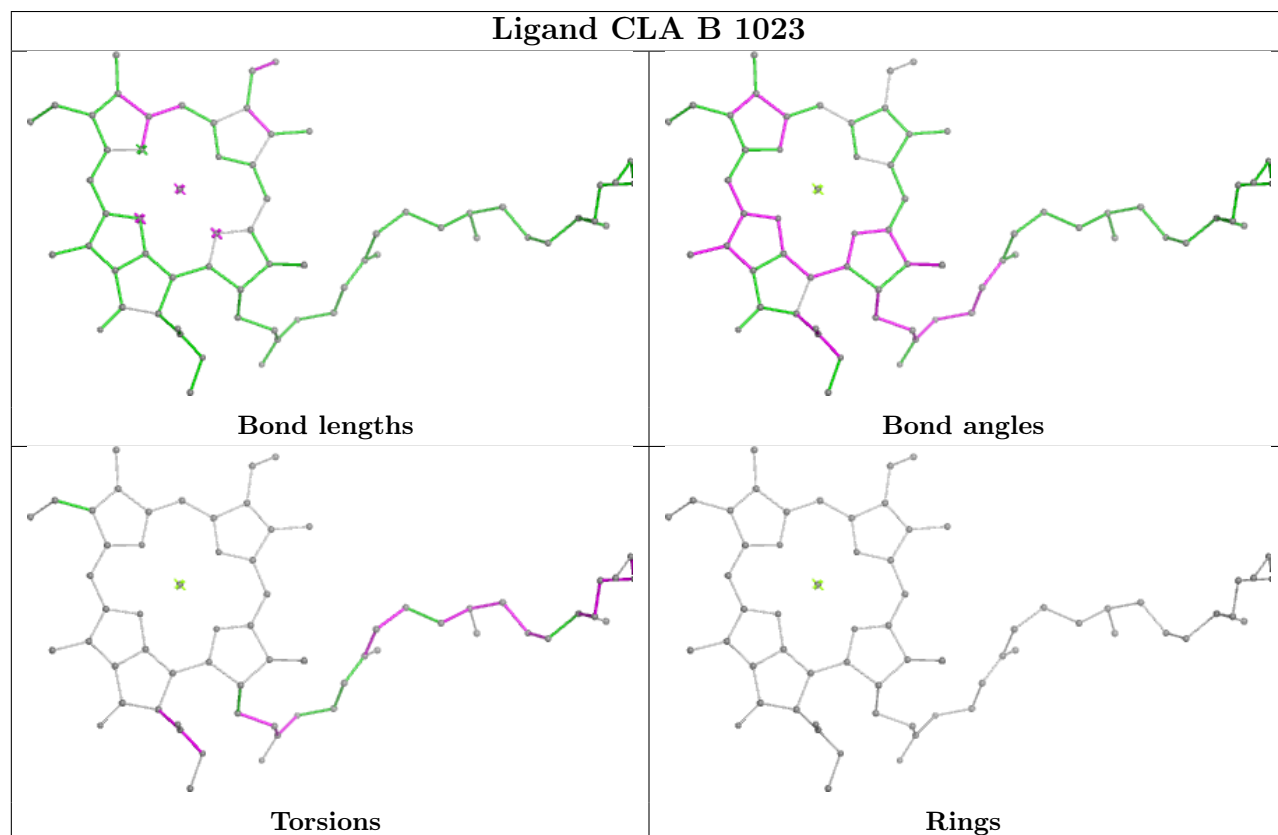
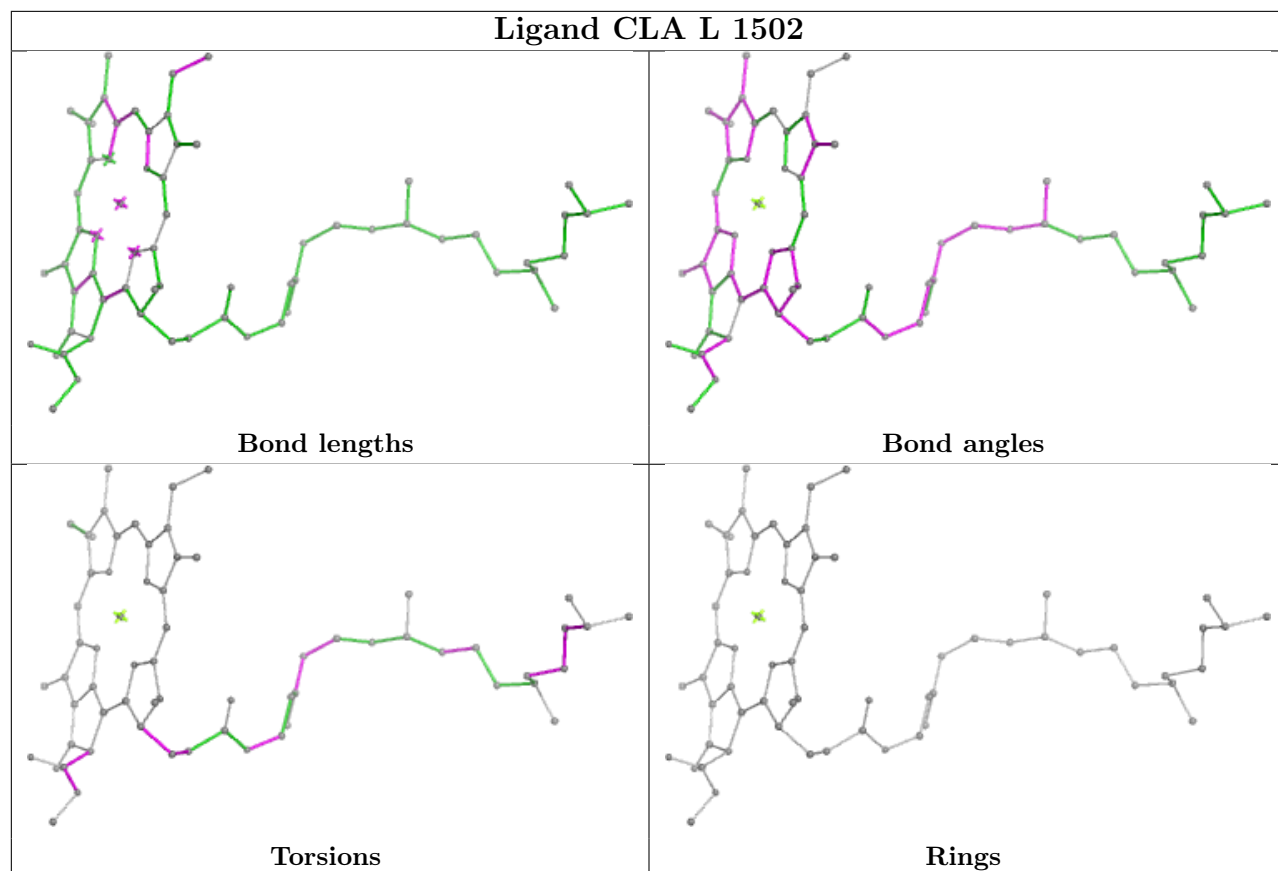


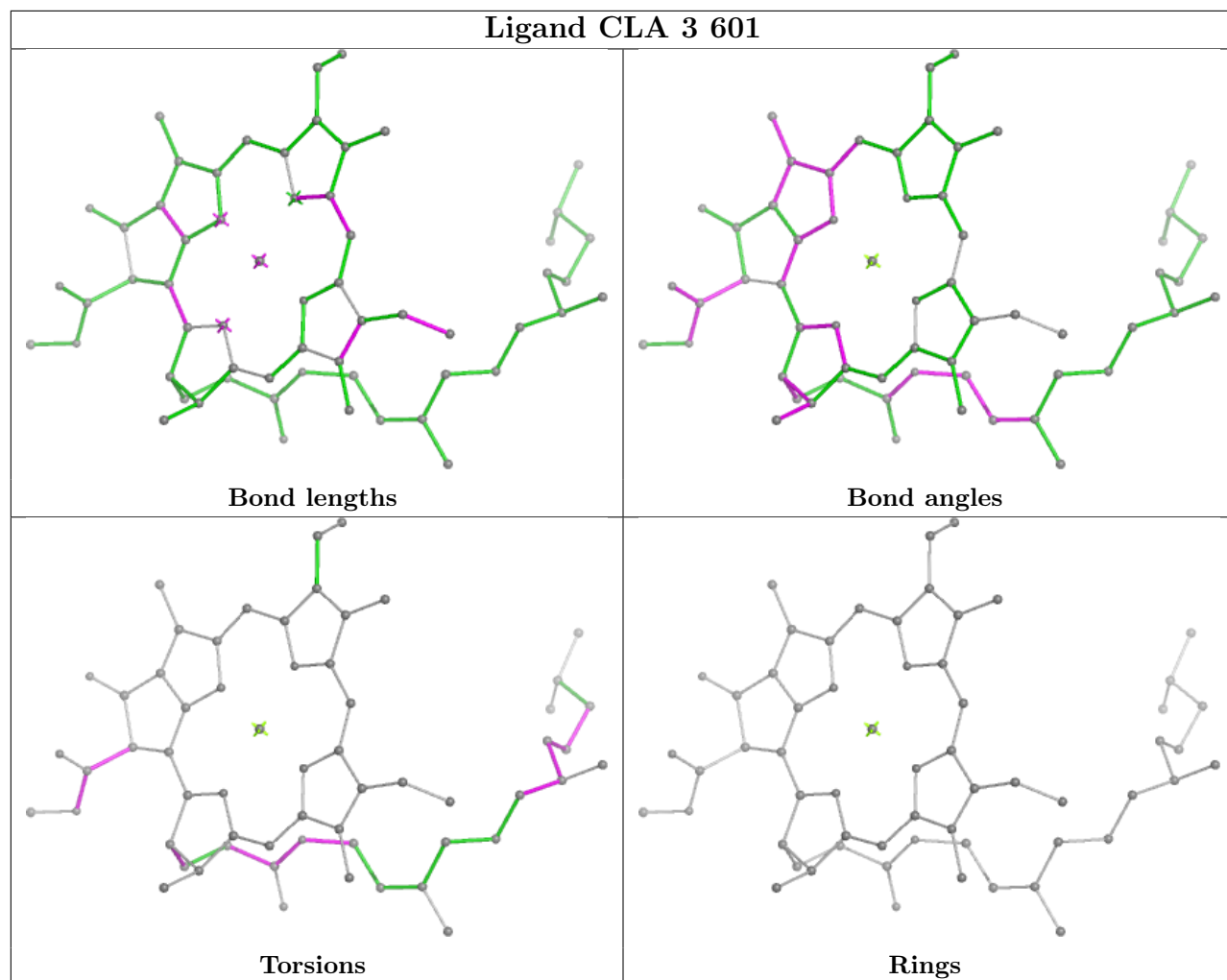


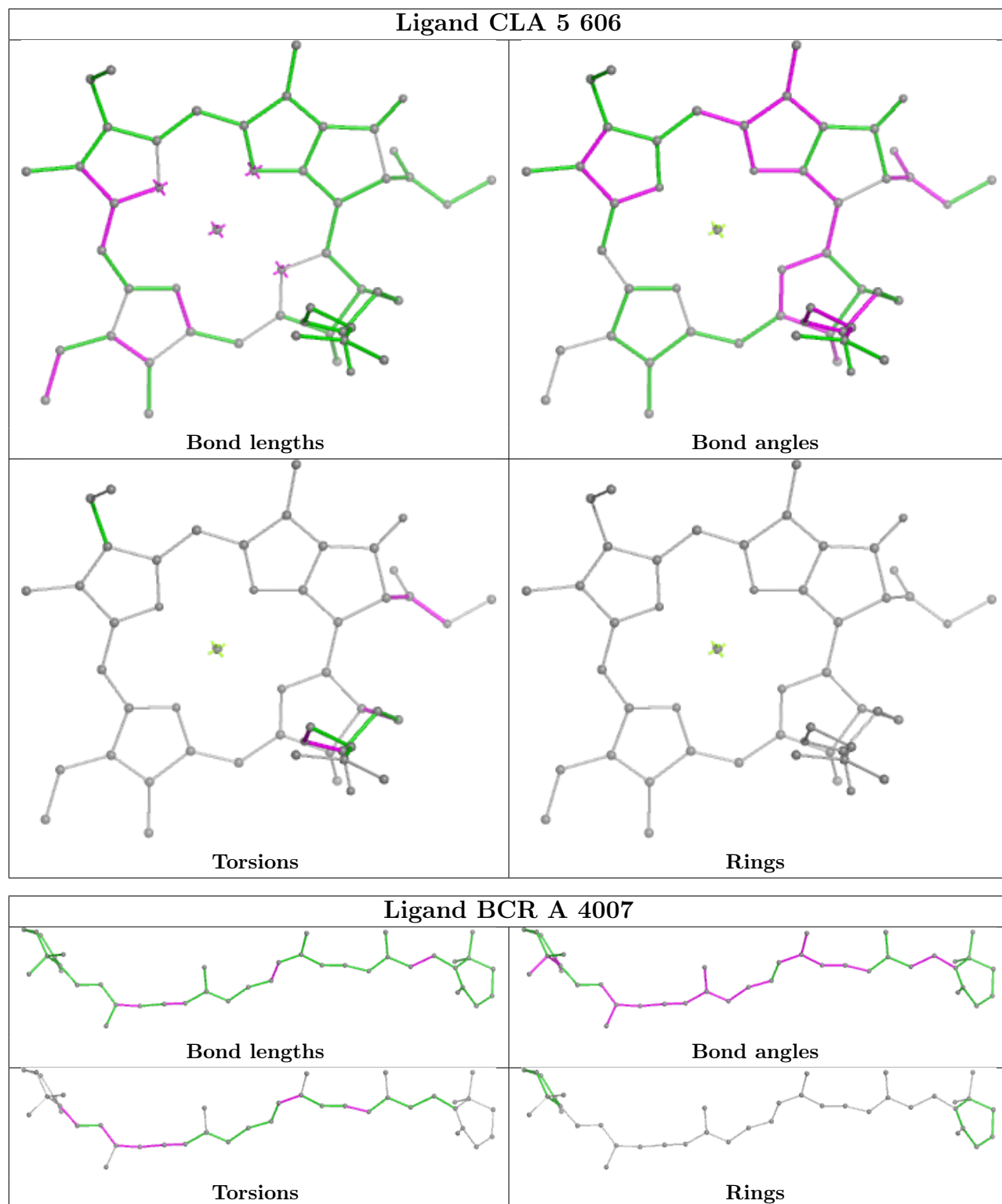


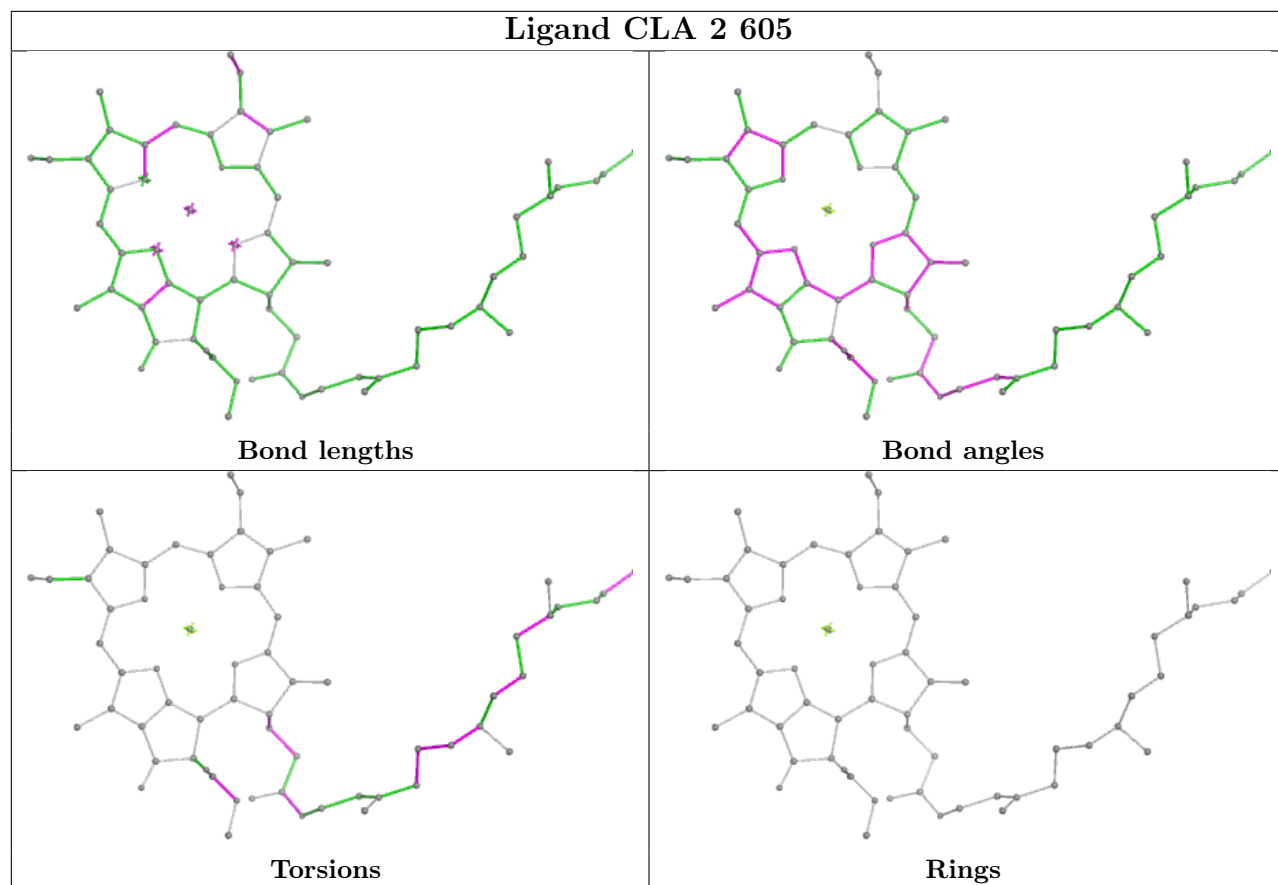


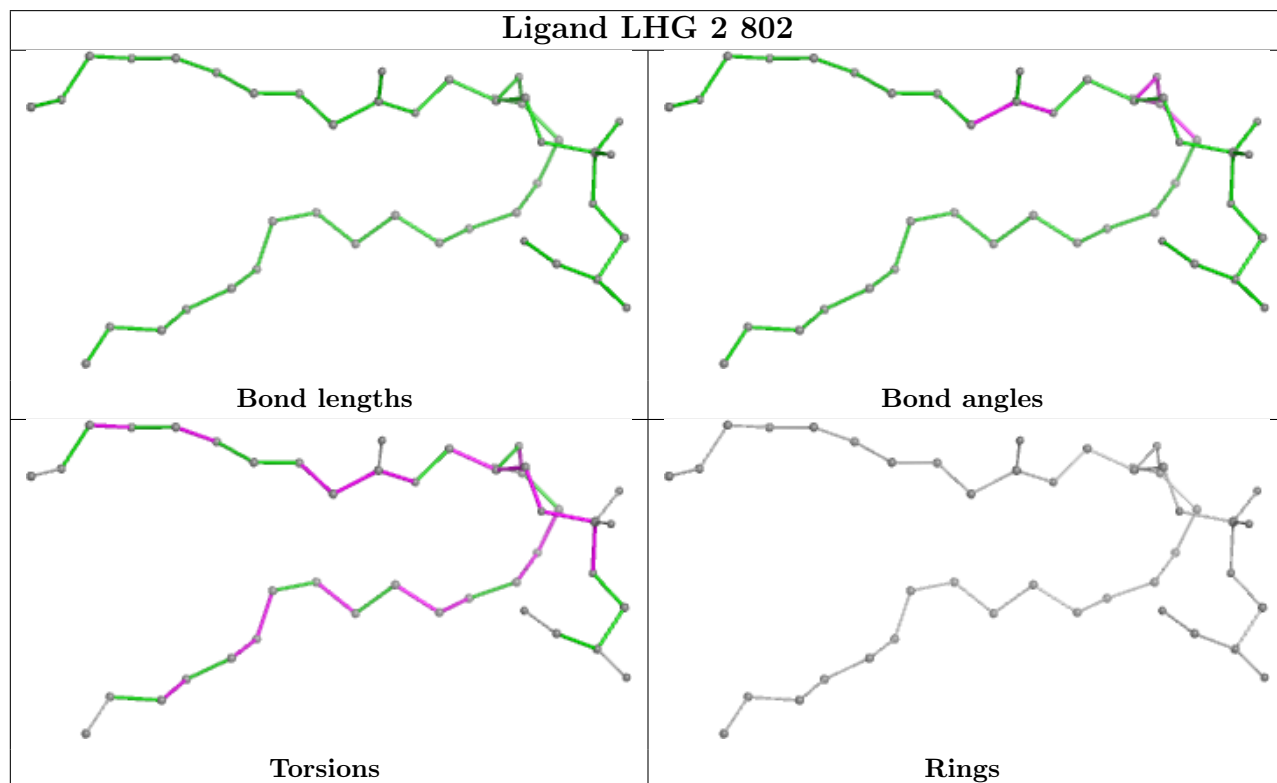
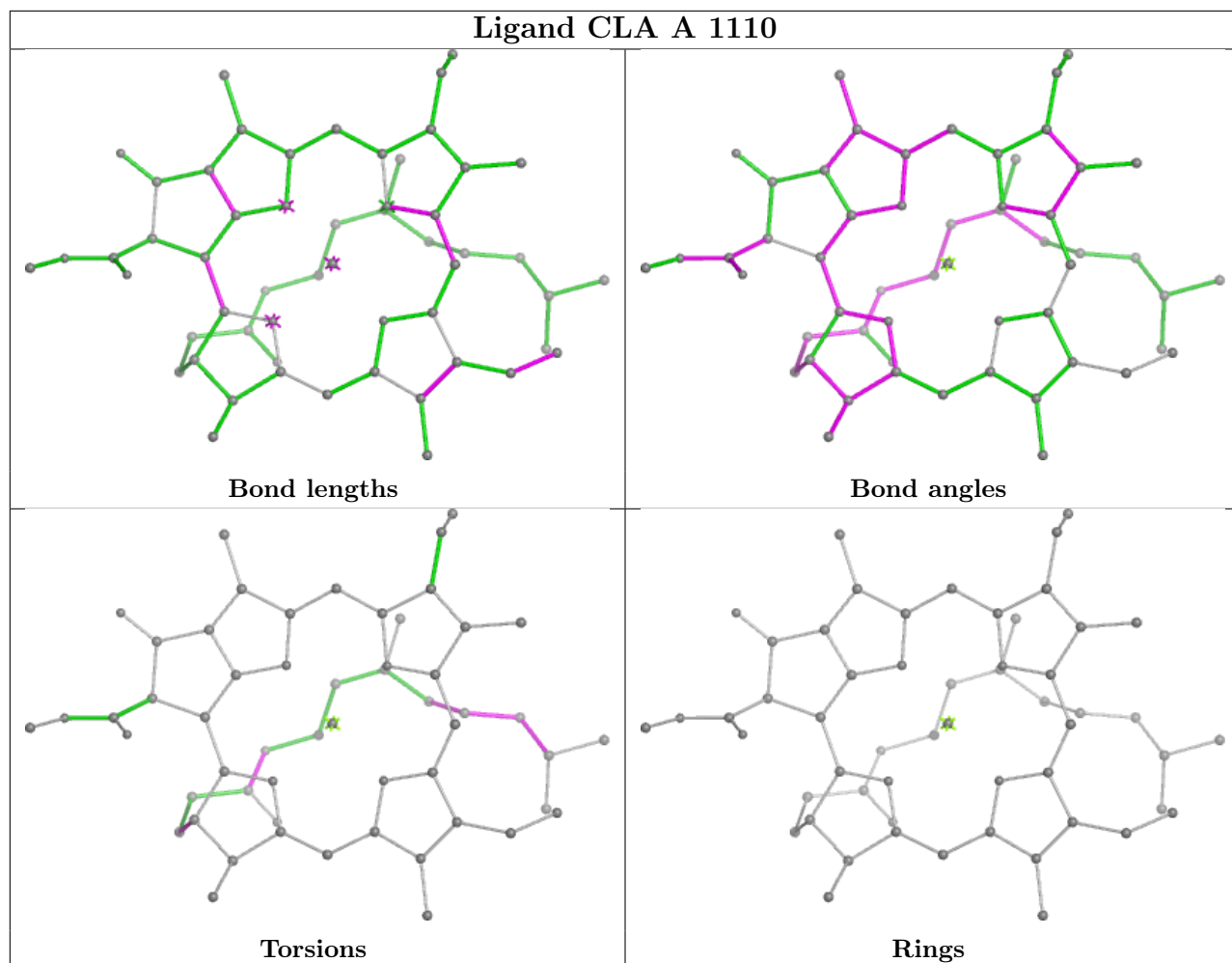


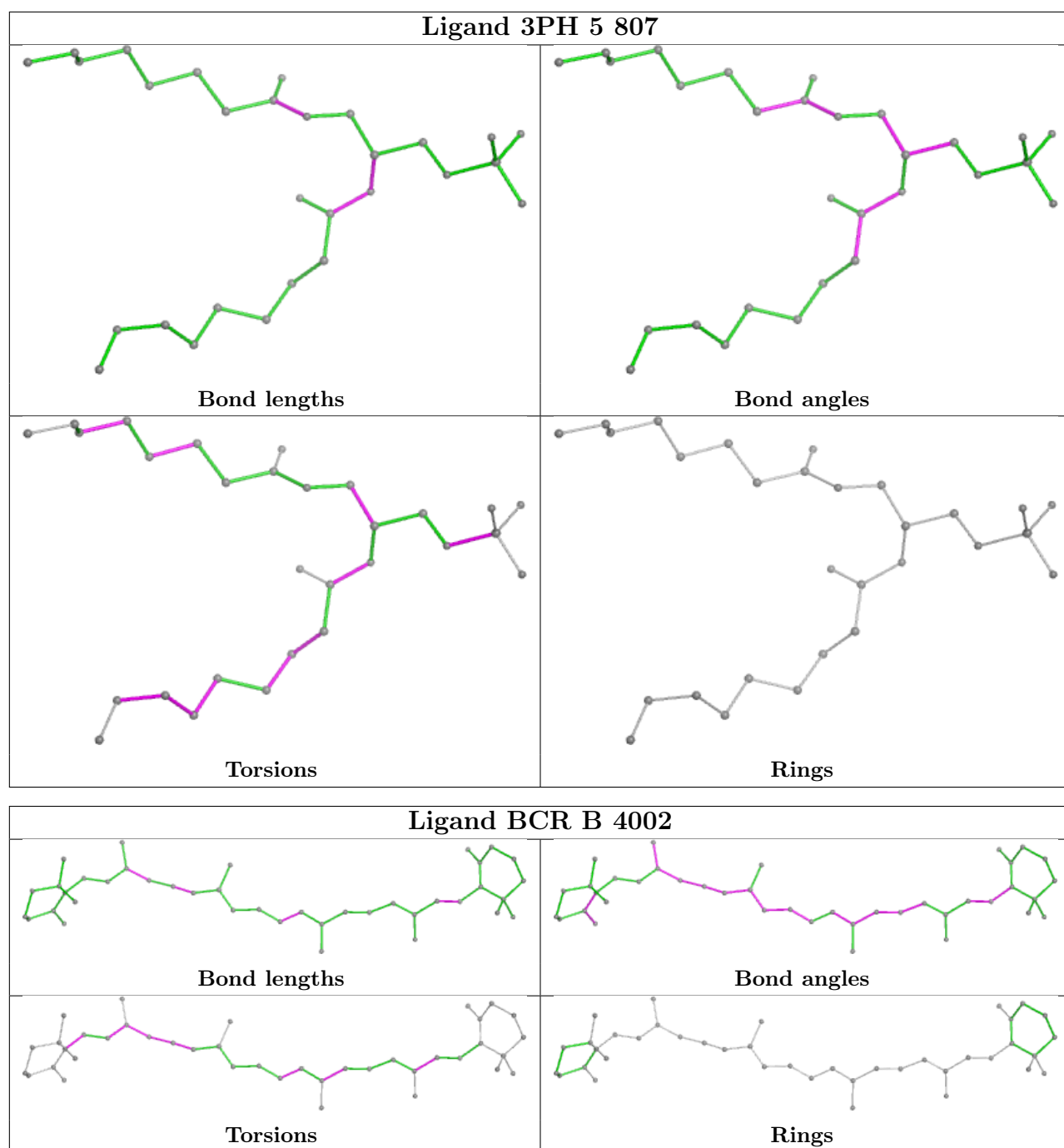


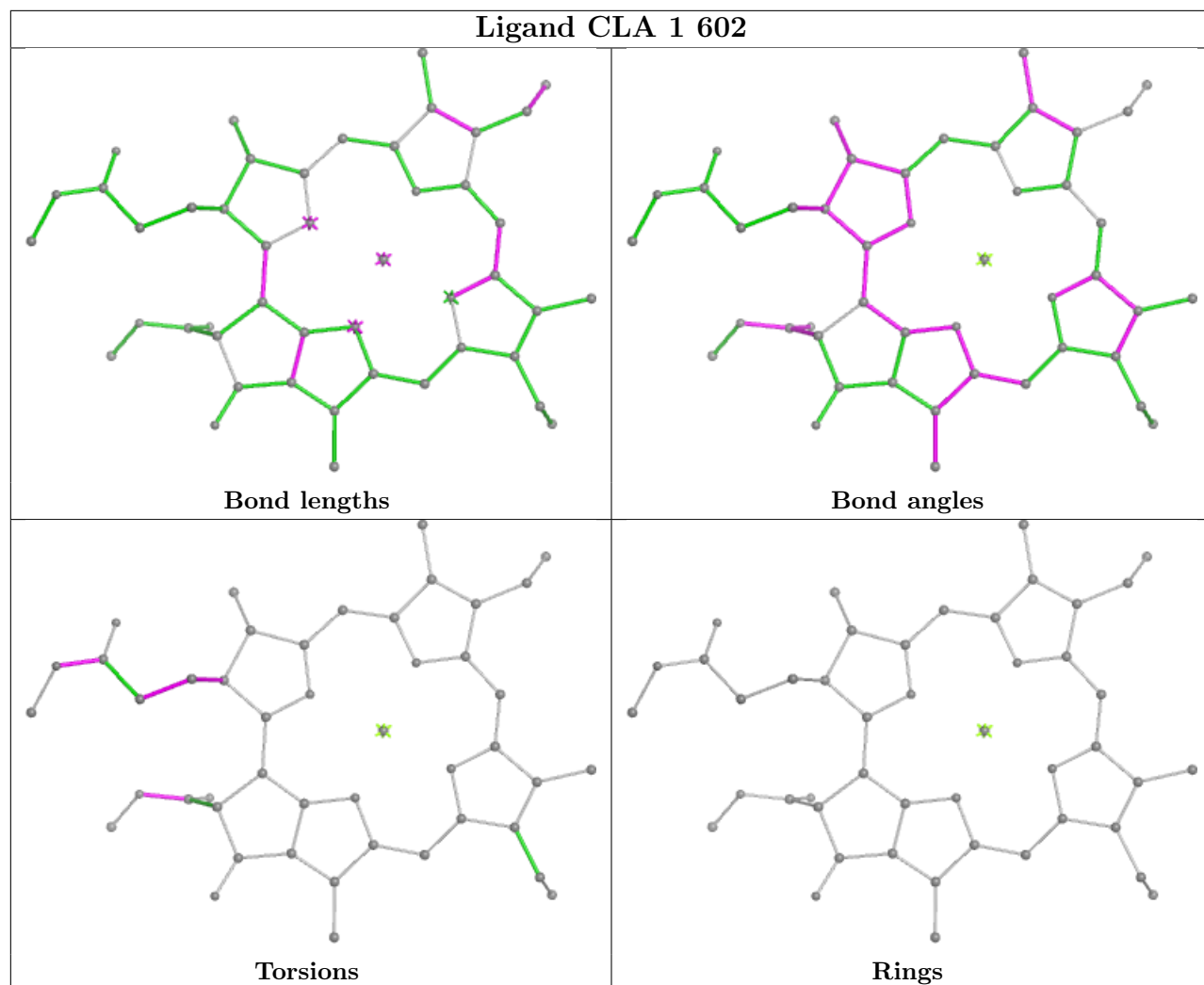


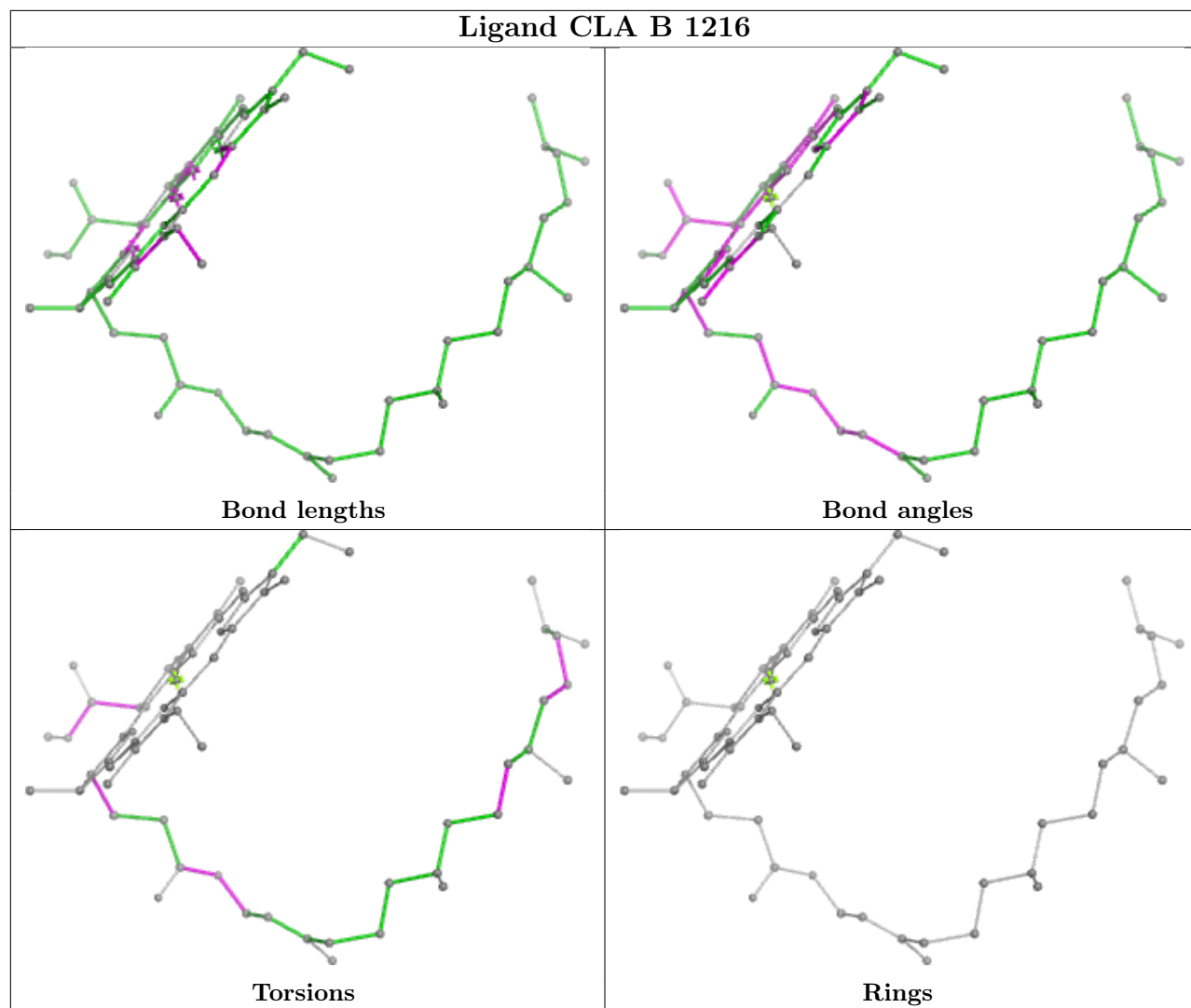


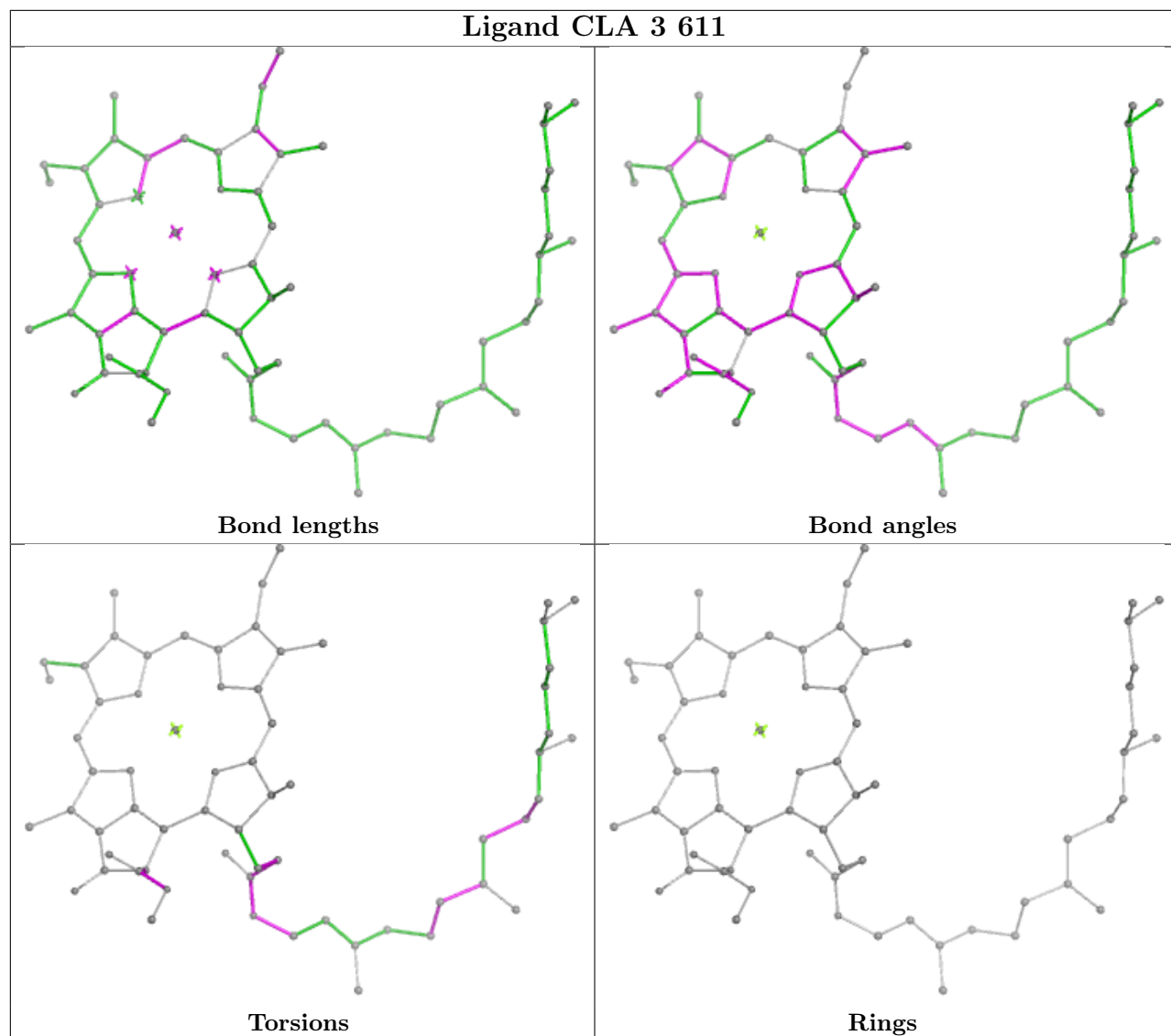


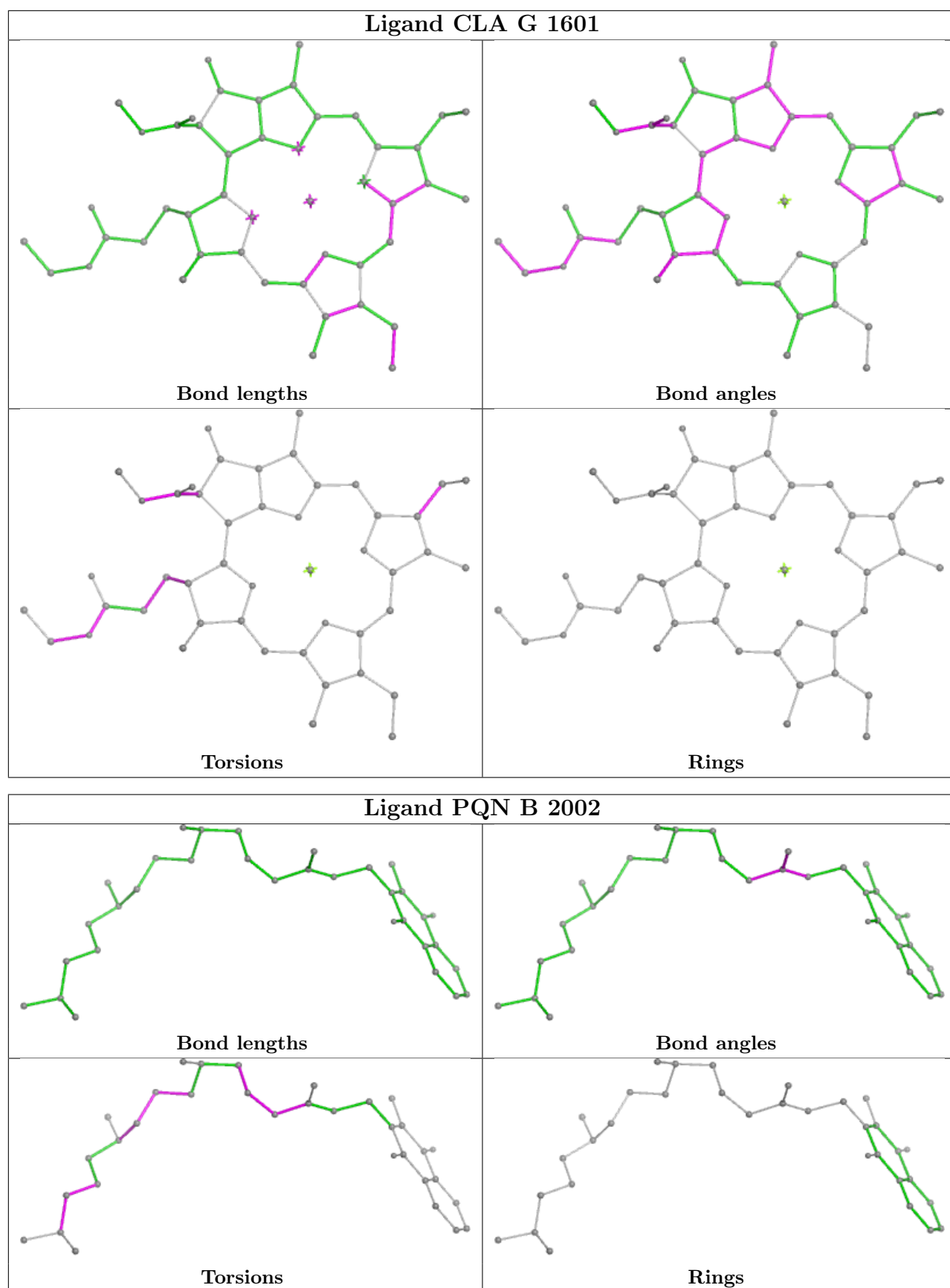


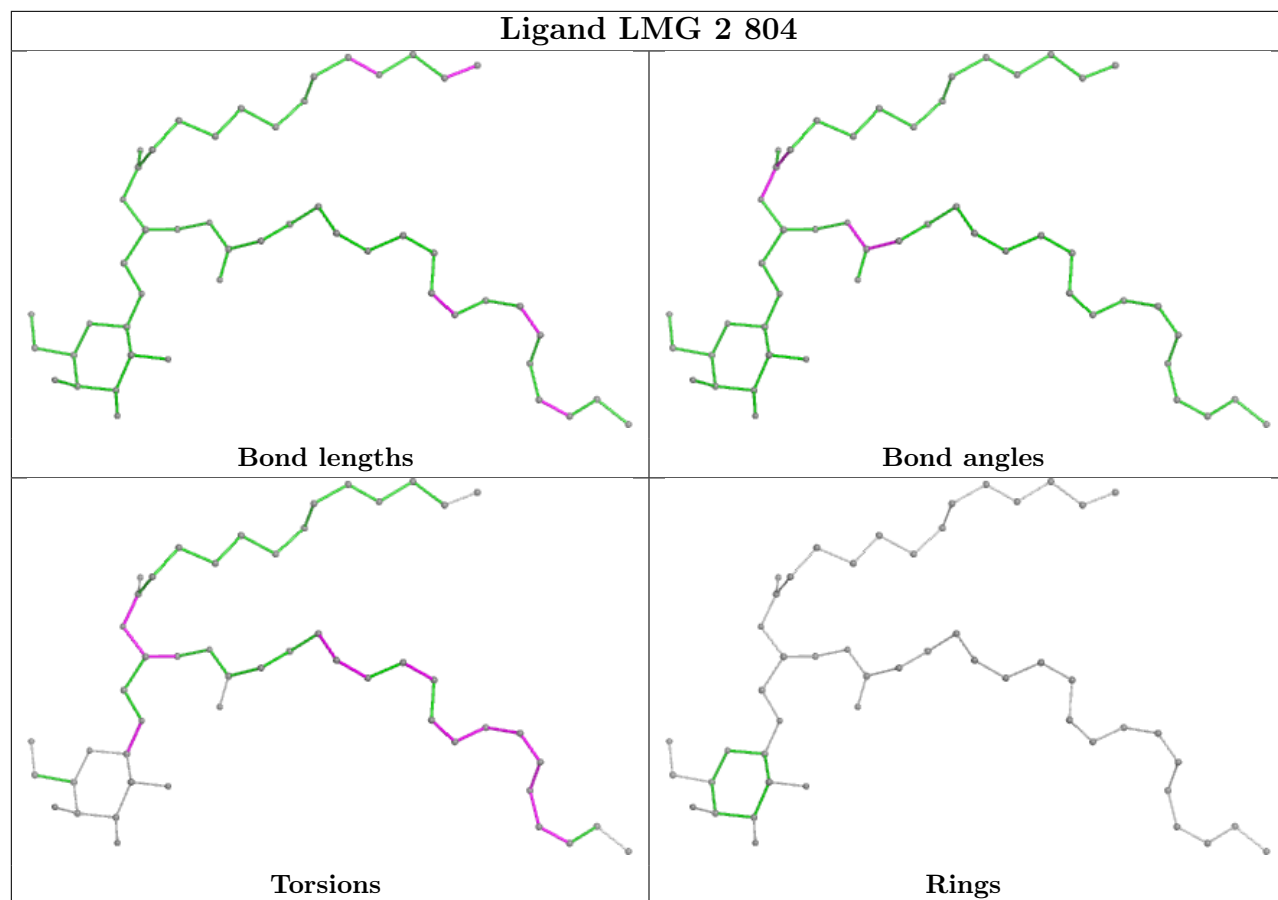


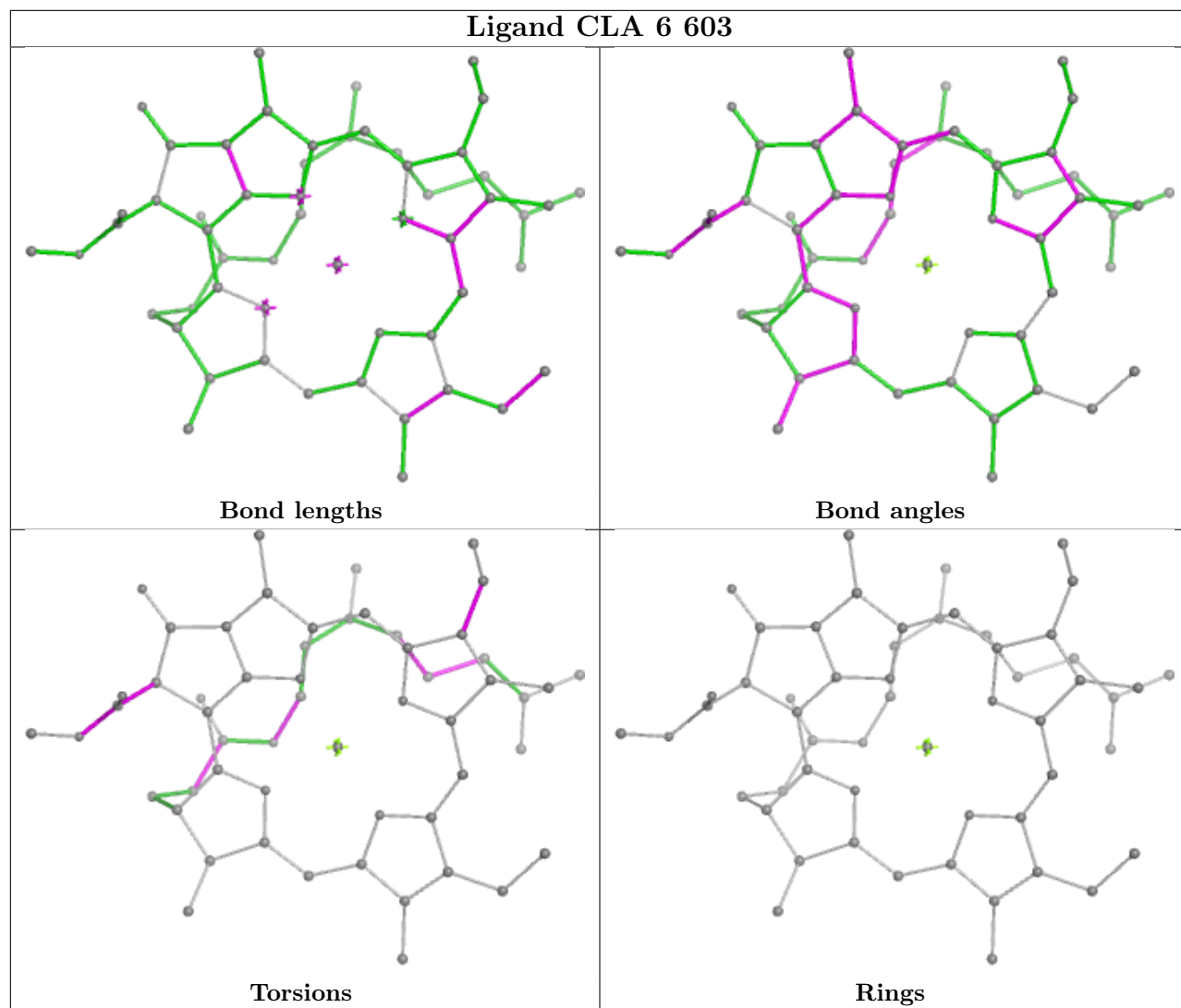


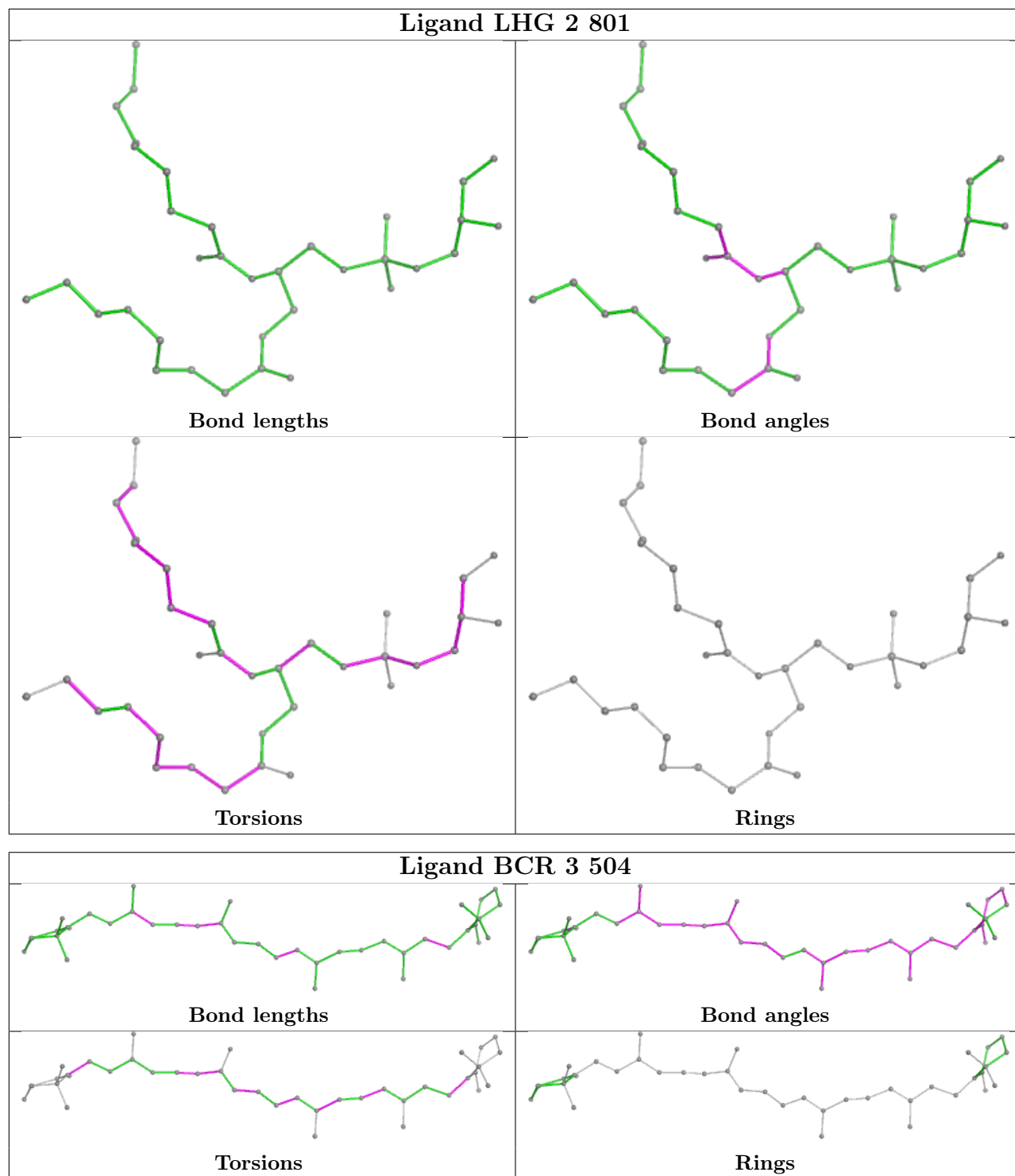


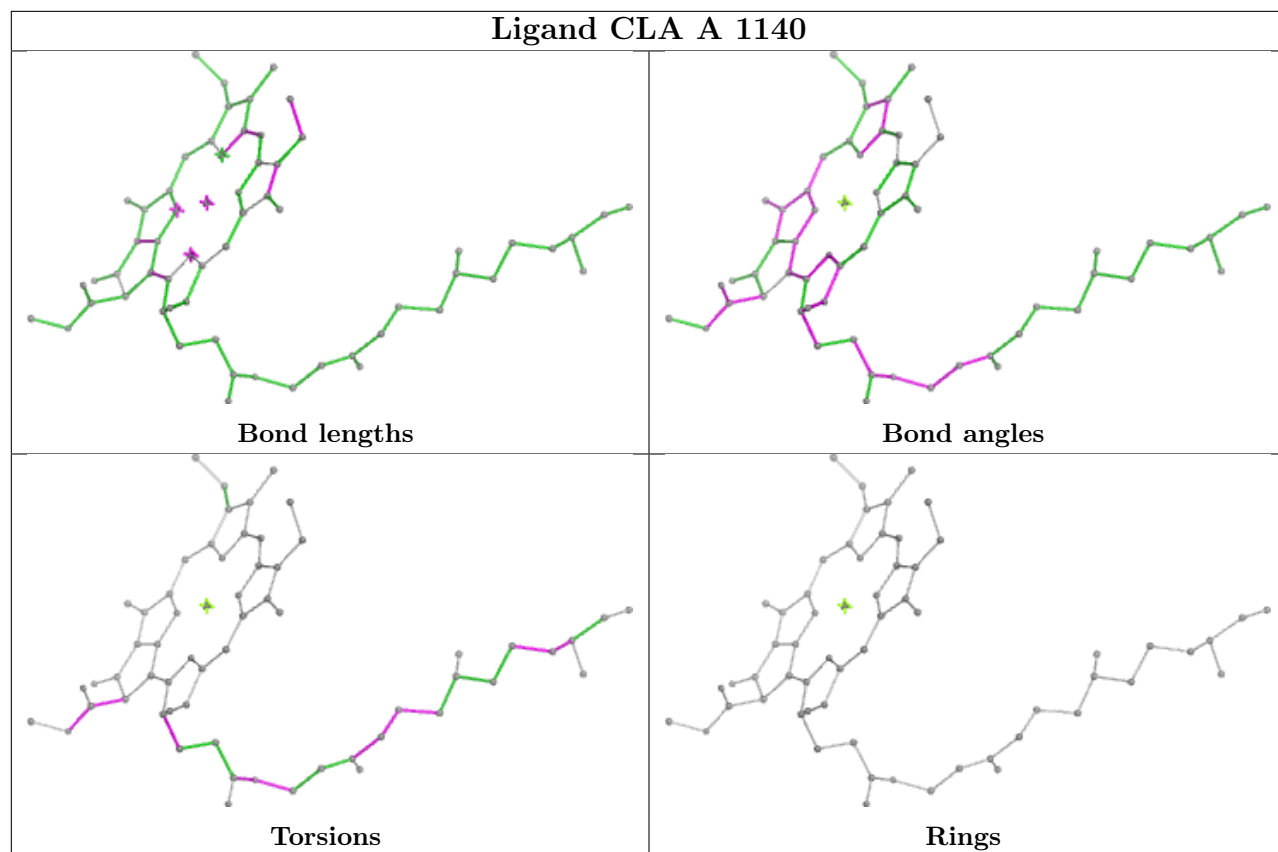


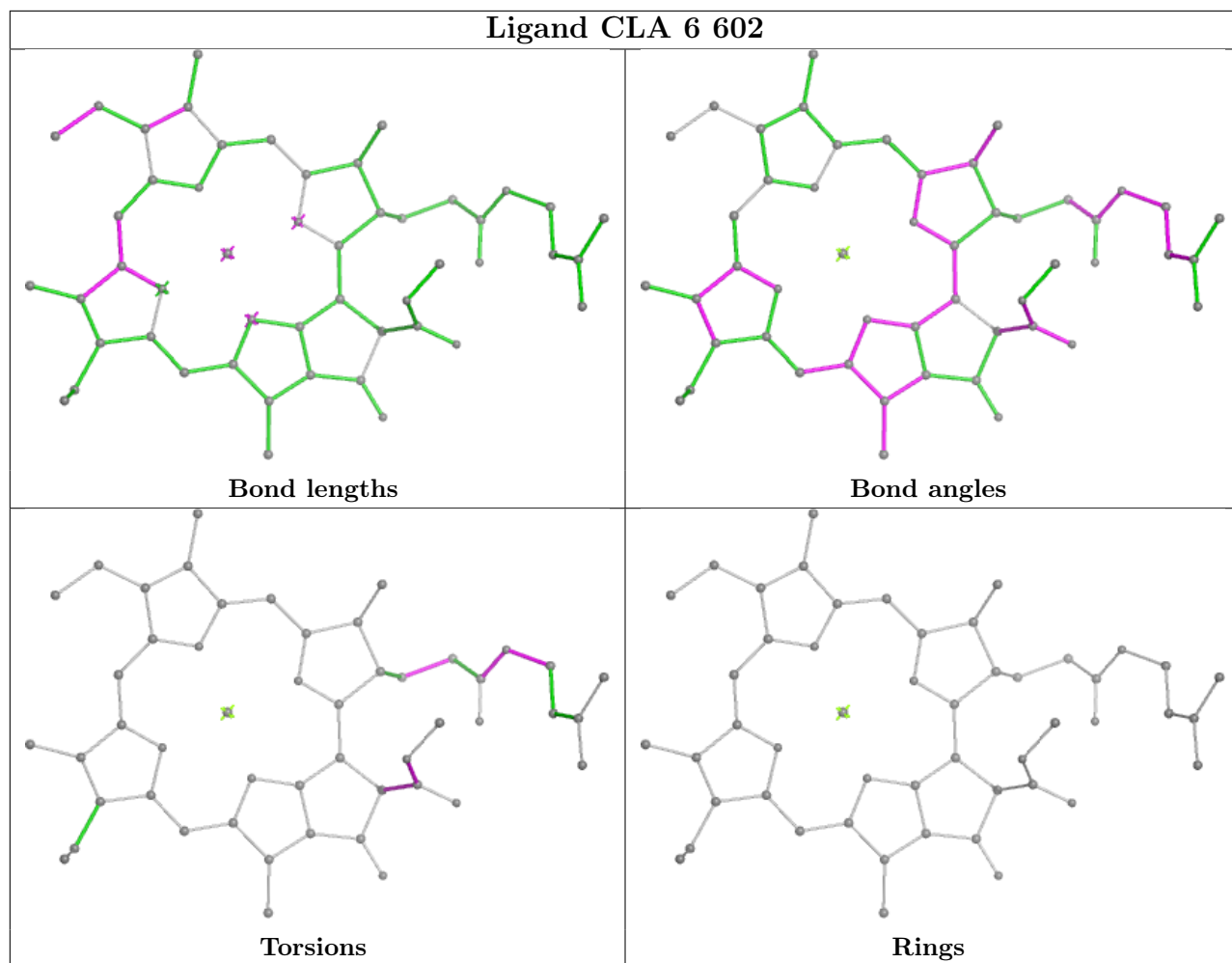


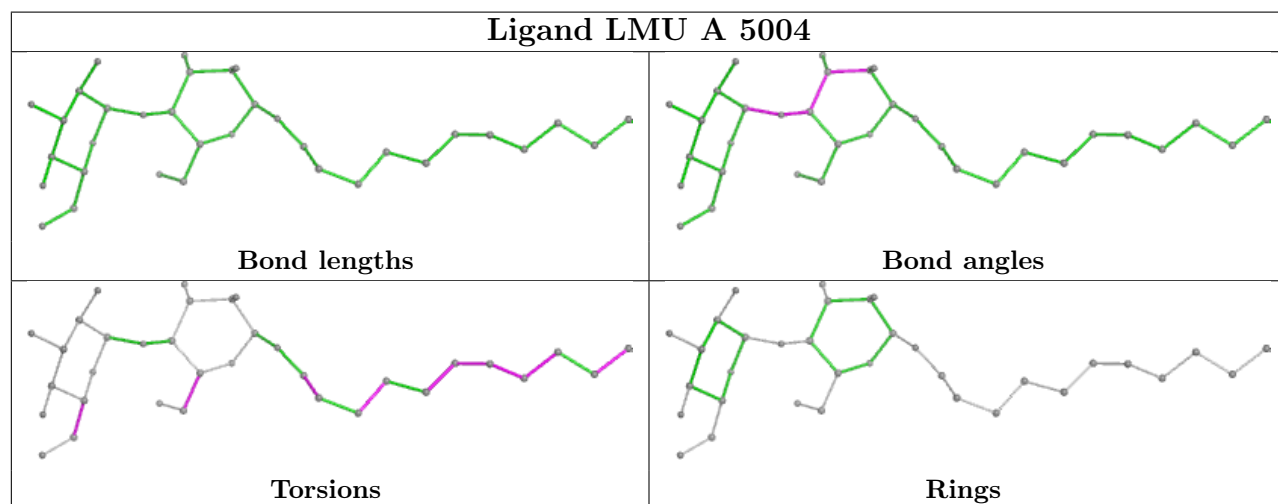
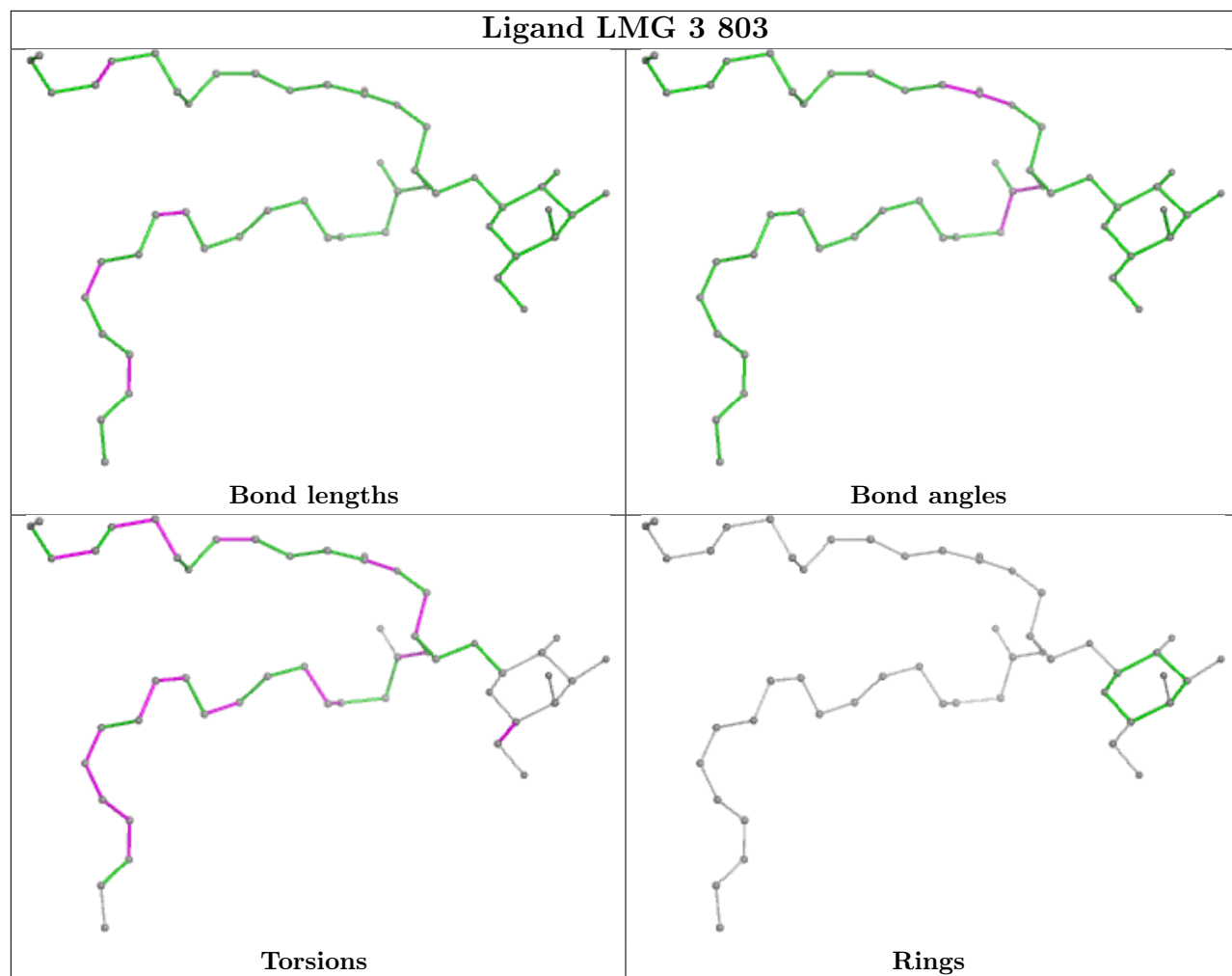


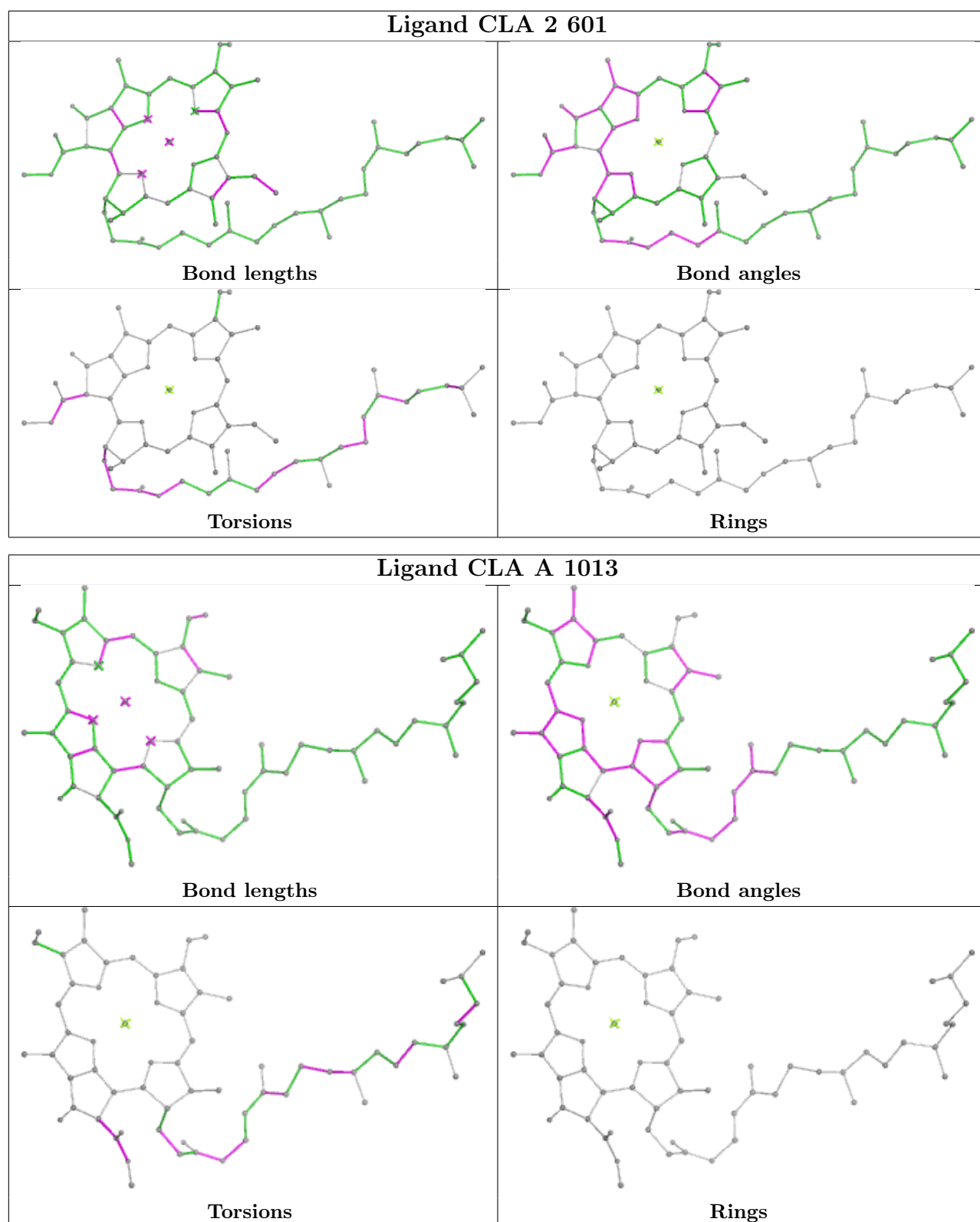


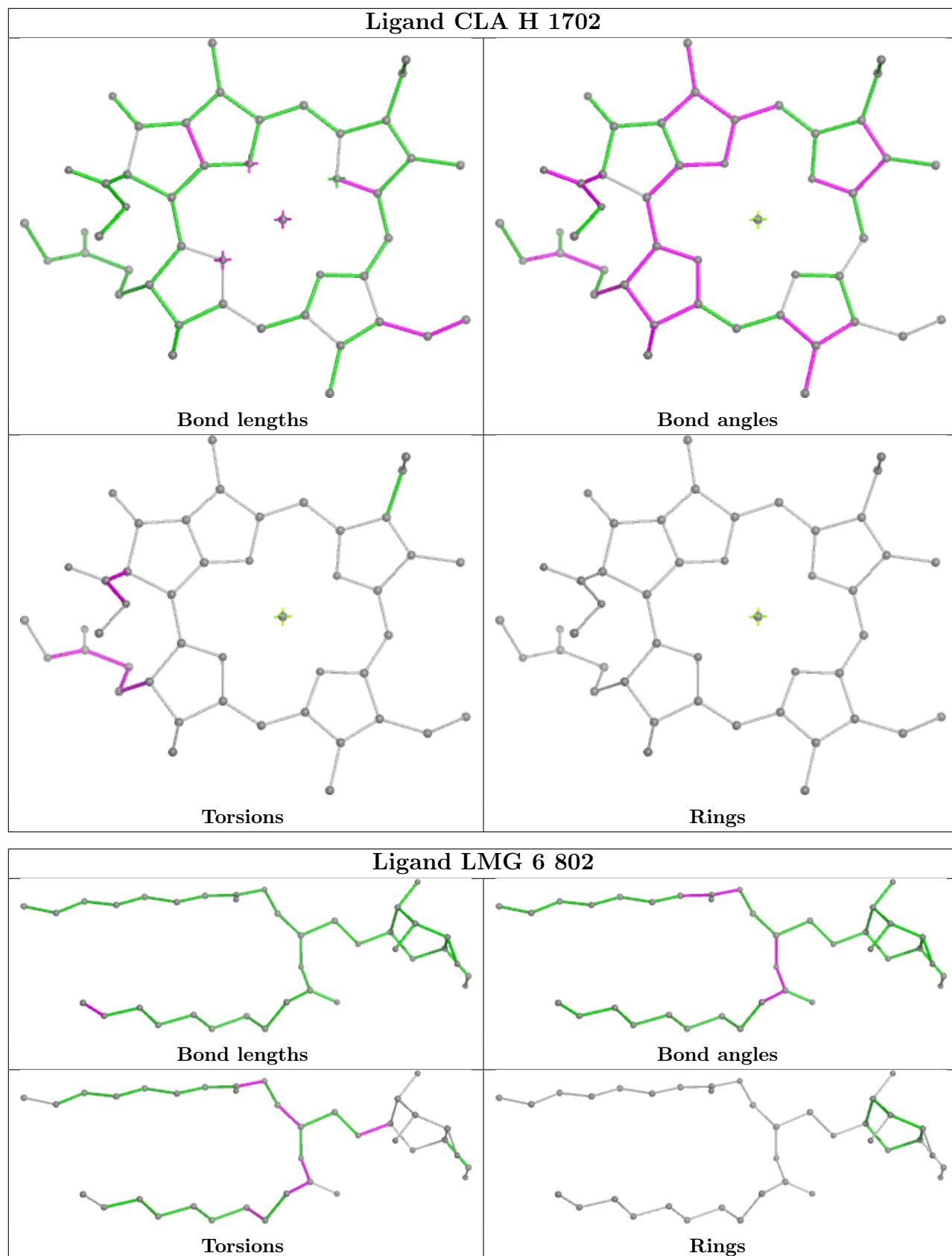


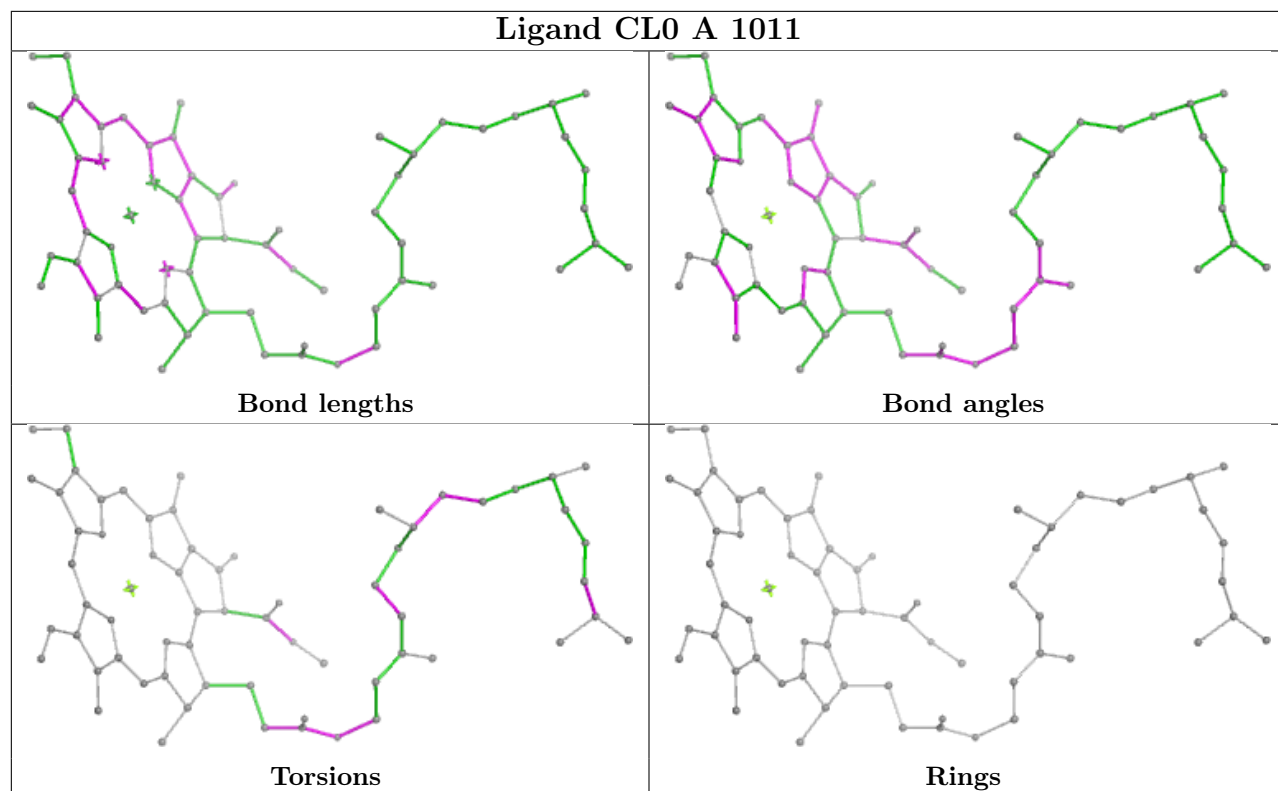


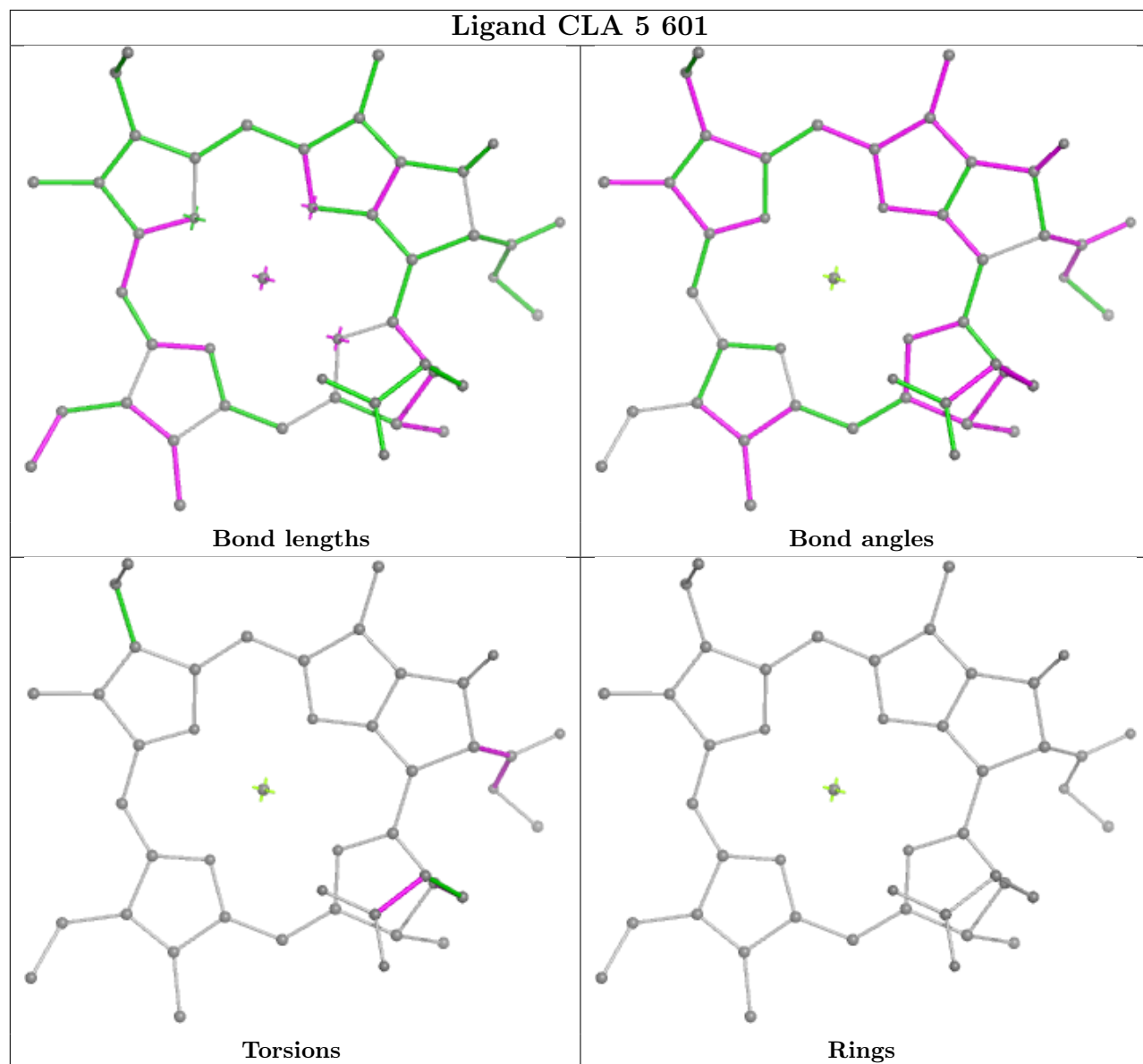


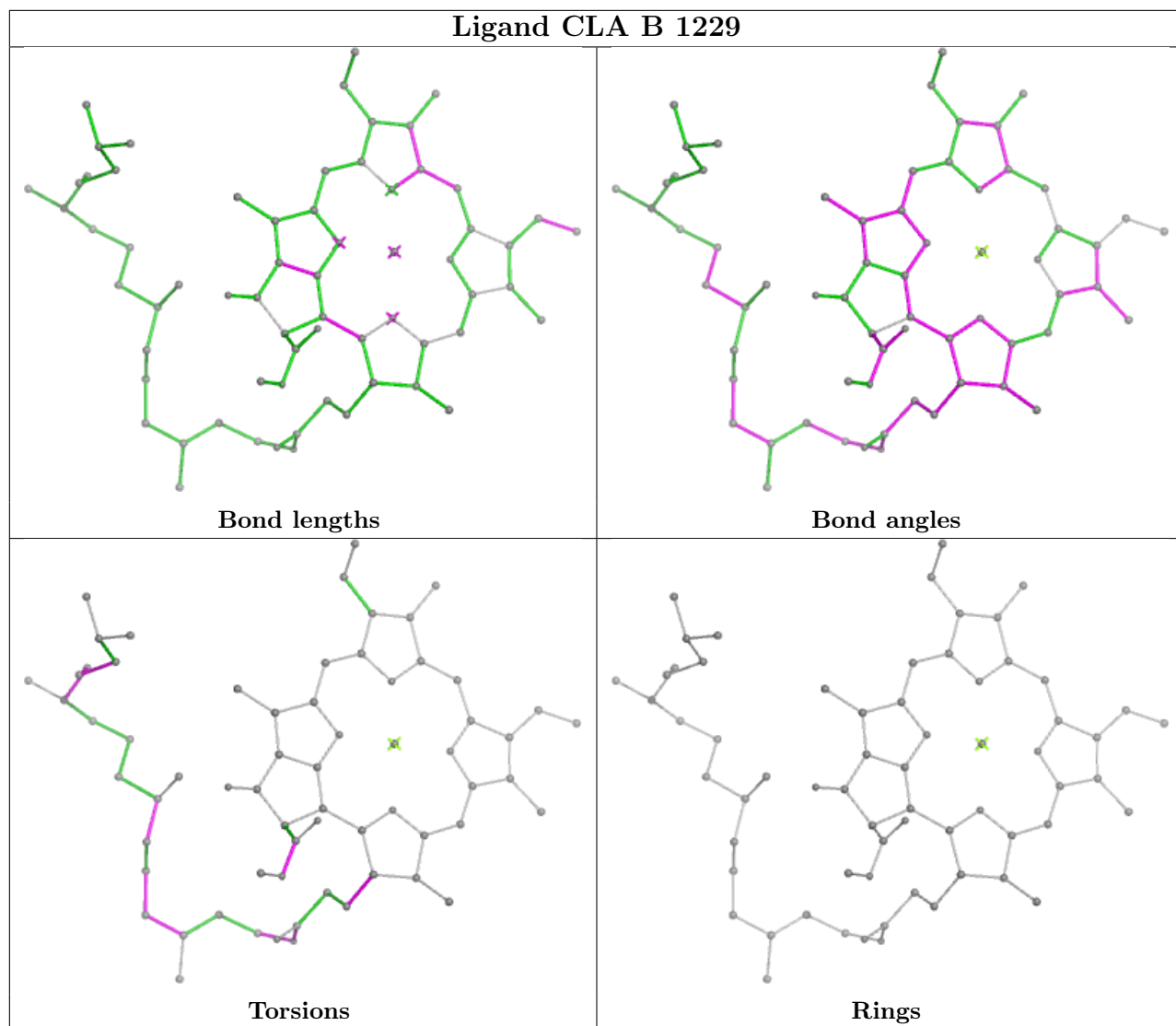


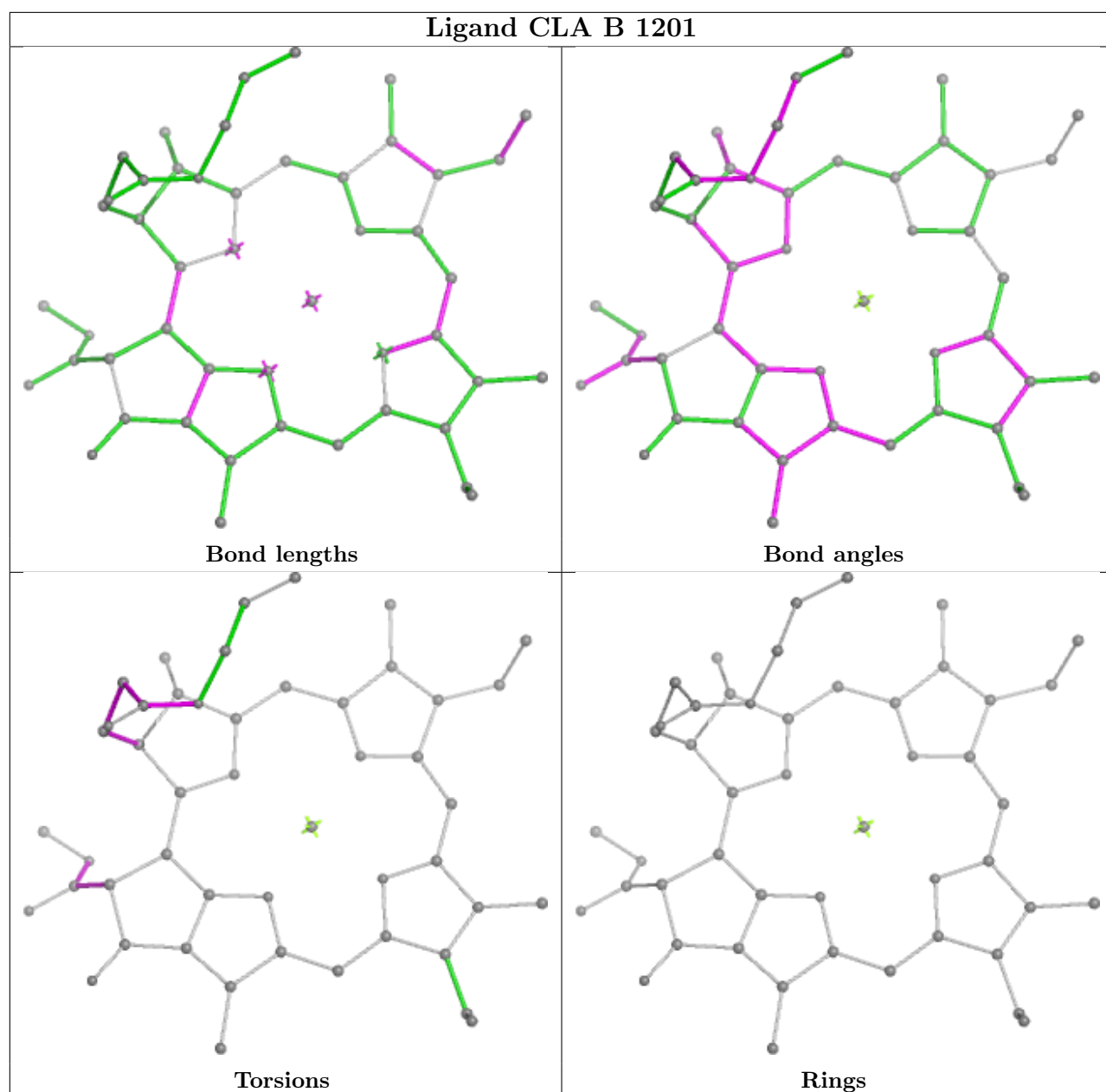


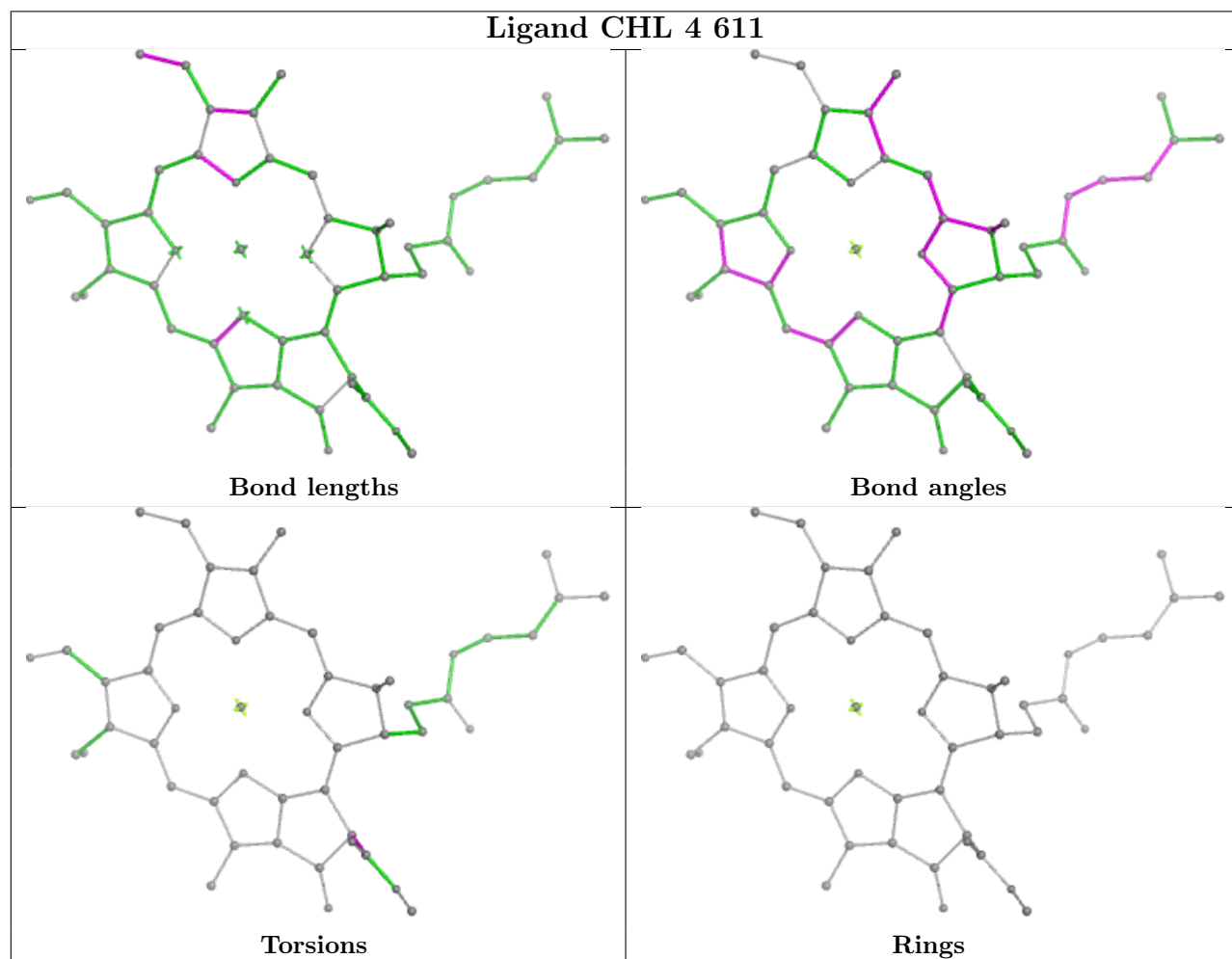
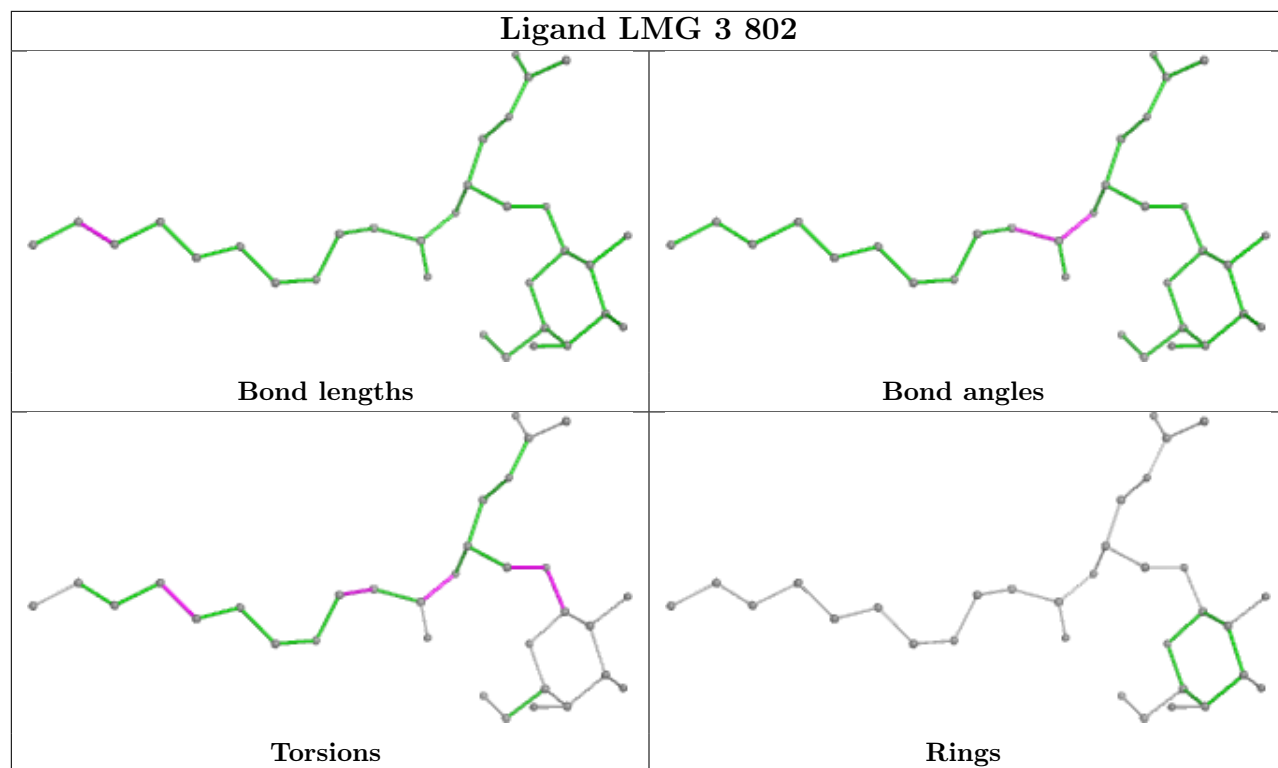


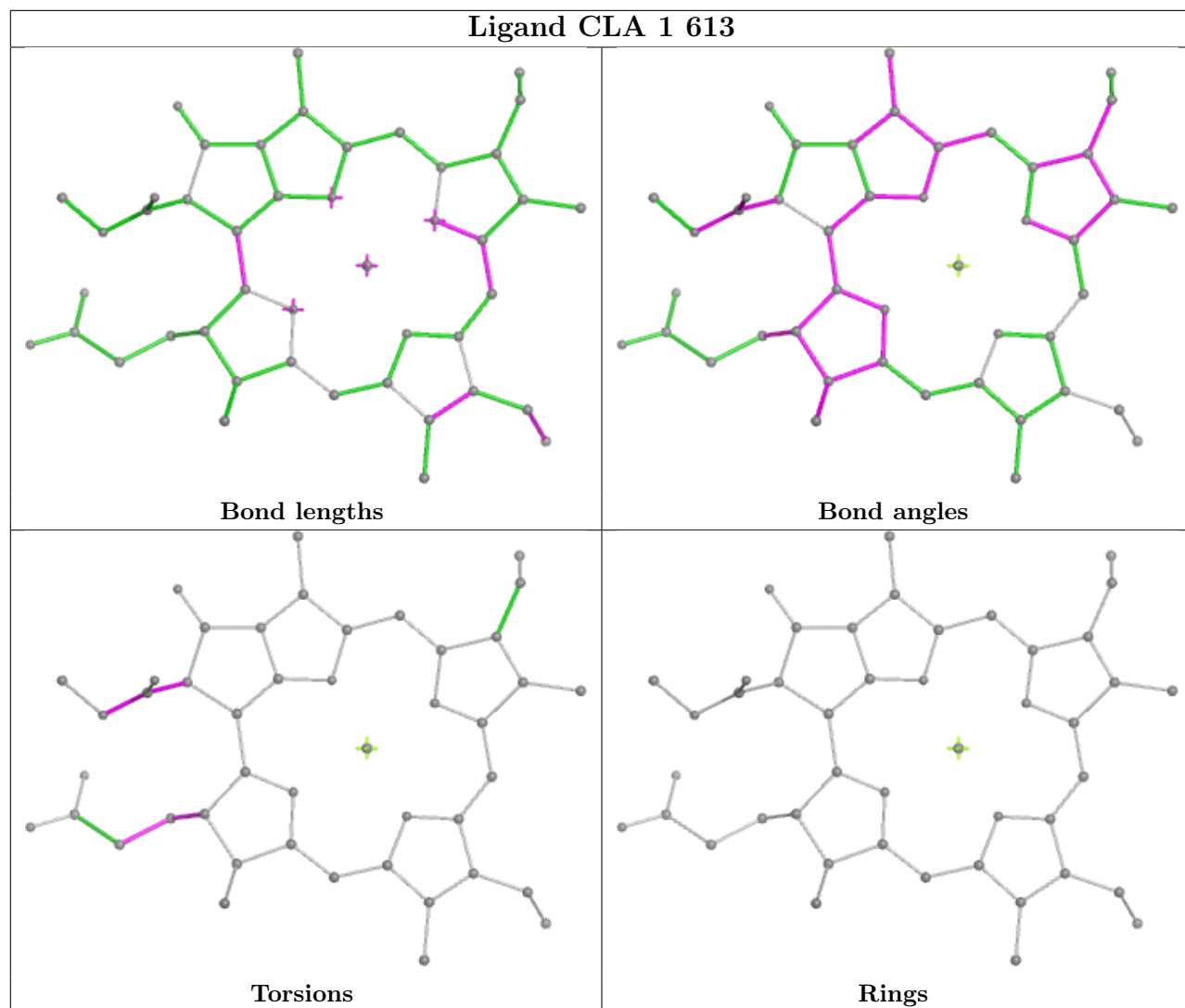


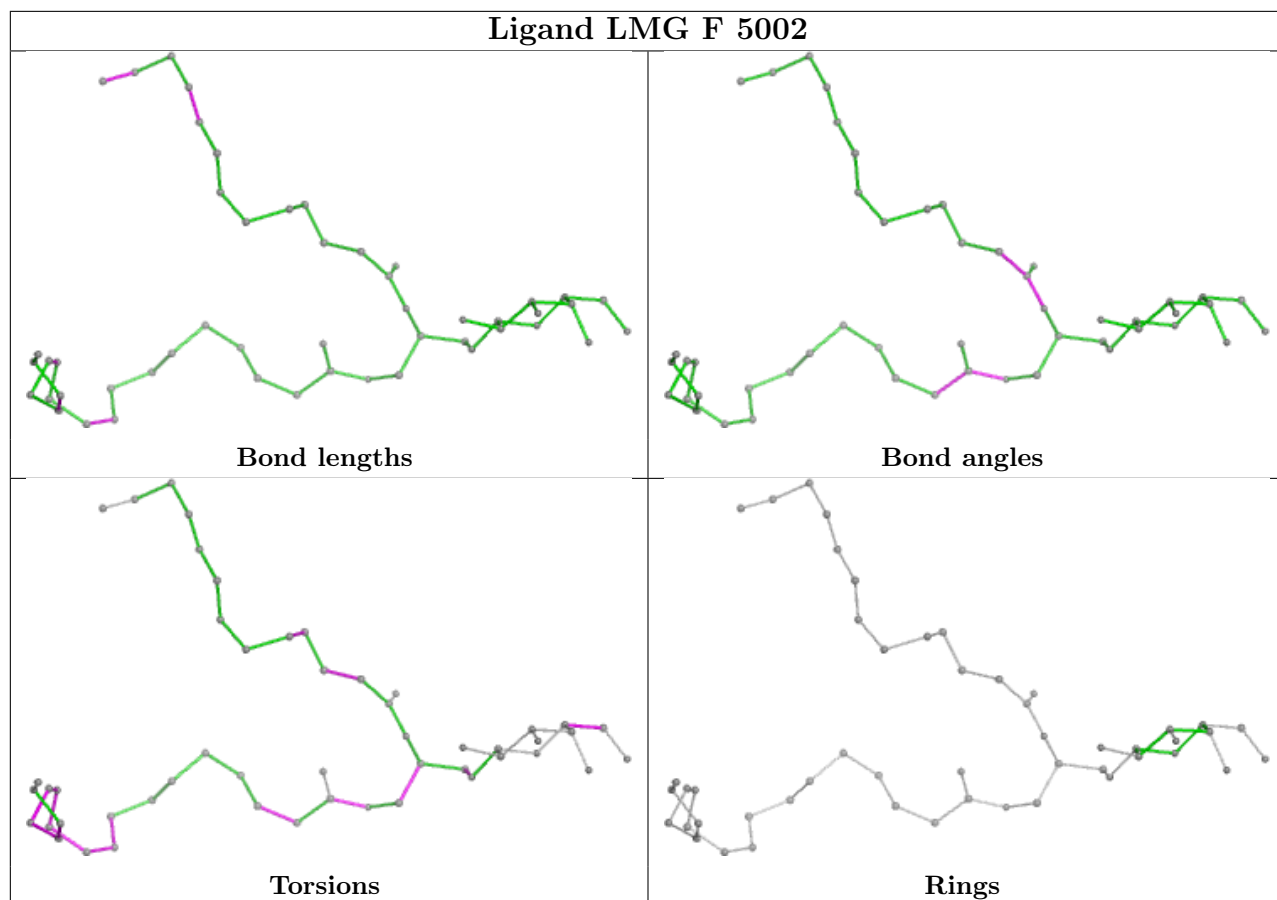


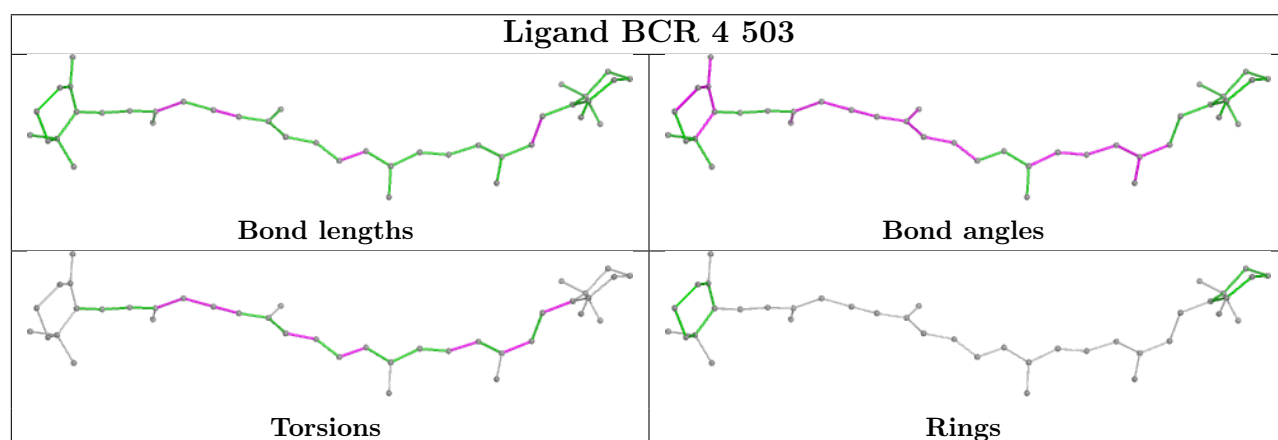
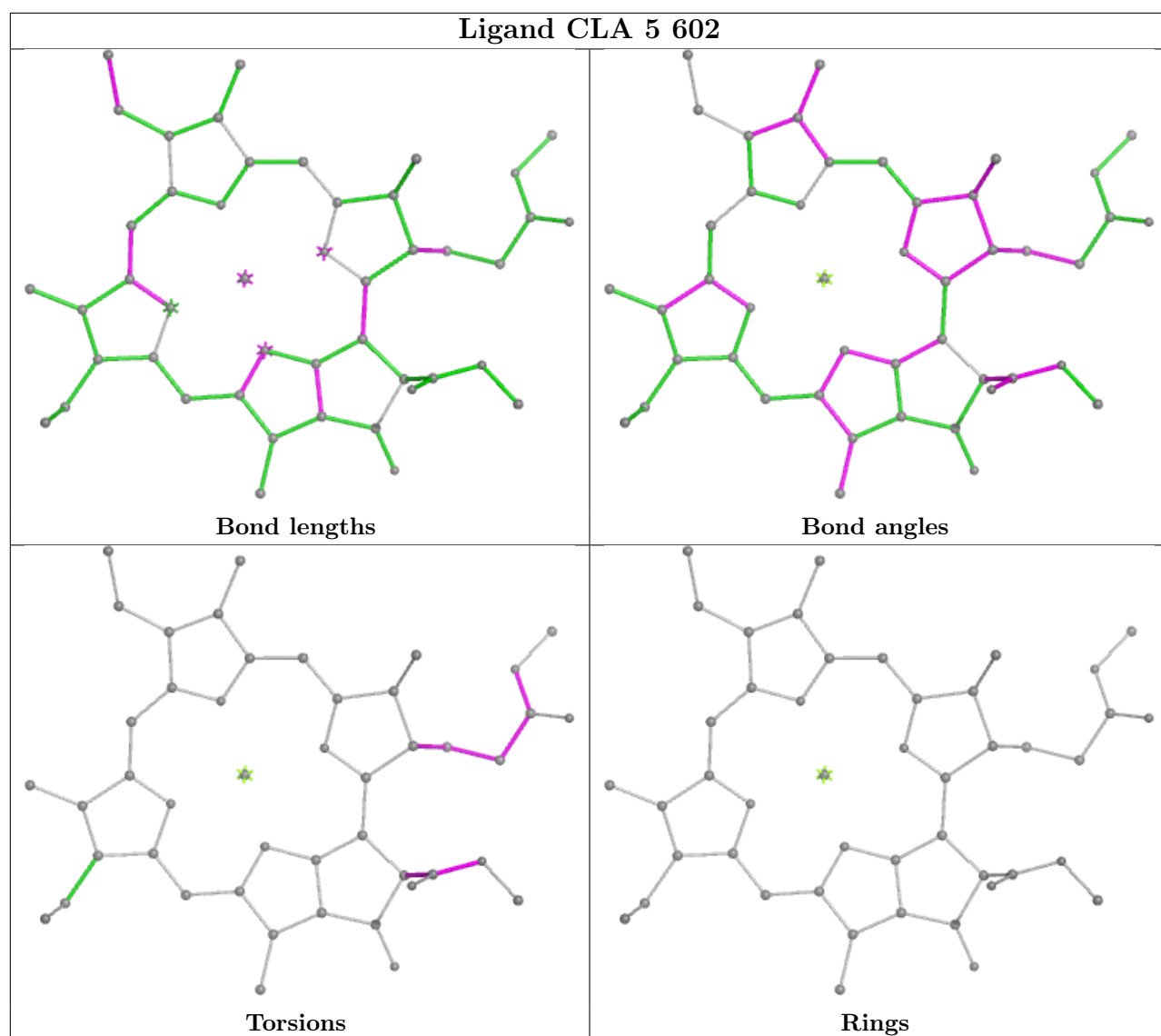


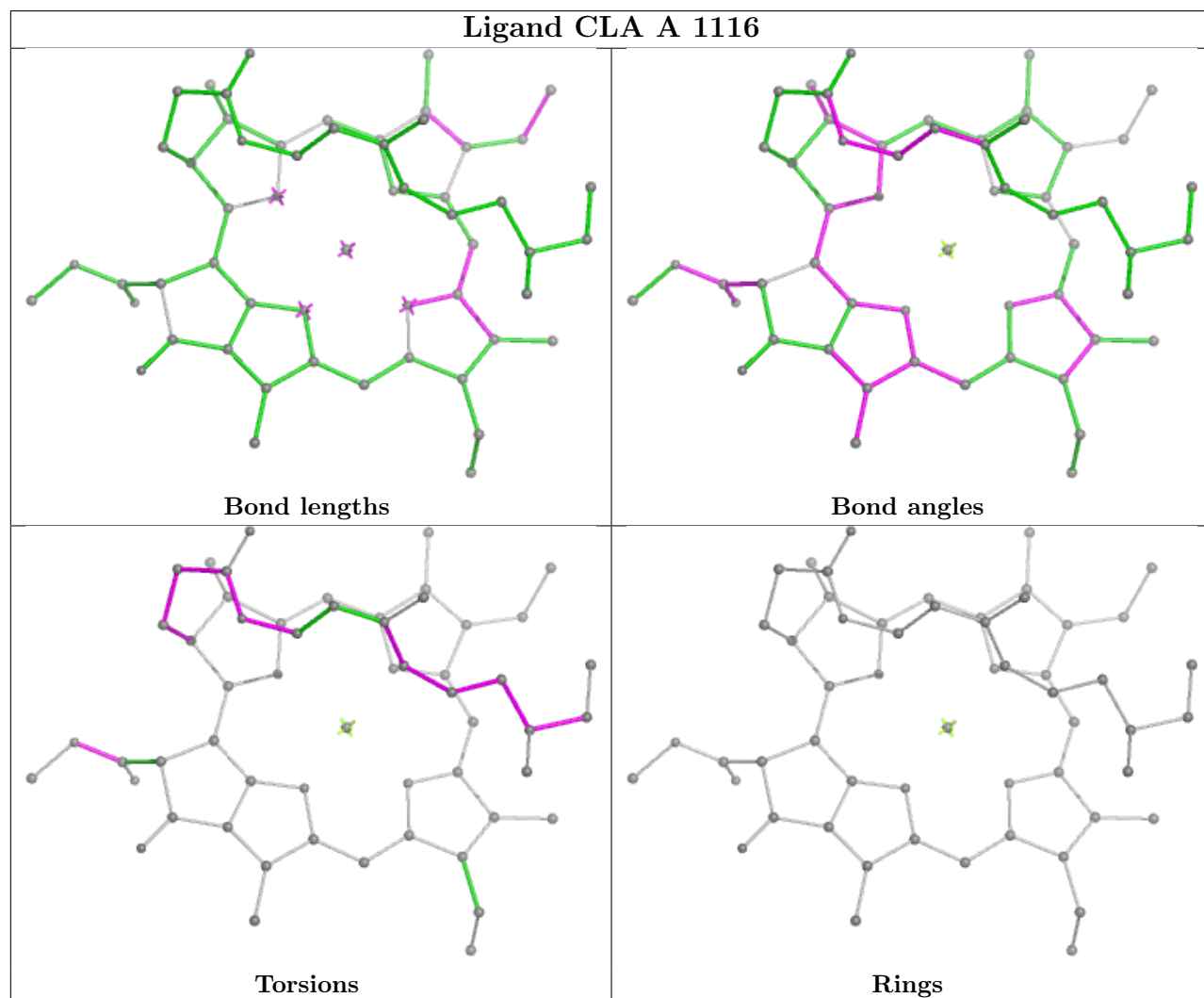
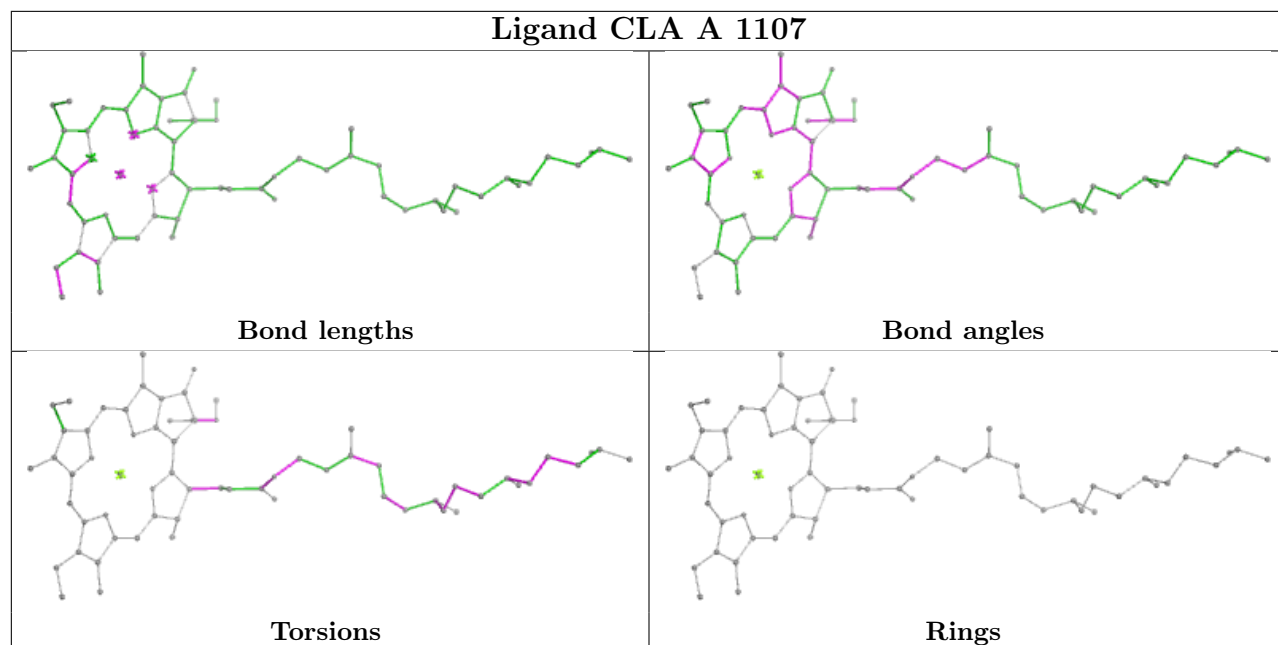


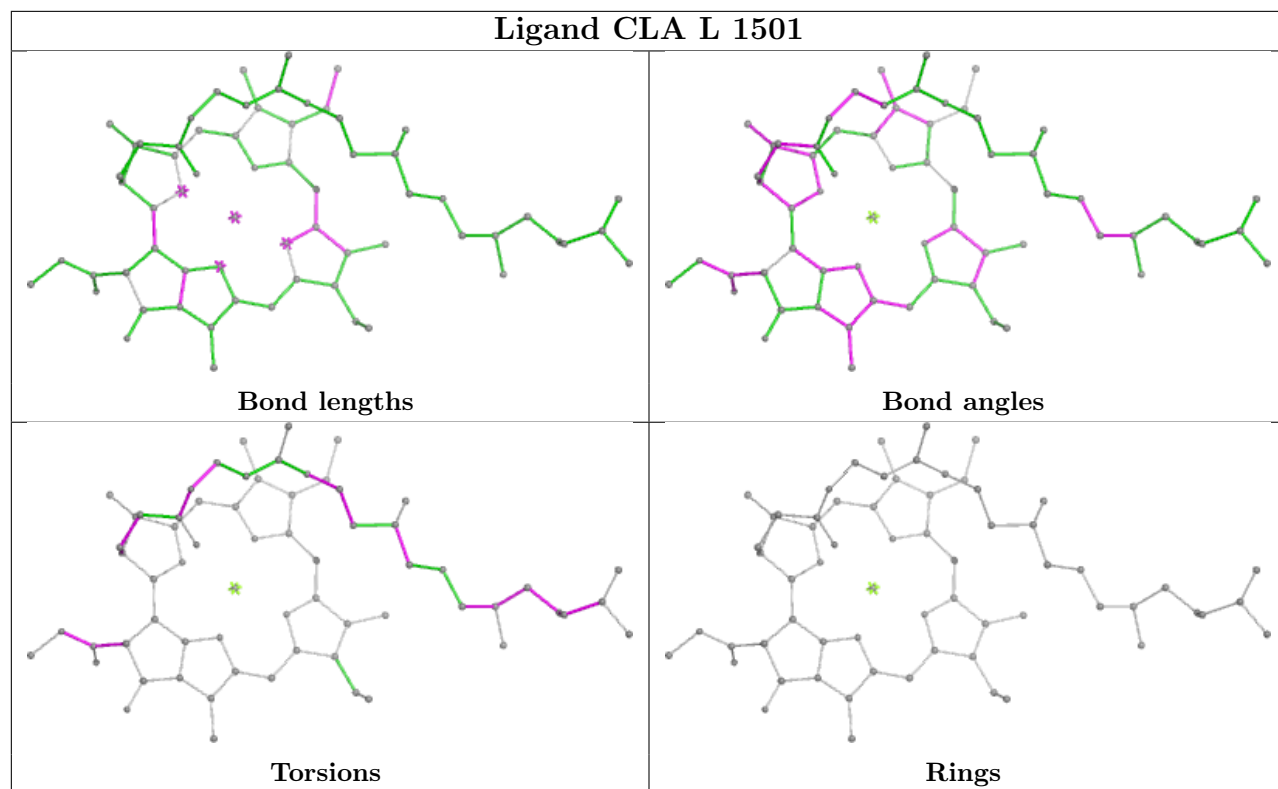


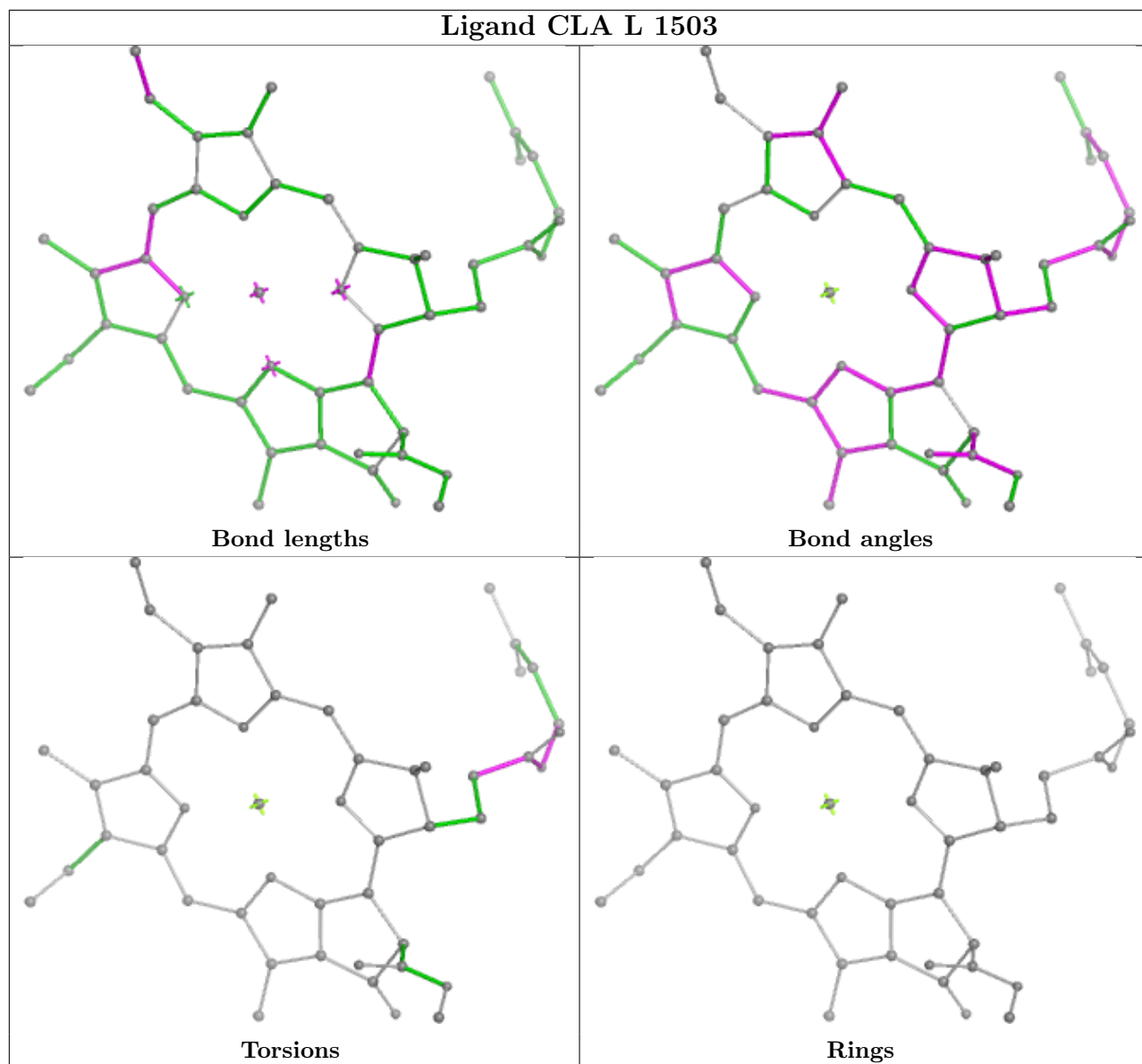


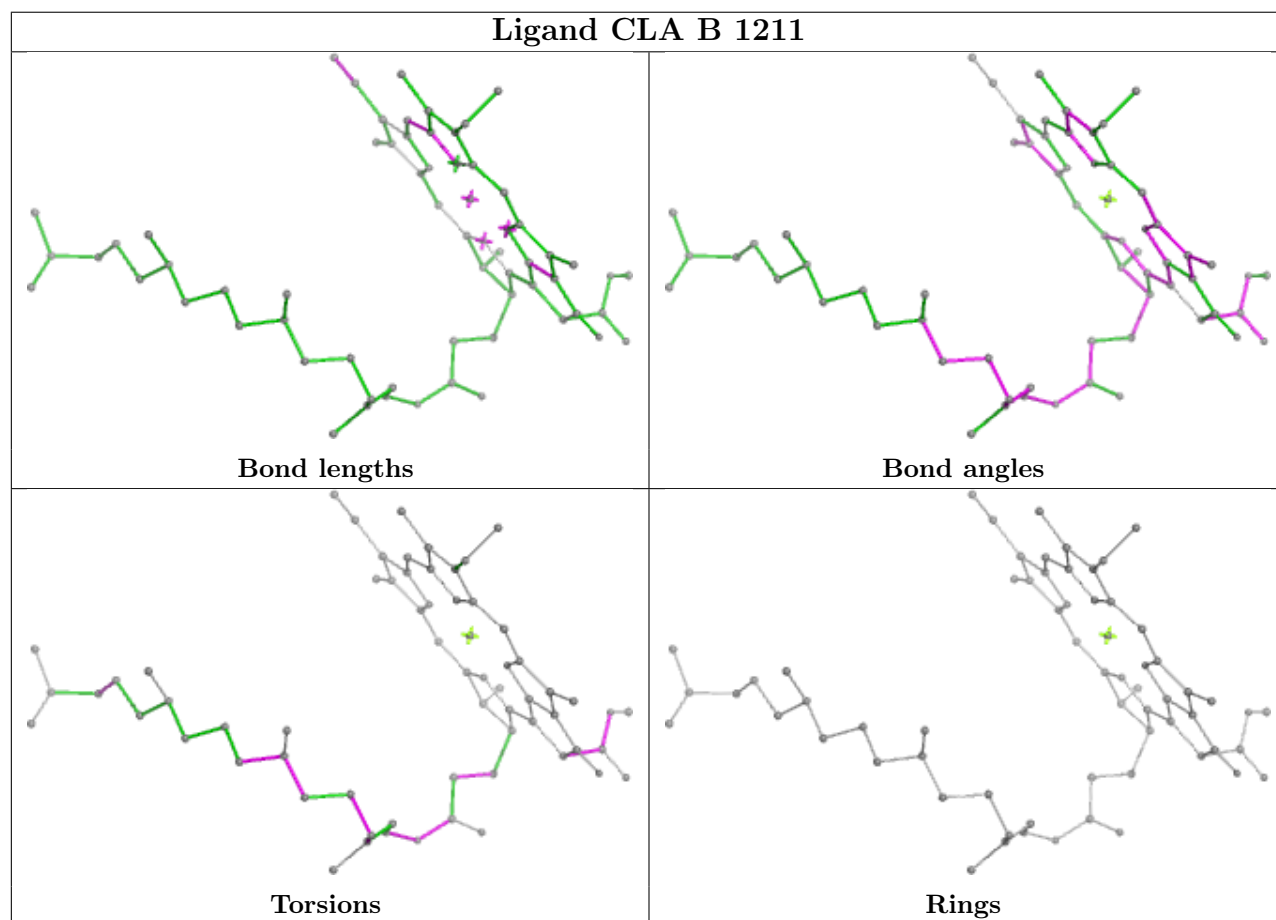
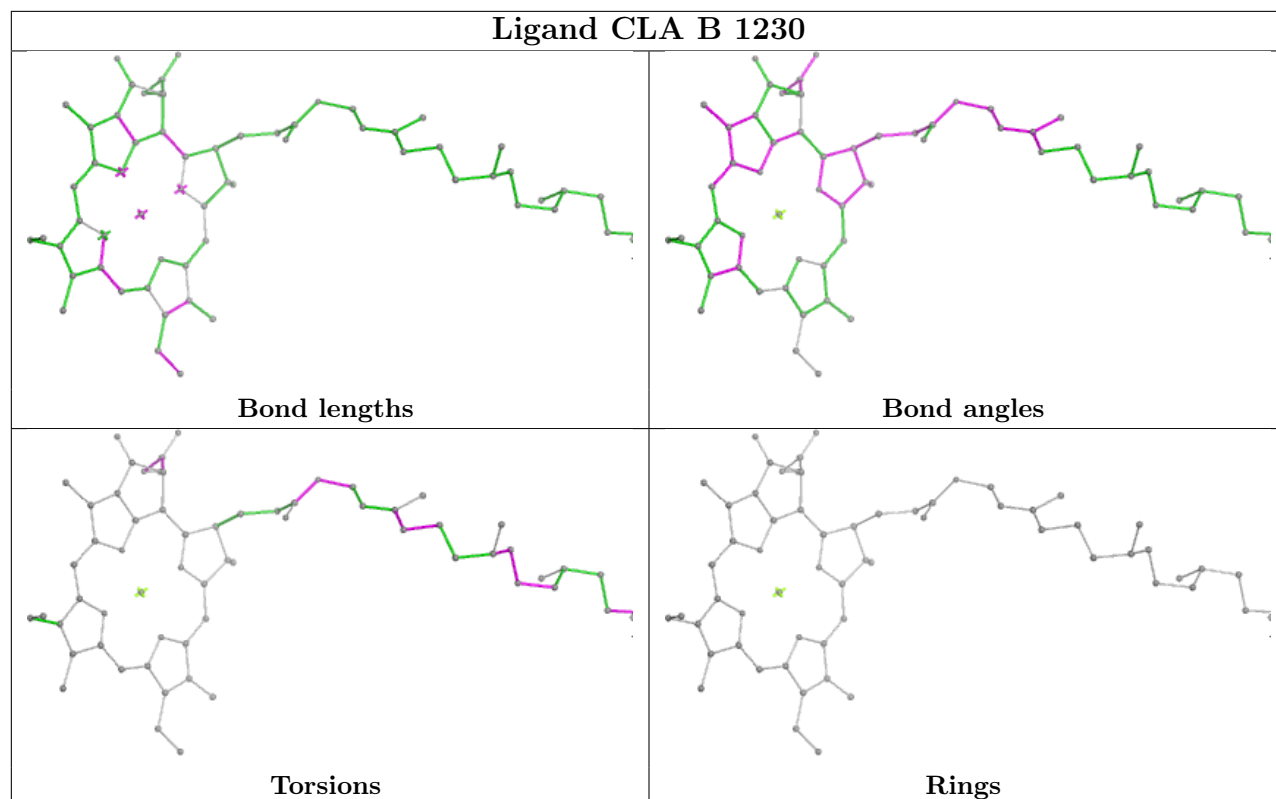


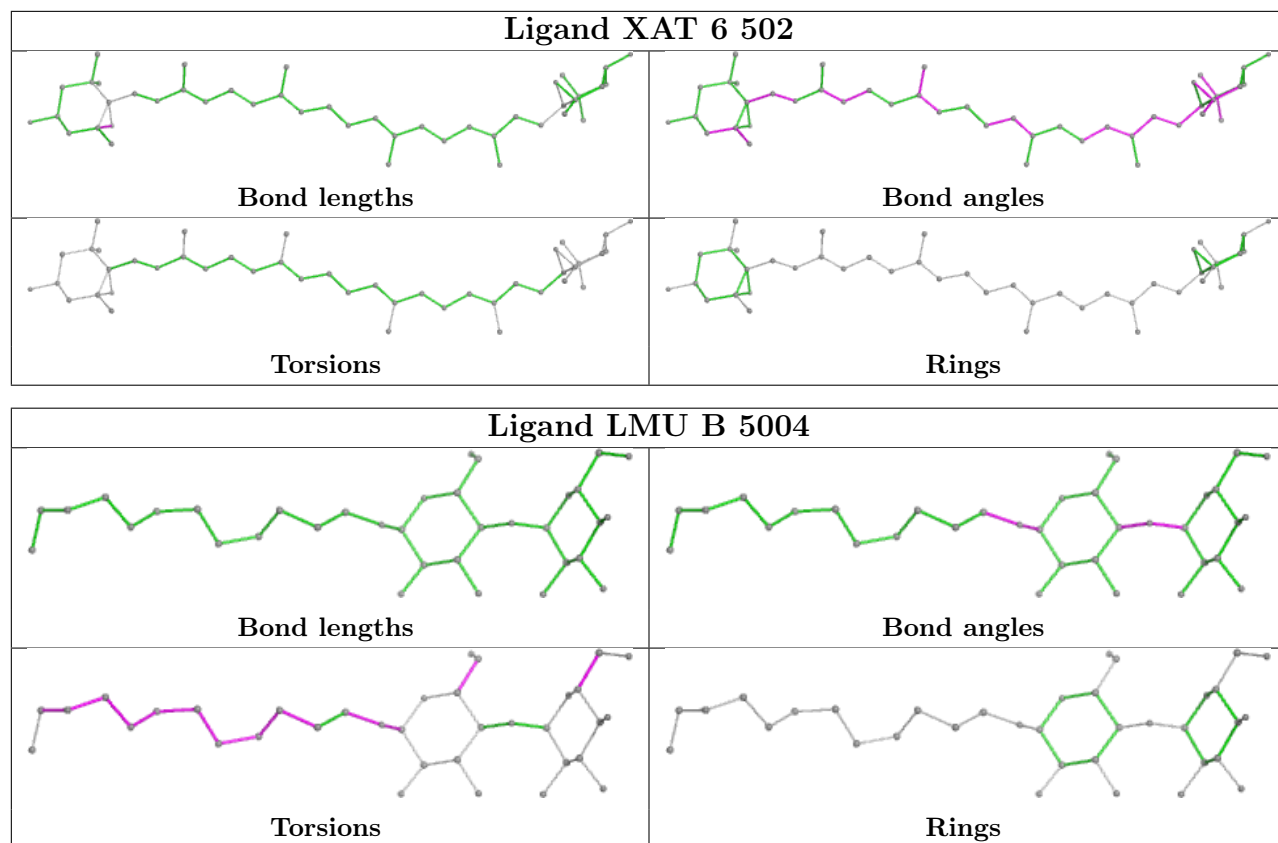


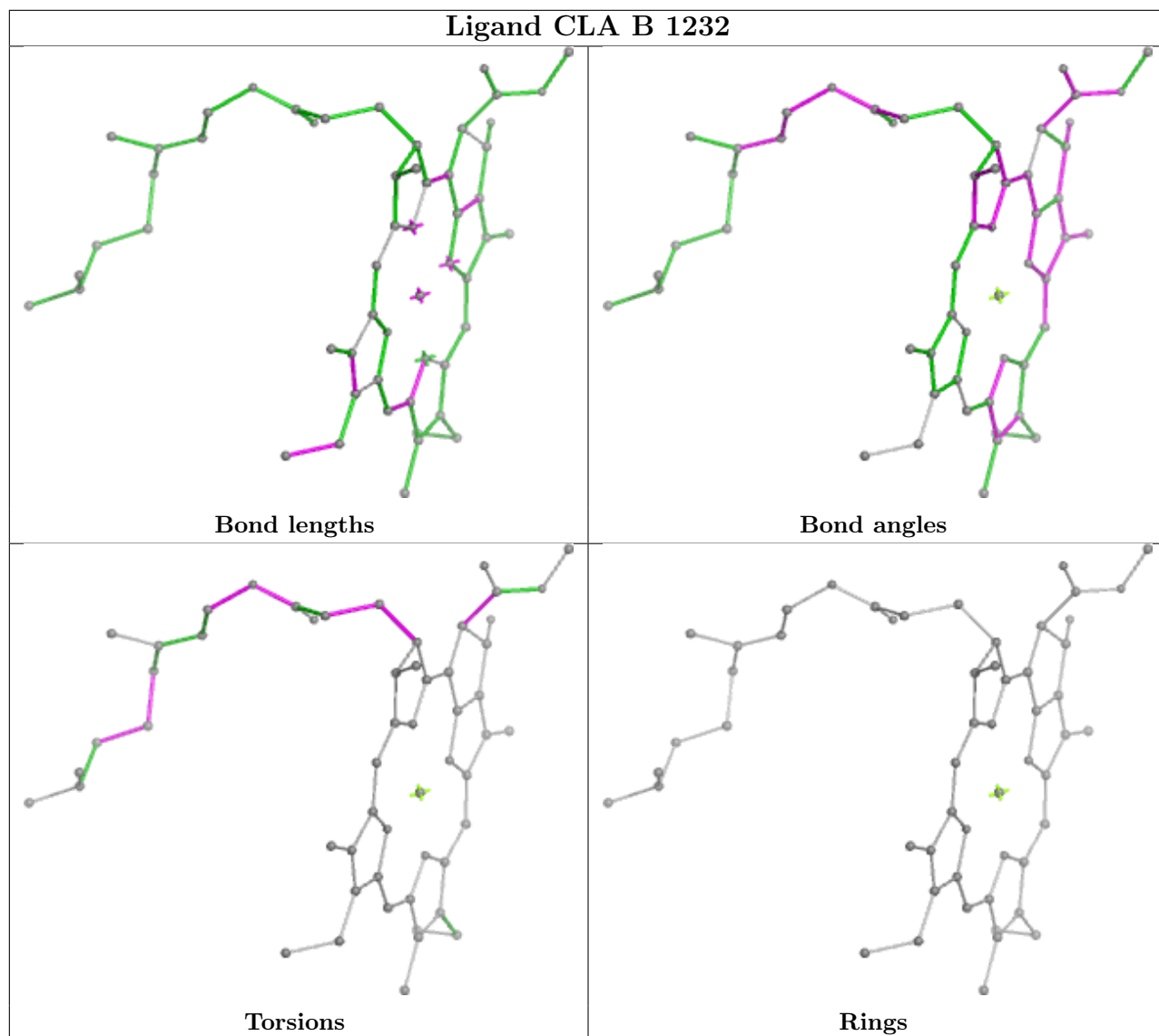


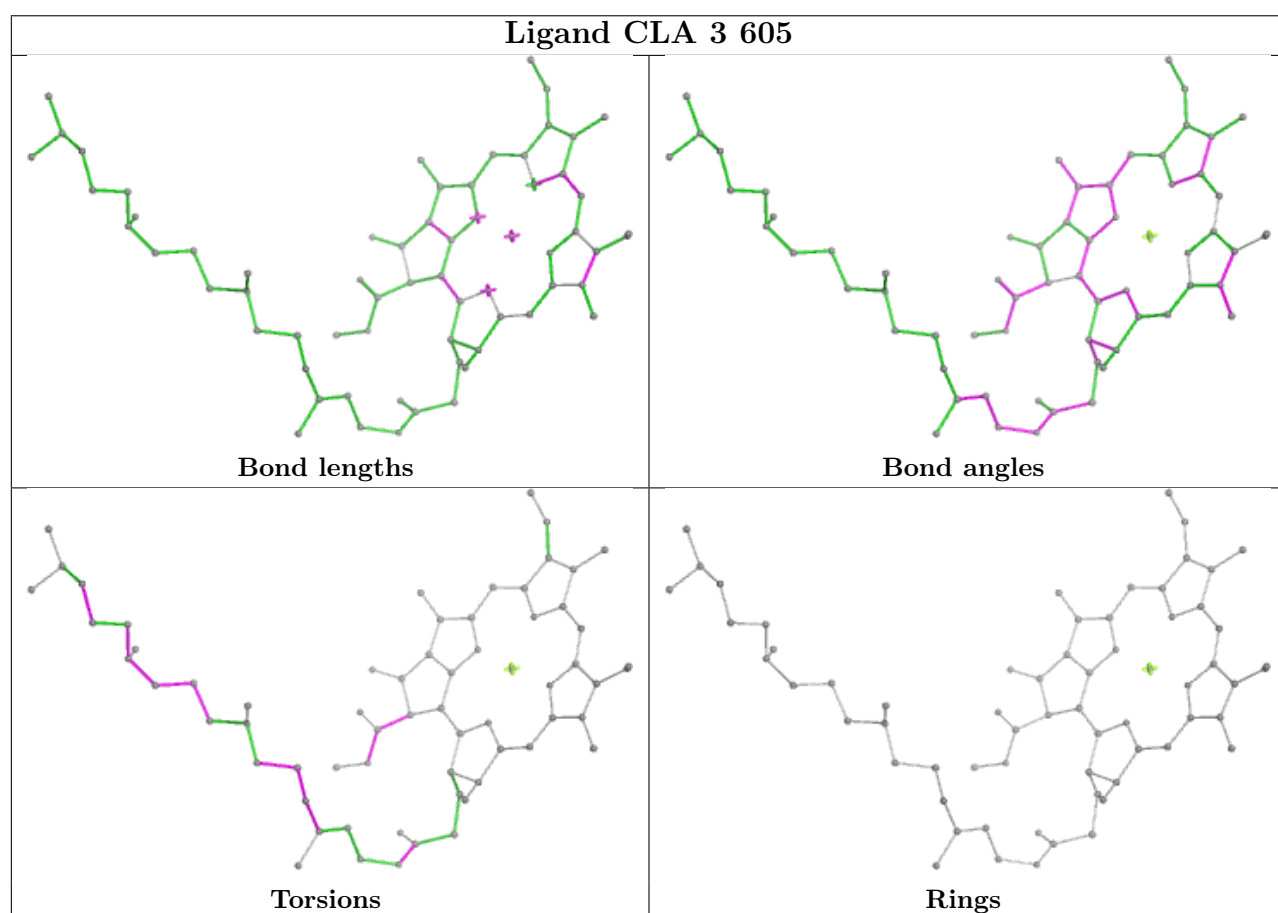
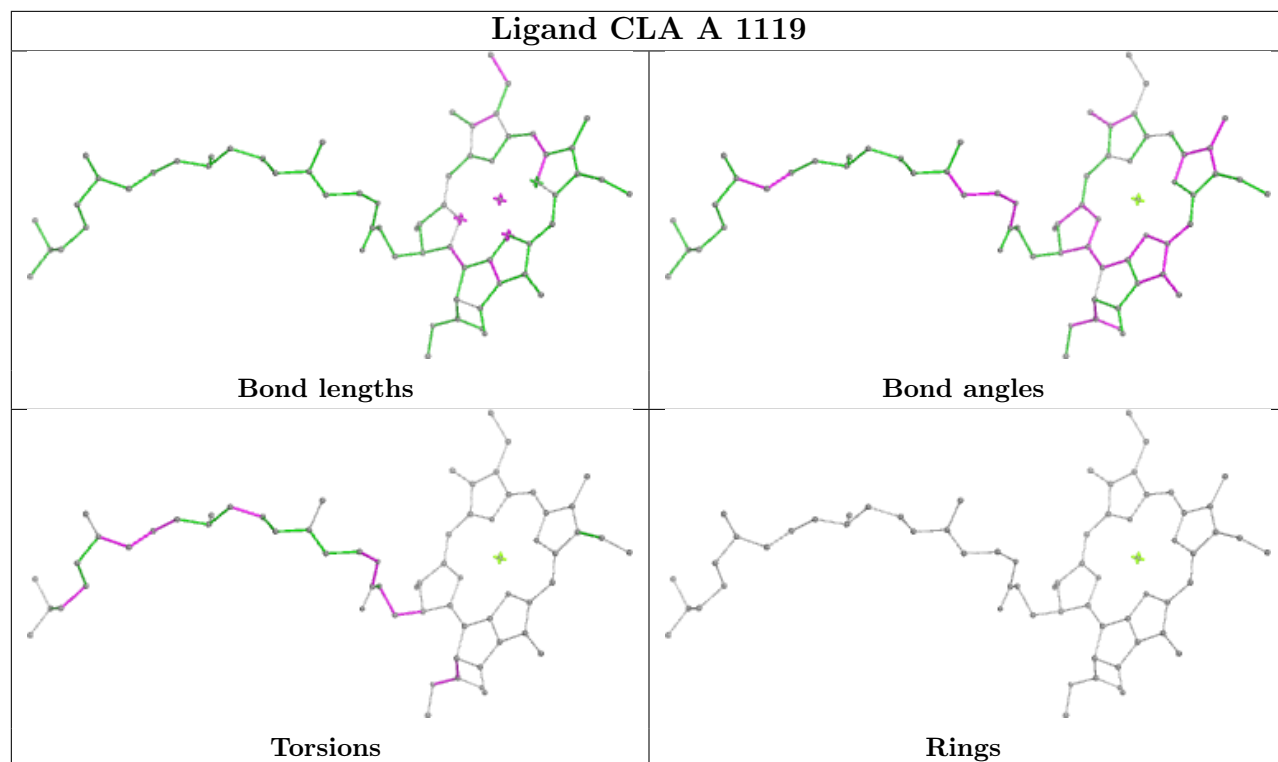


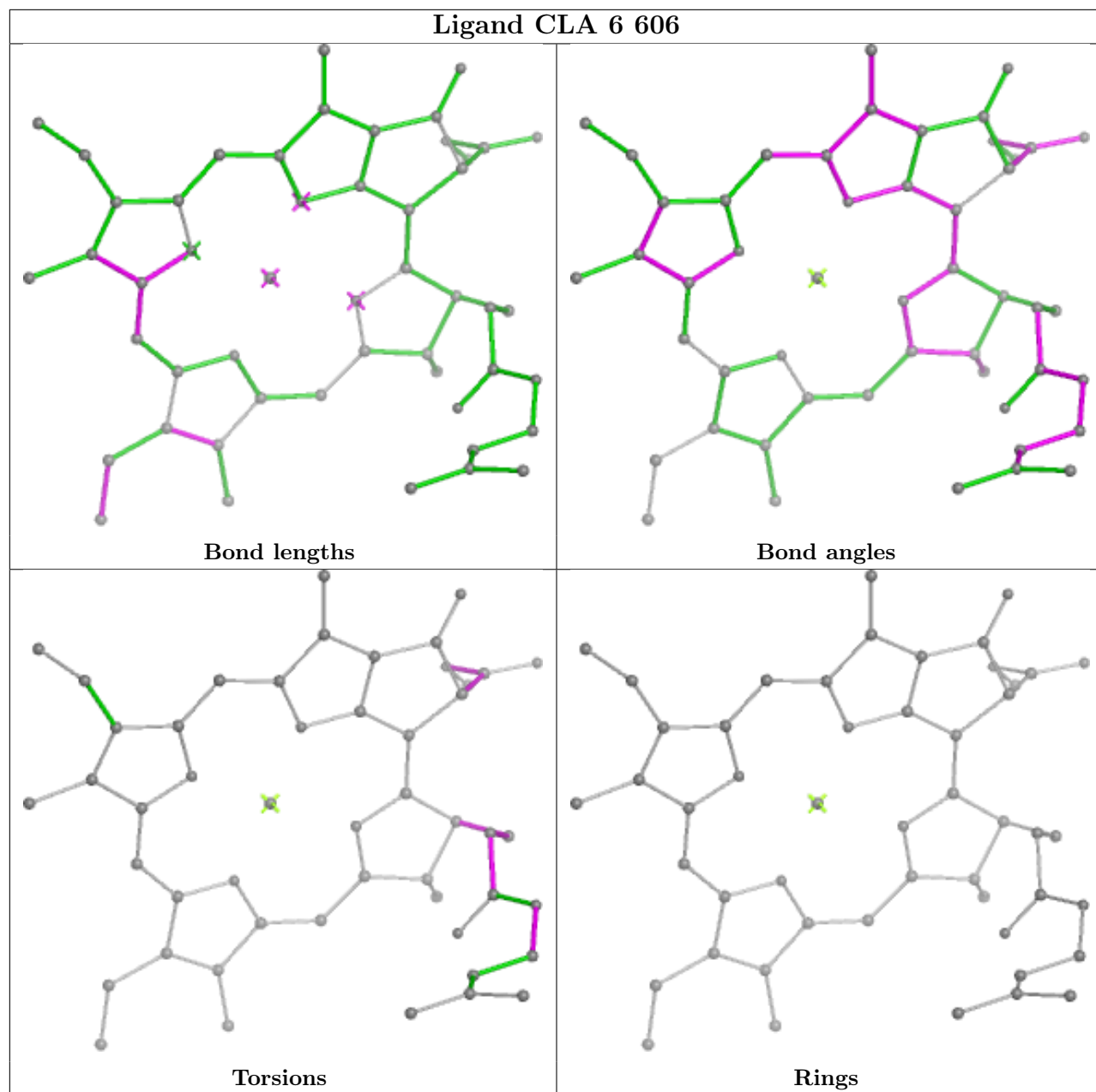


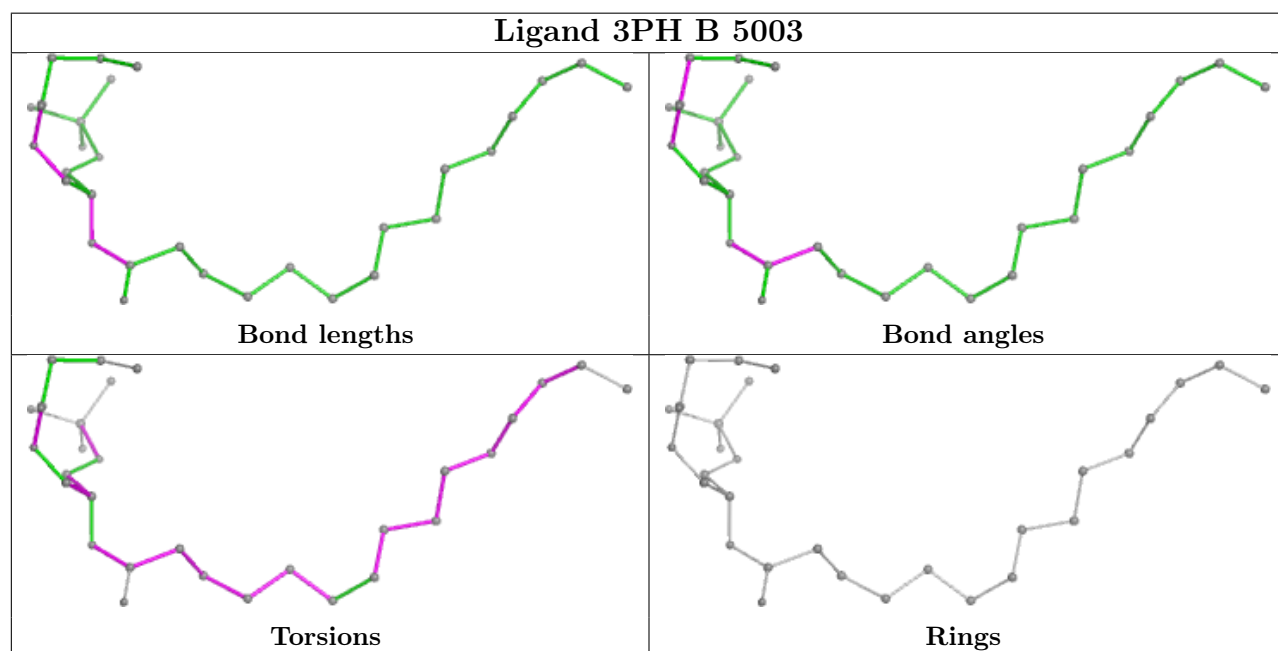
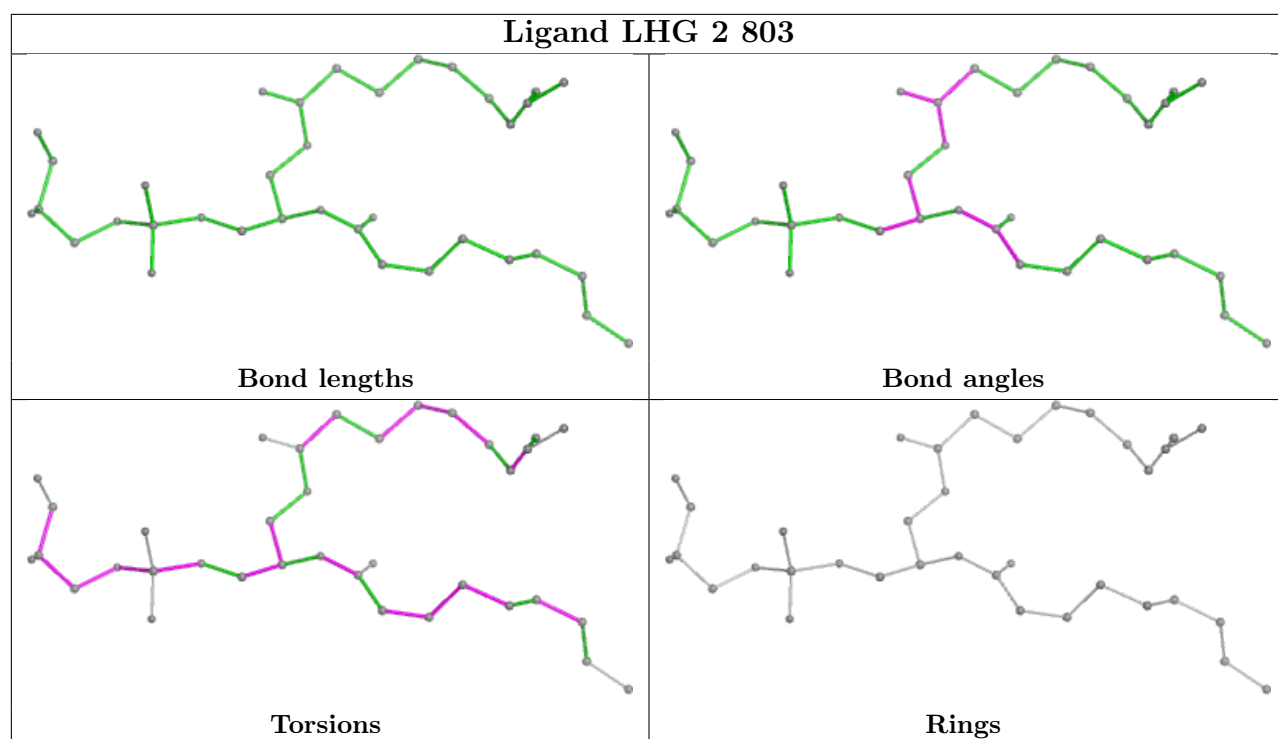


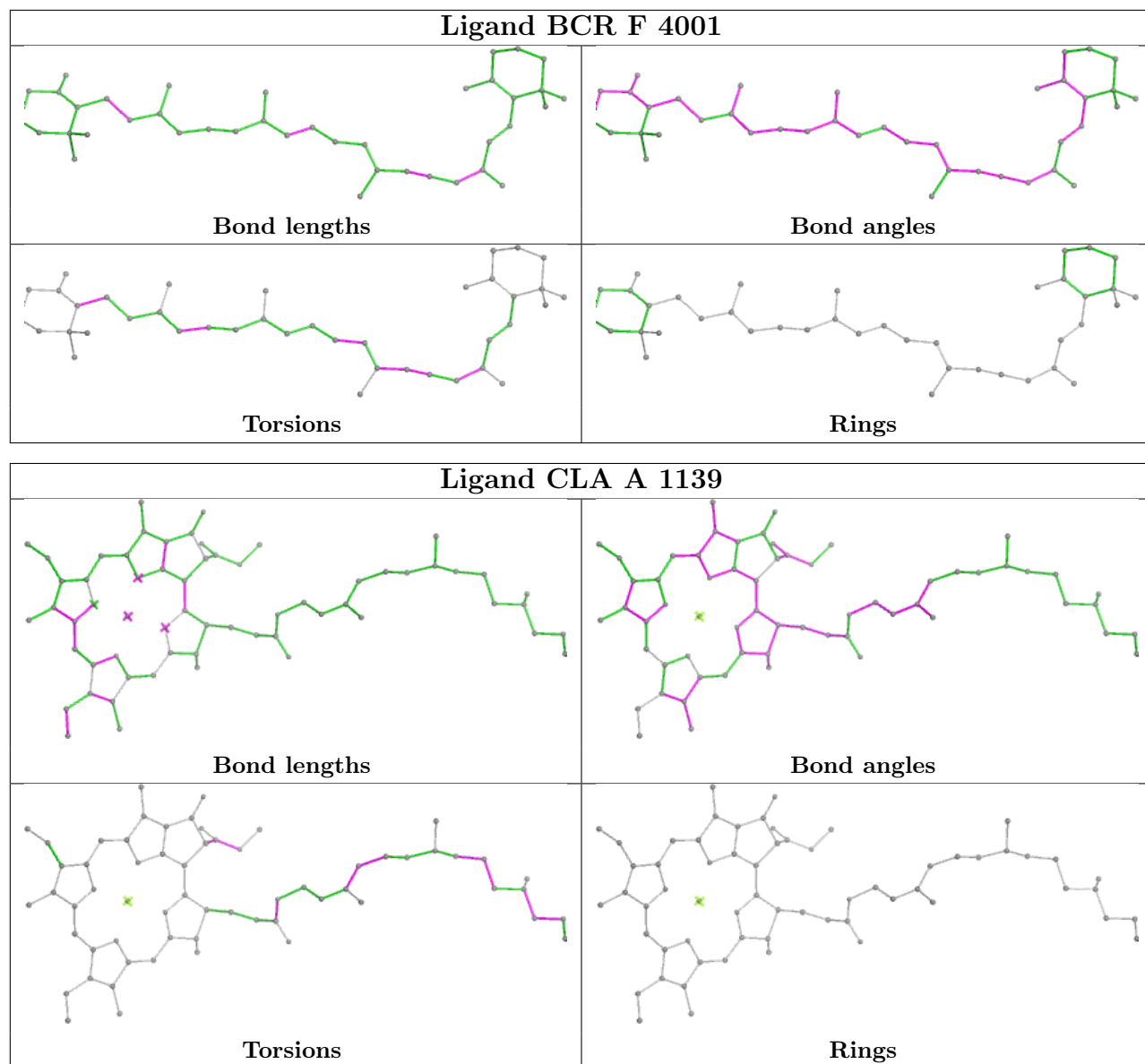


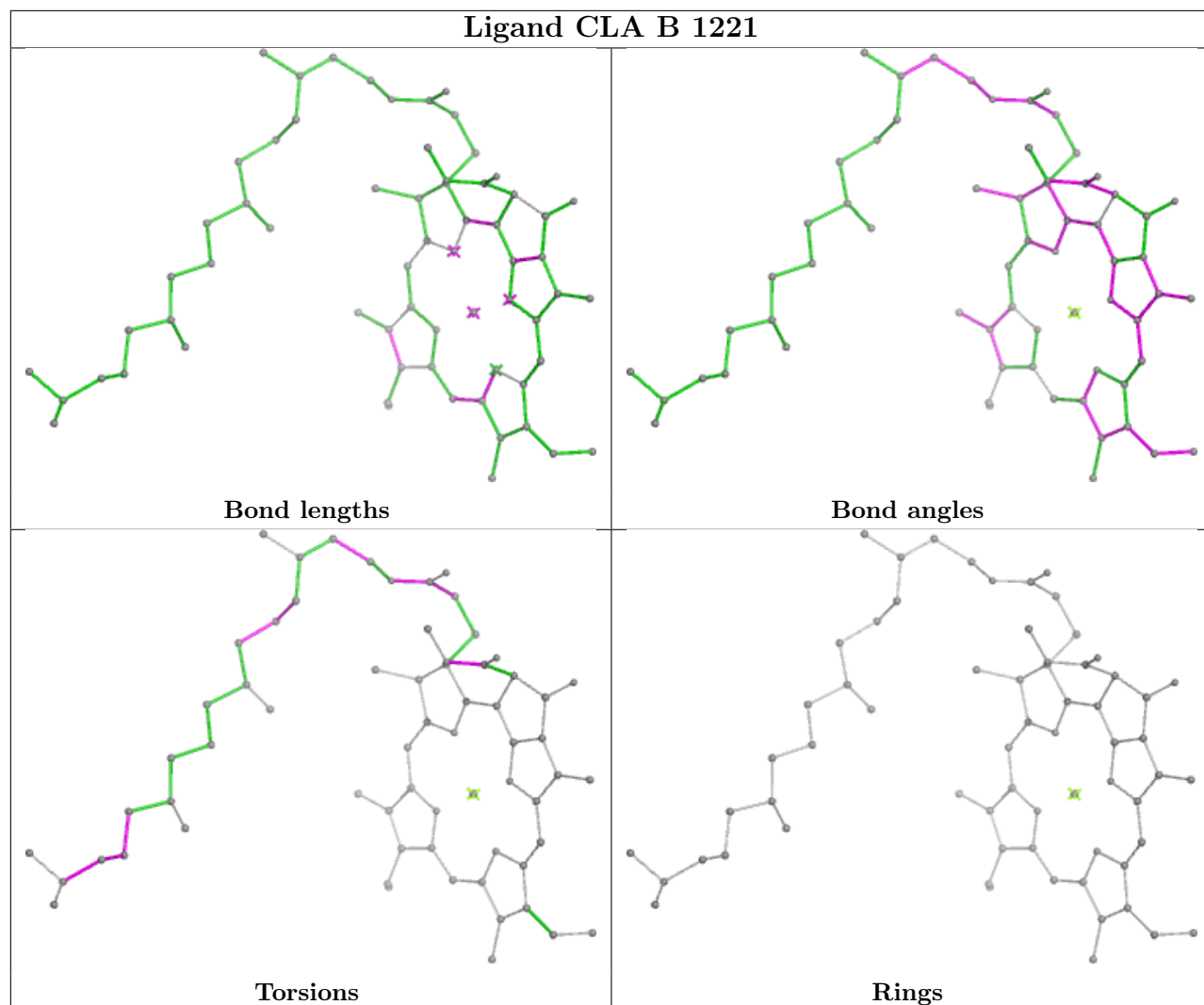


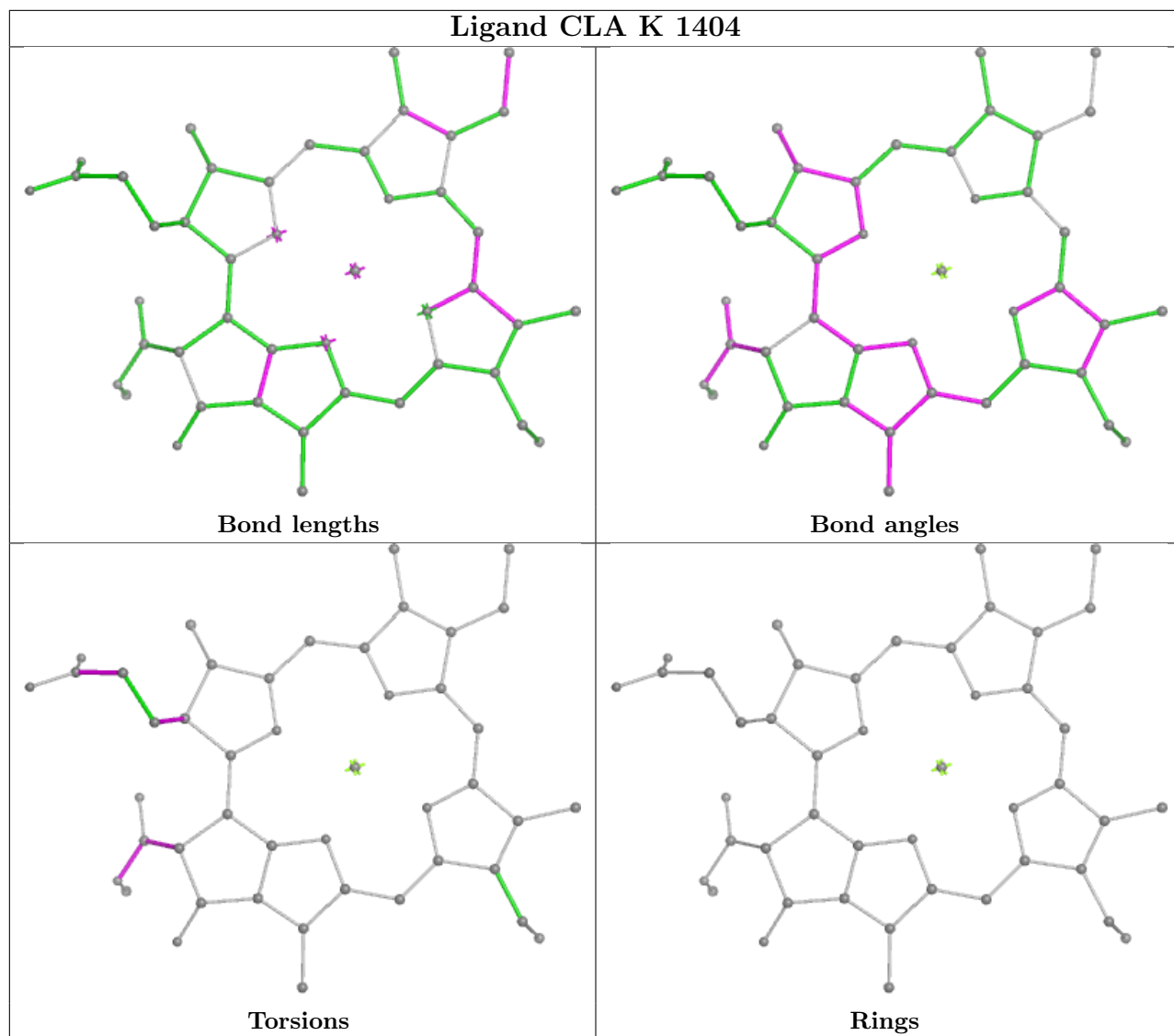


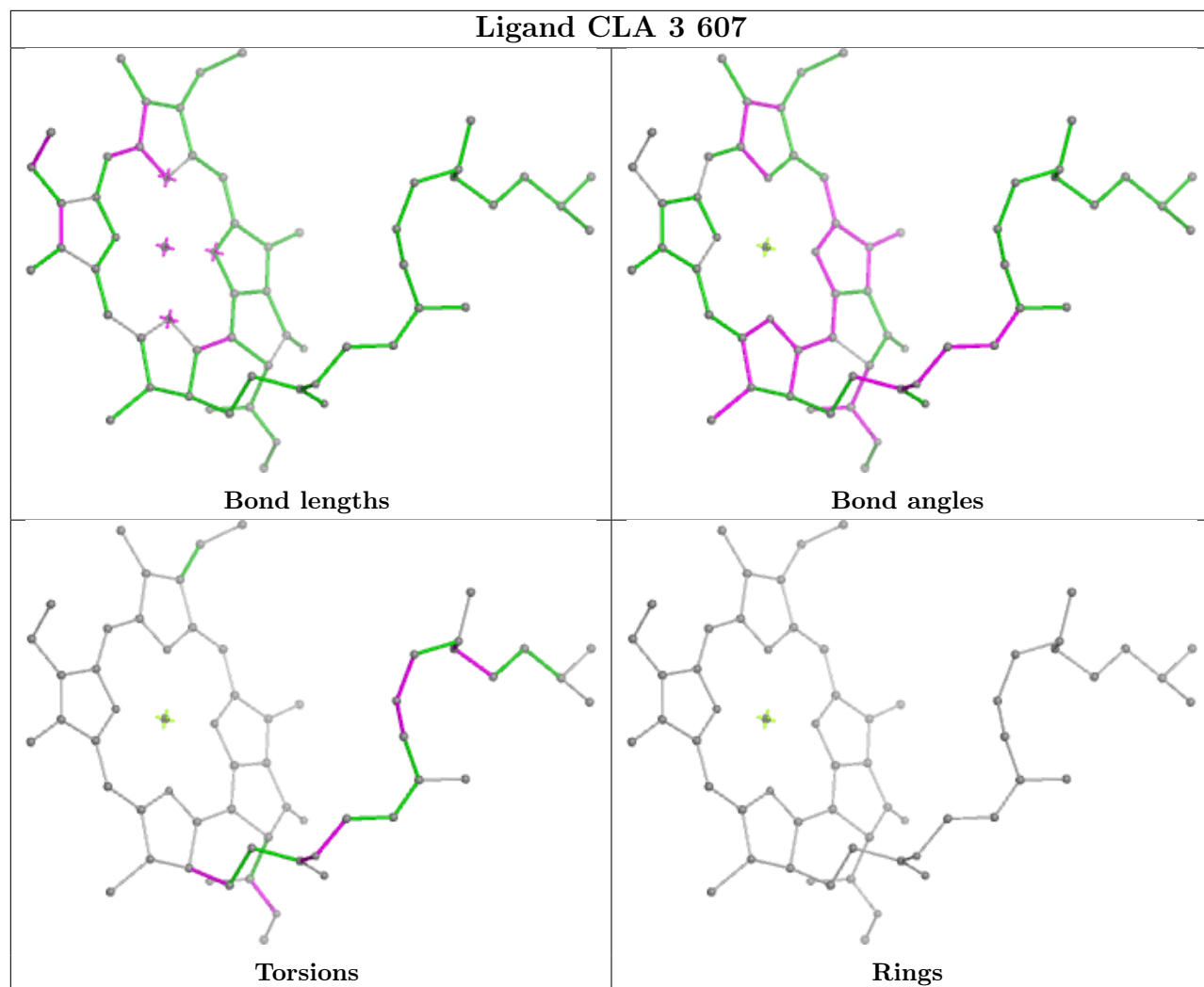


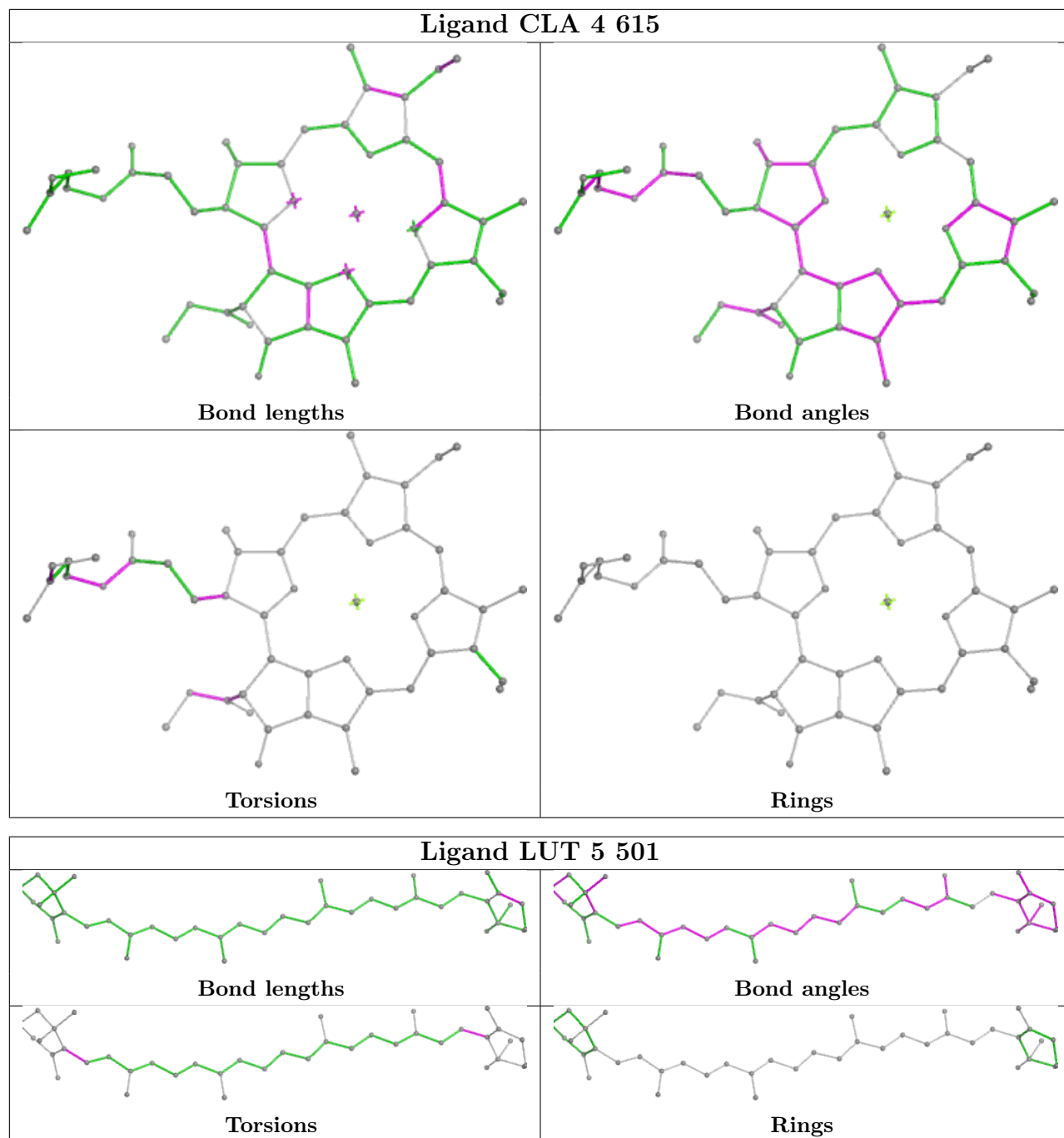


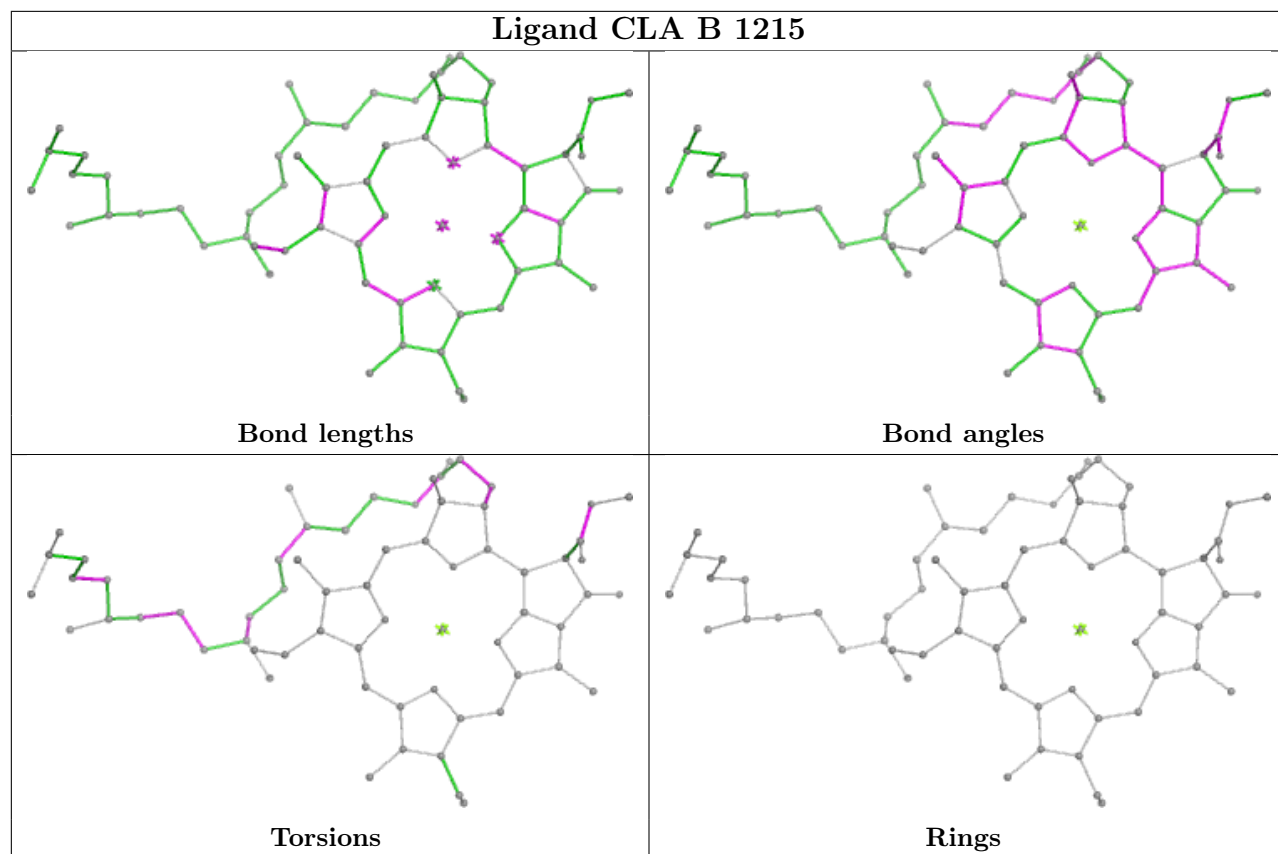


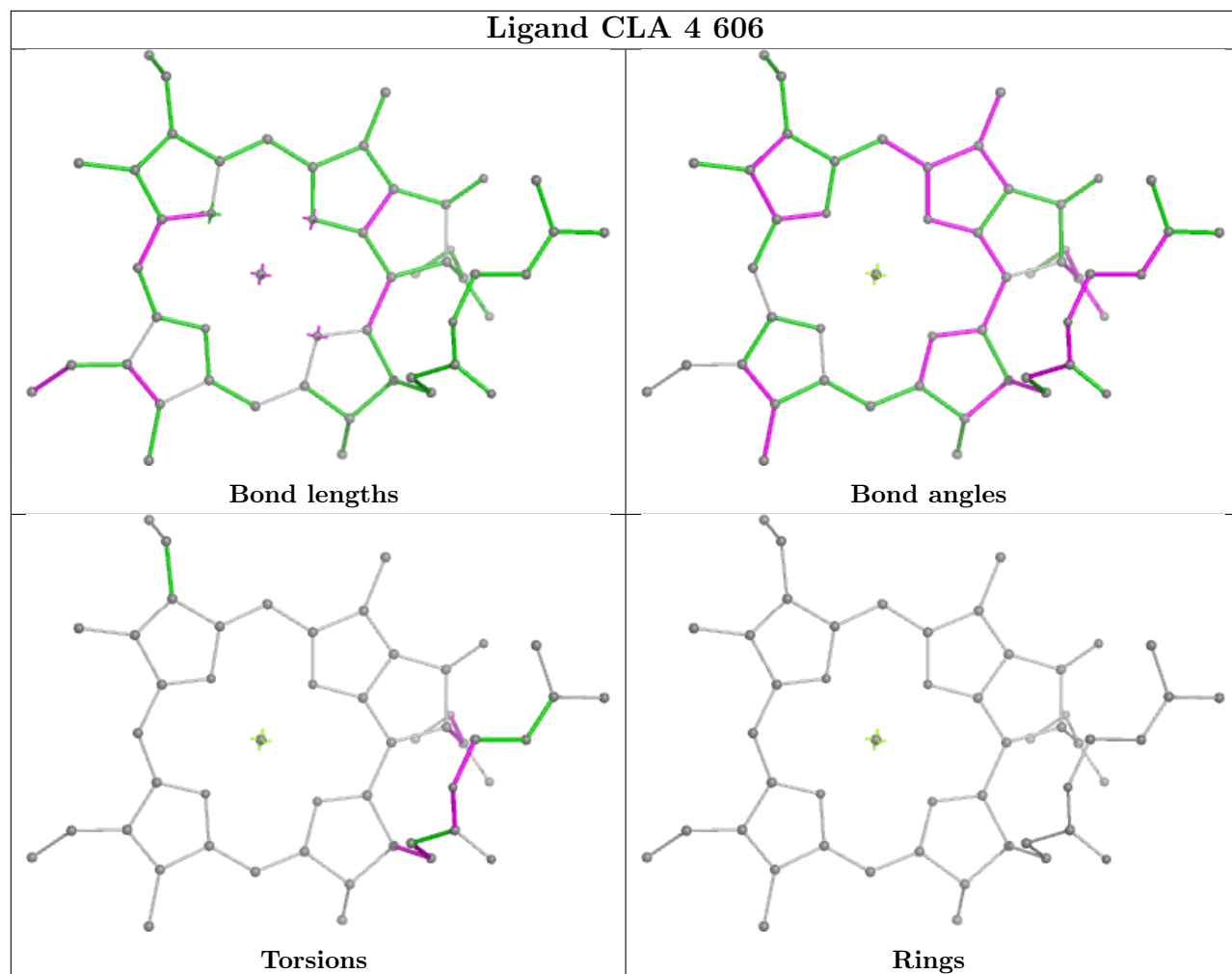


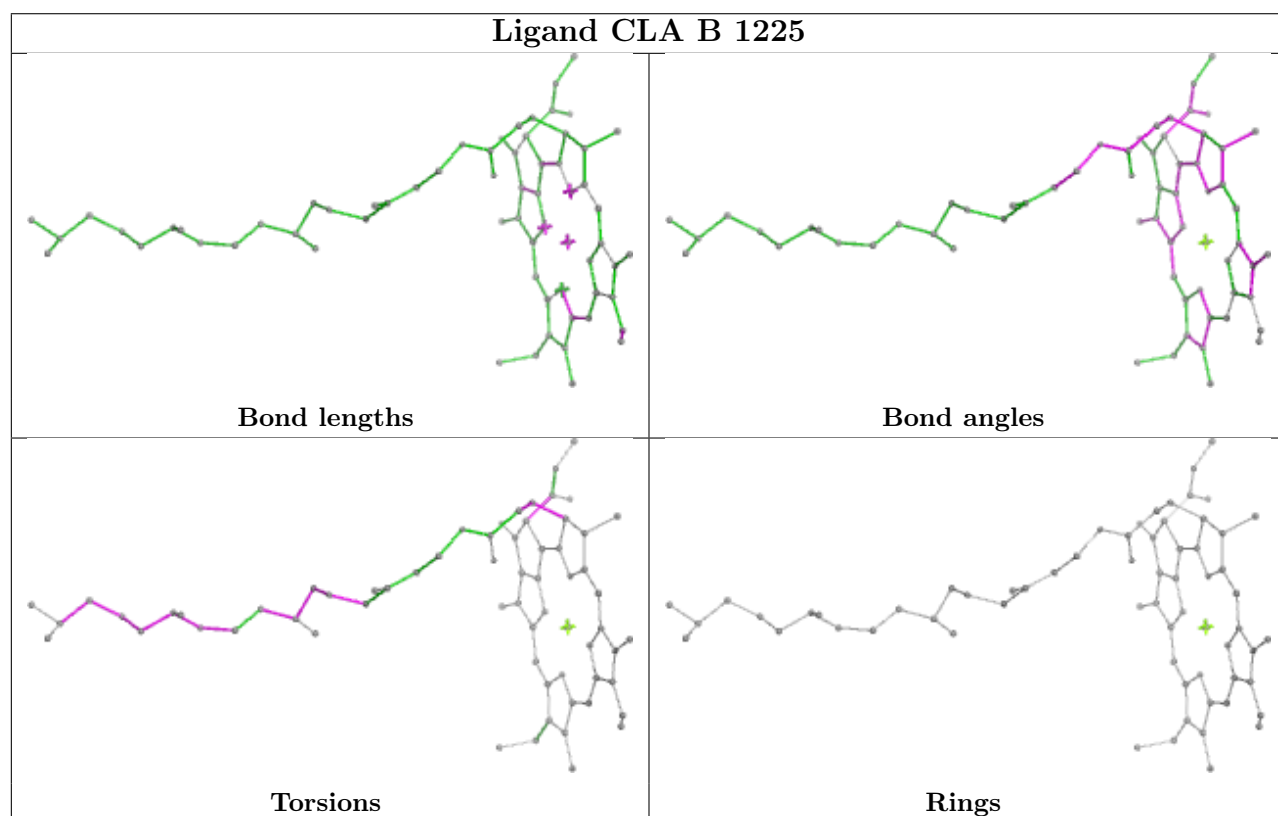
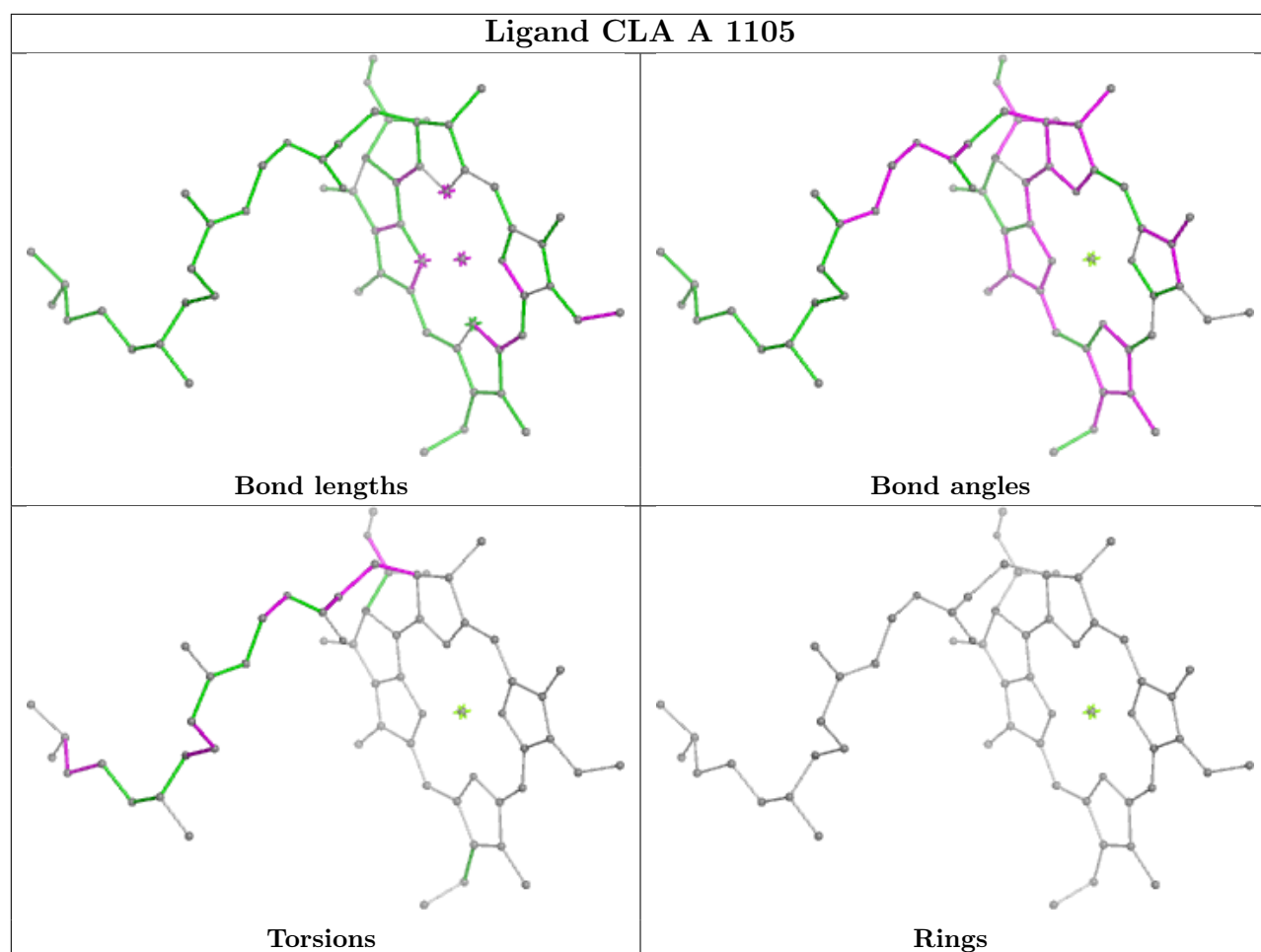


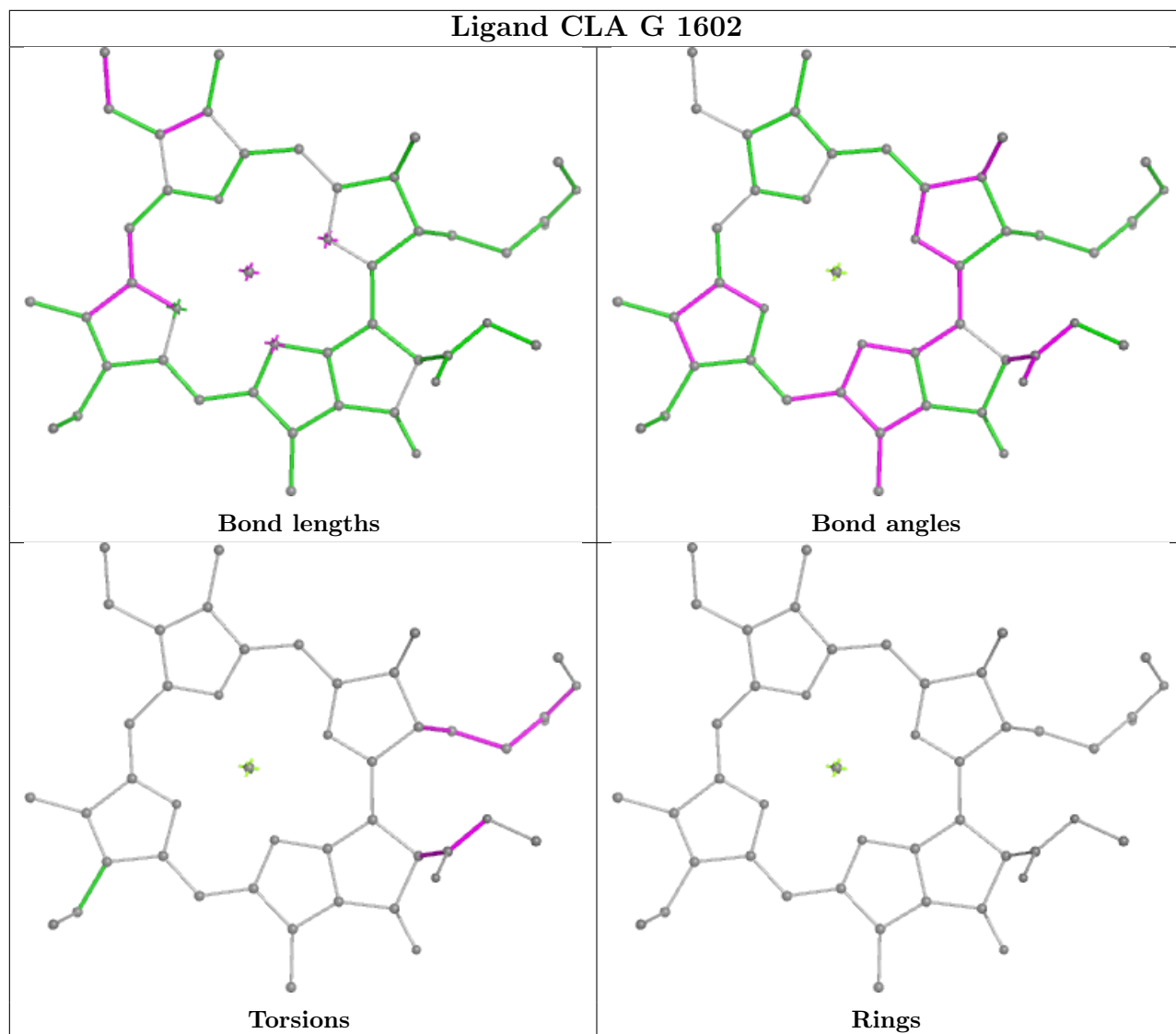


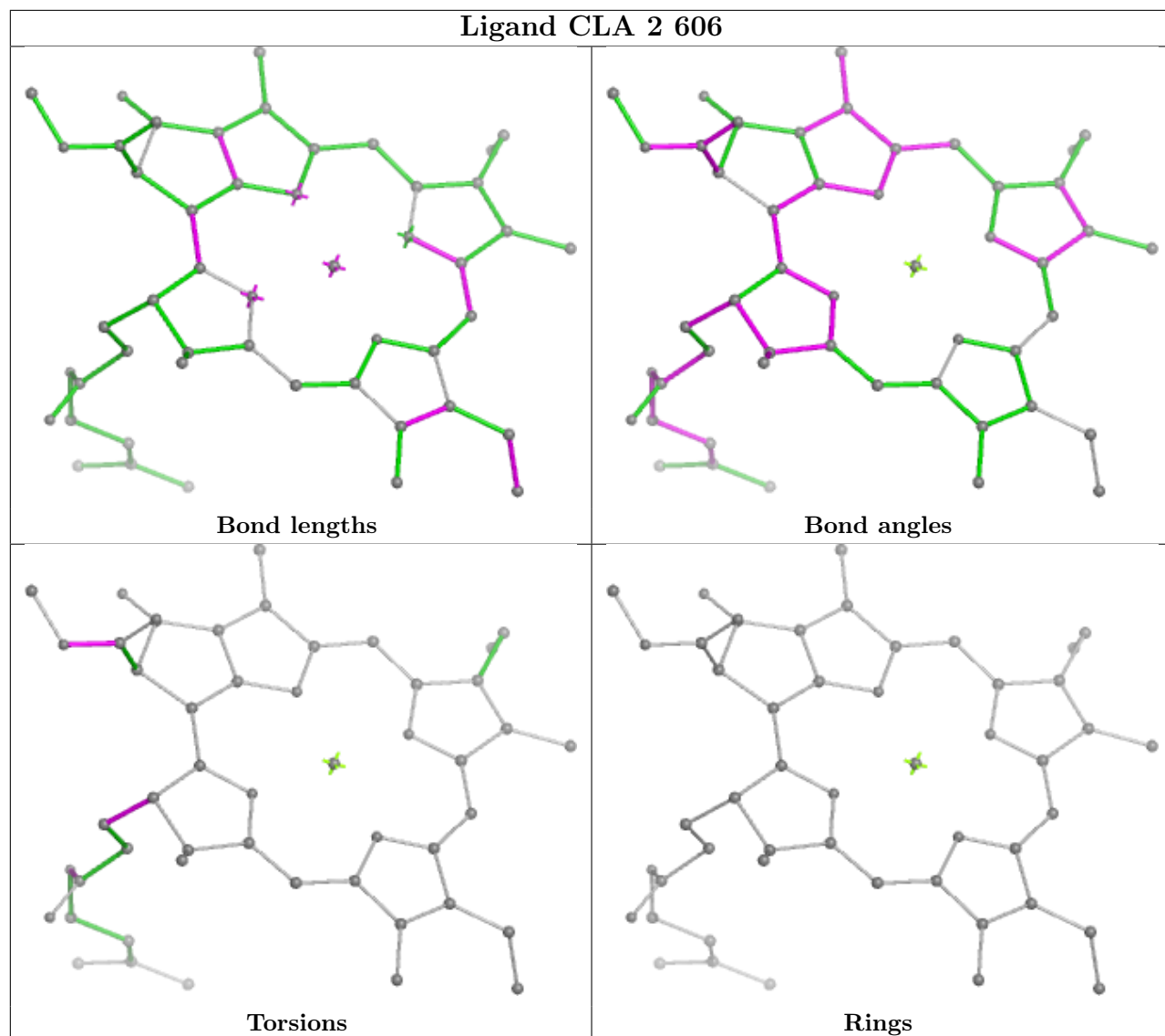


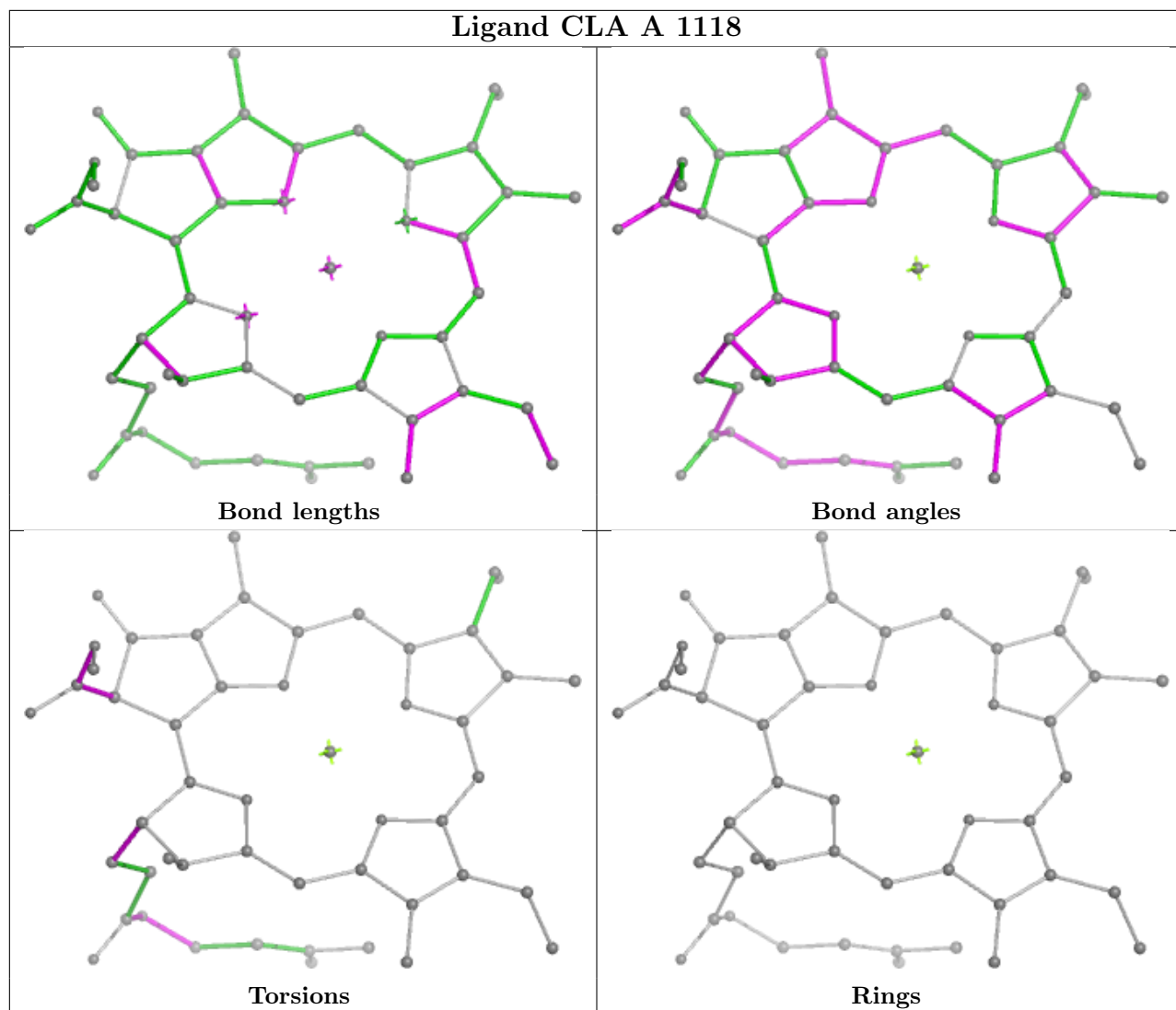


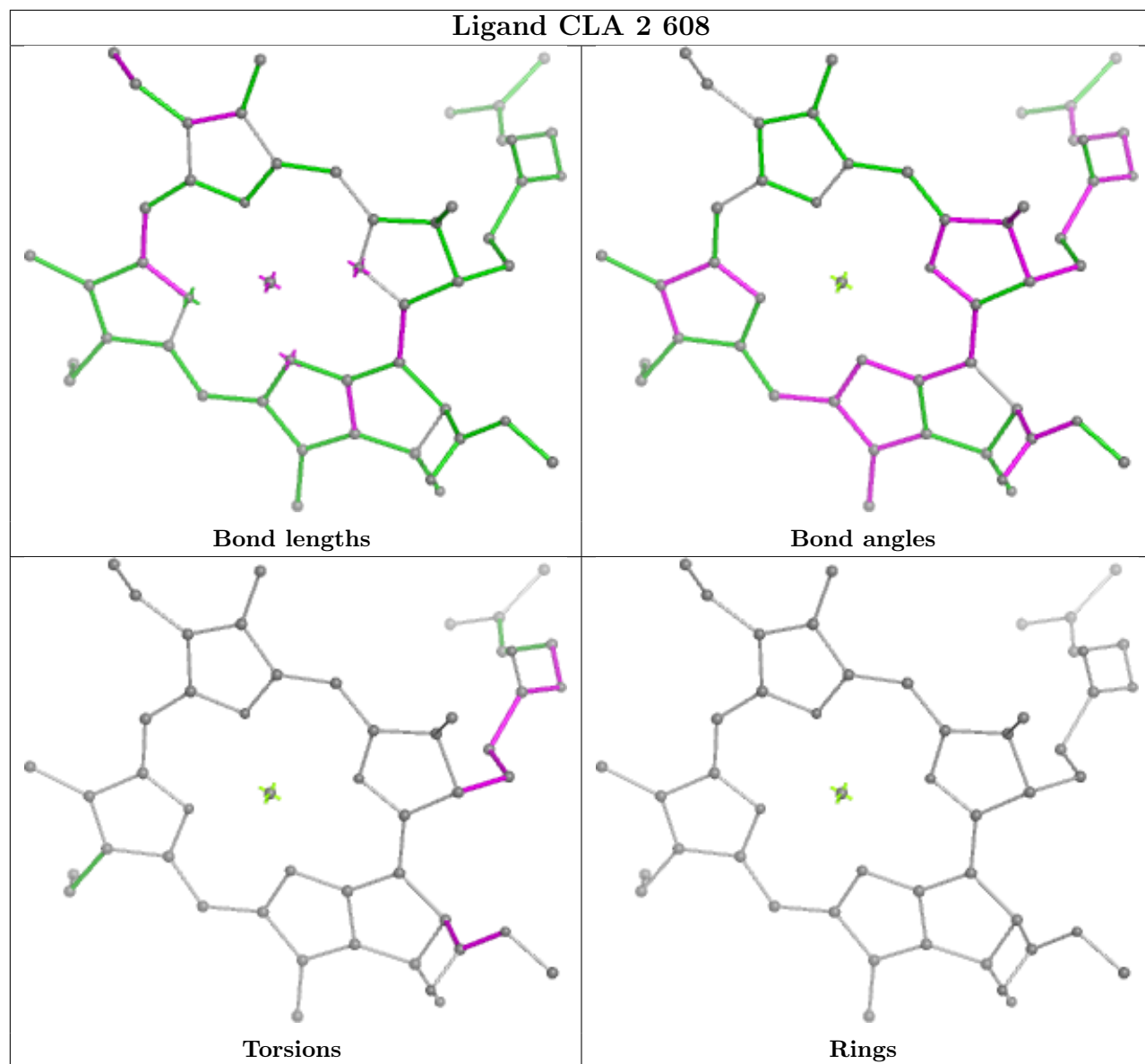


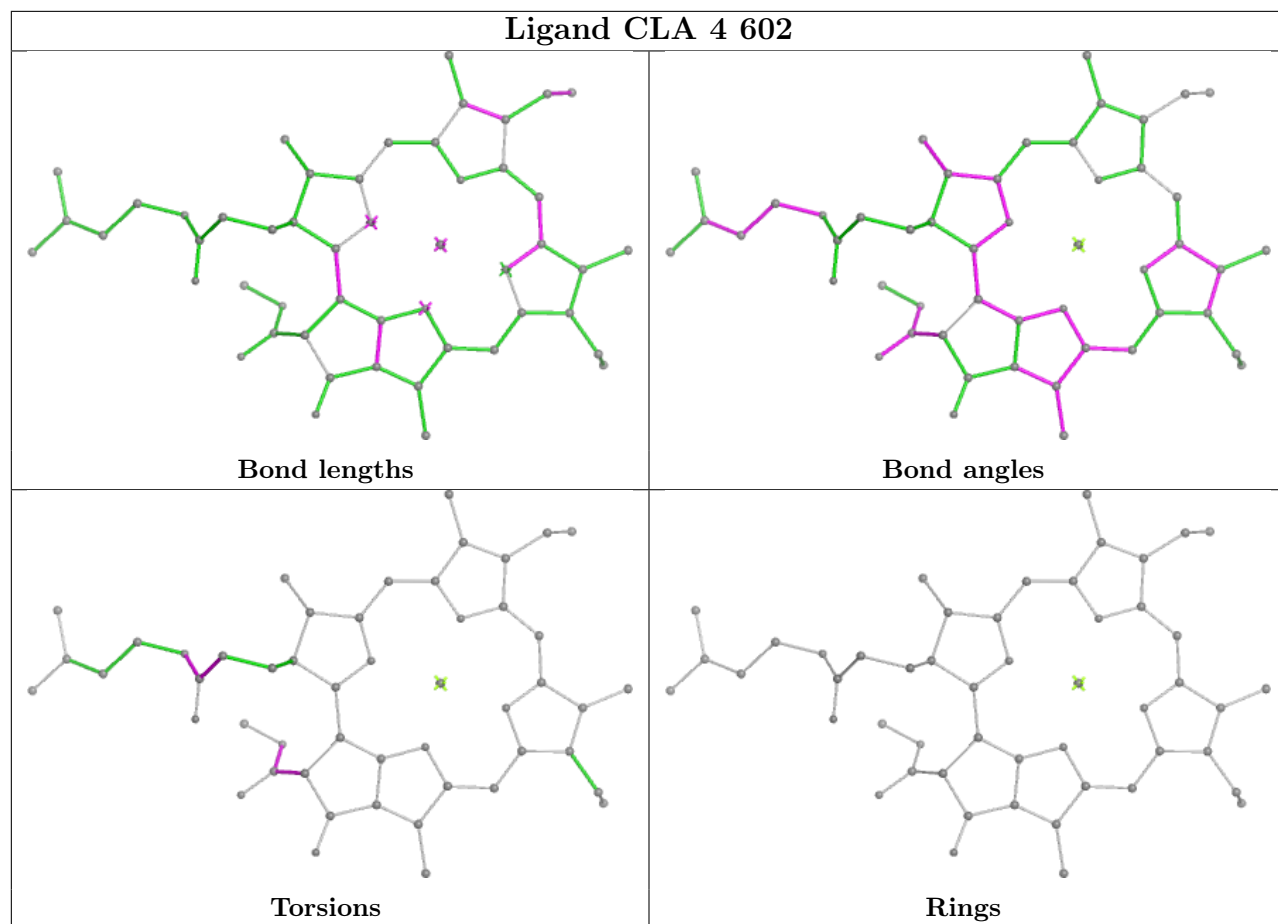


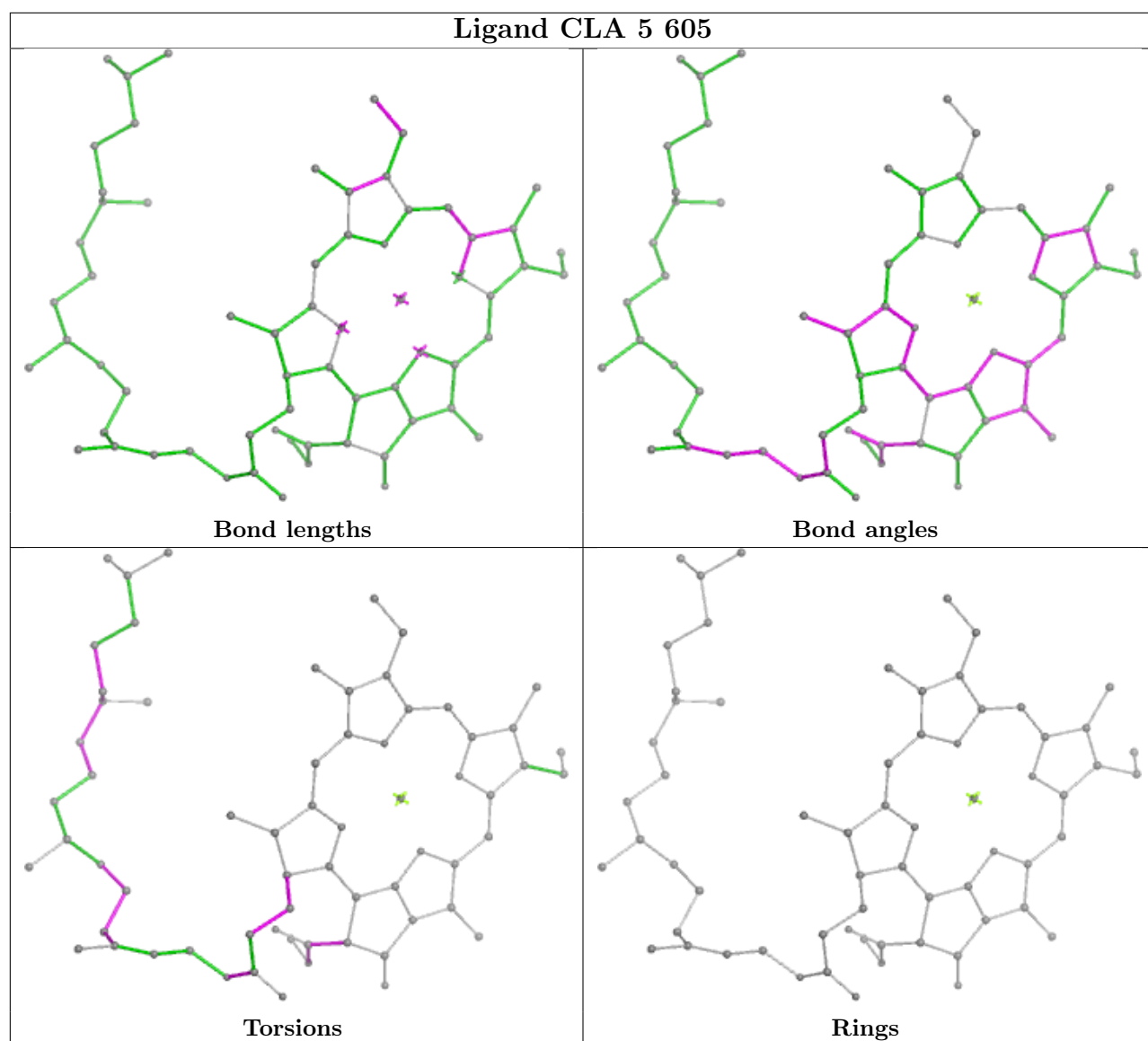


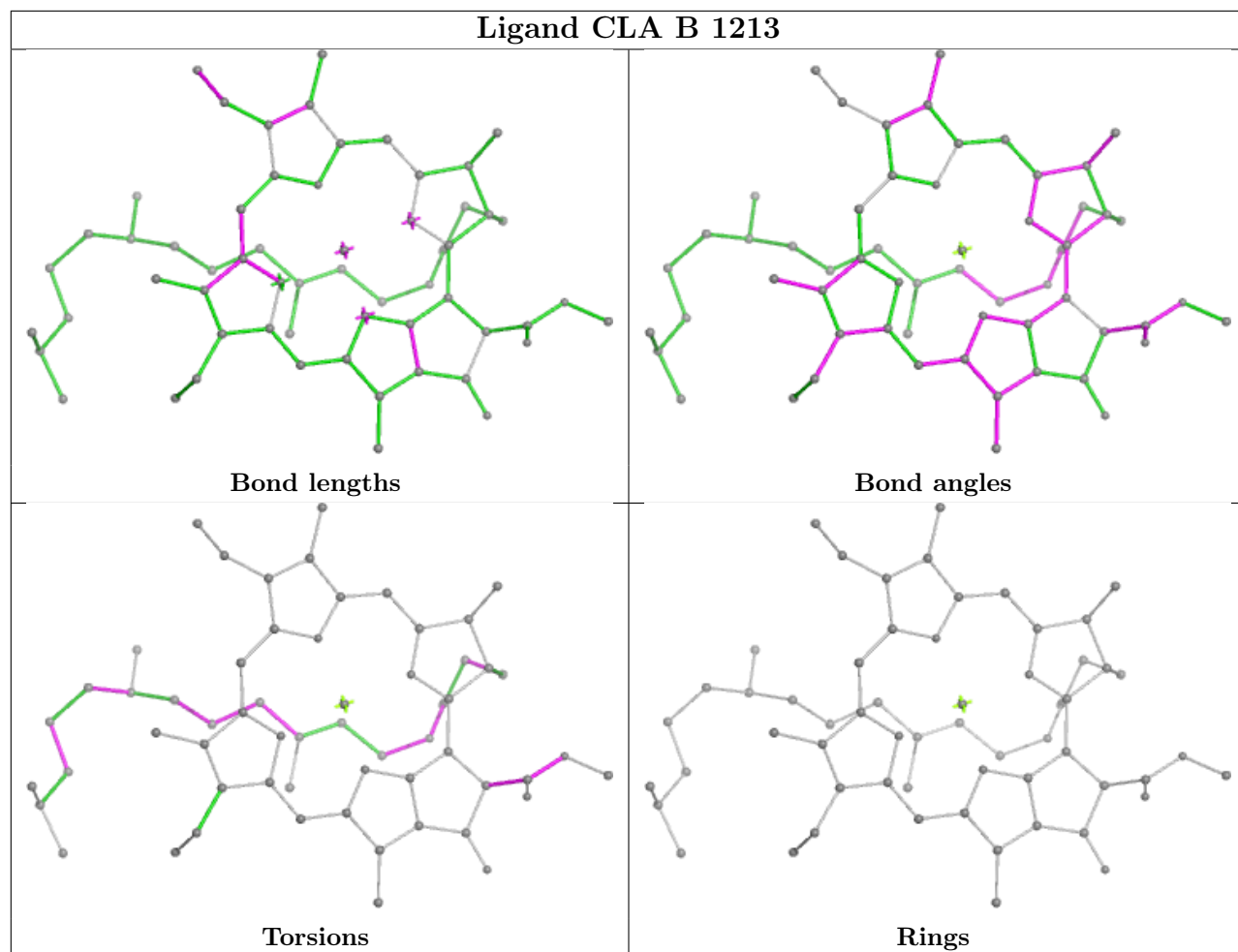


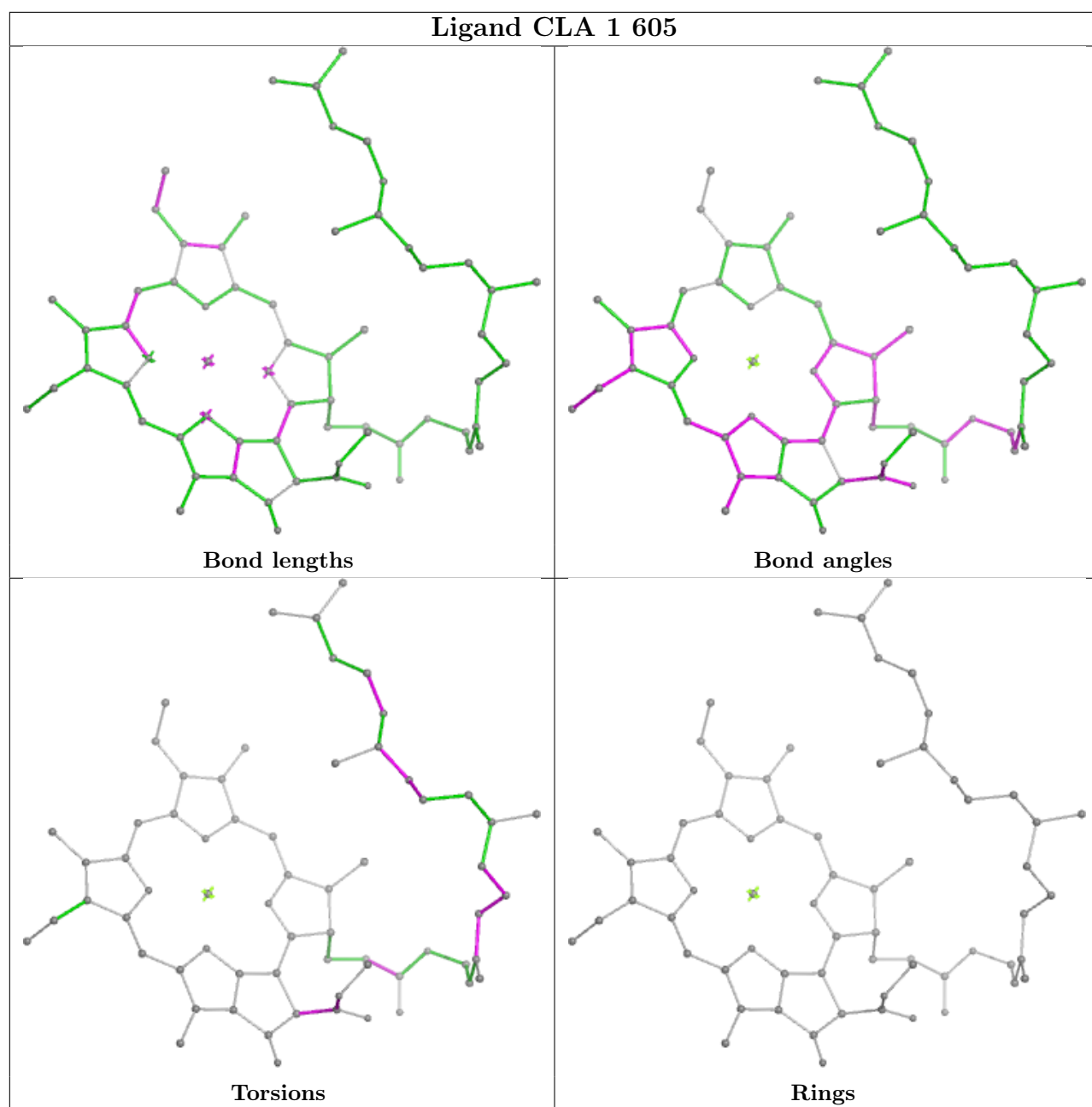












5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [\(i\)](#)

There are no chain breaks in this entry.

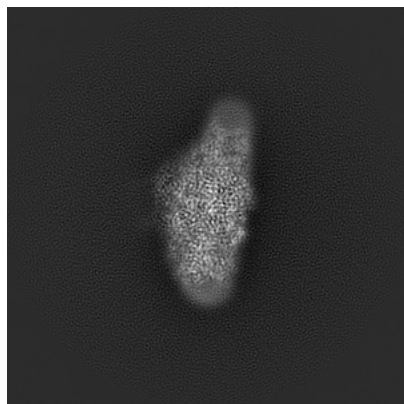
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-10236. These allow visual inspection of the internal detail of the map and identification of artifacts.

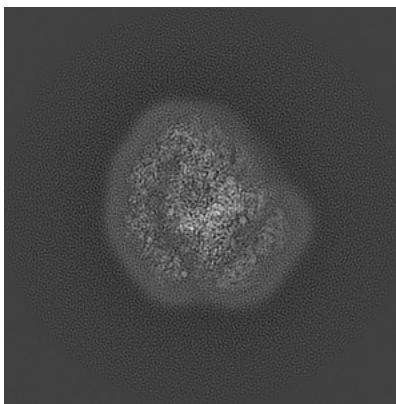
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

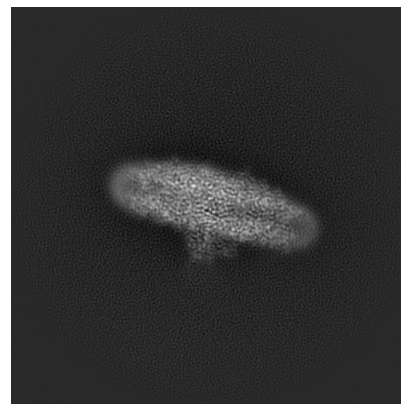
6.1.1 Primary map



X

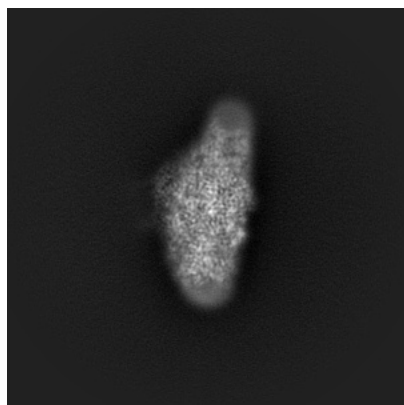


Y

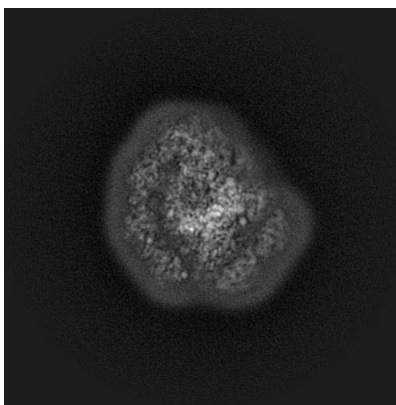


Z

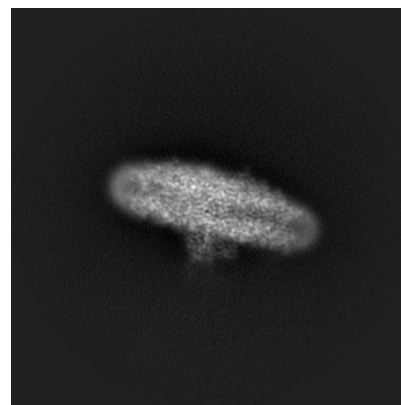
6.1.2 Raw map



X



Y

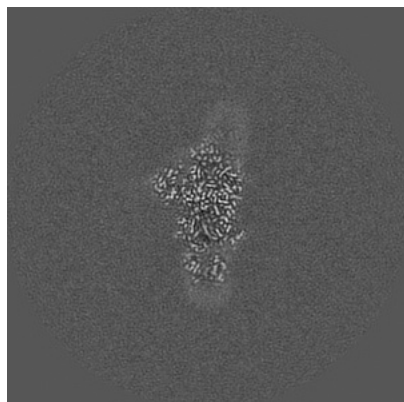


Z

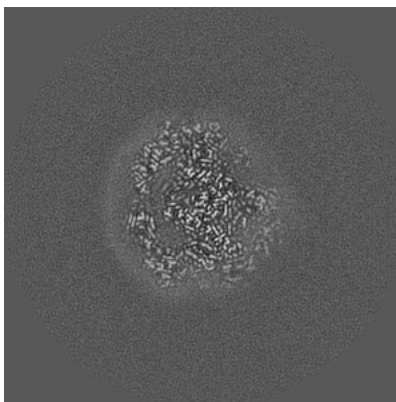
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

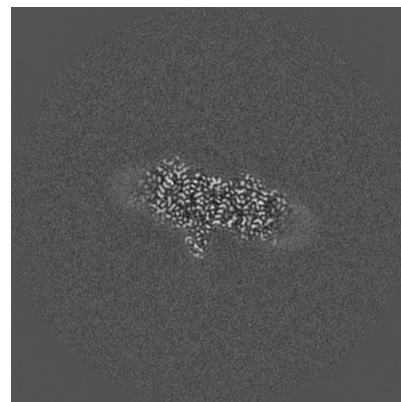
6.2.1 Primary map



X Index: 180

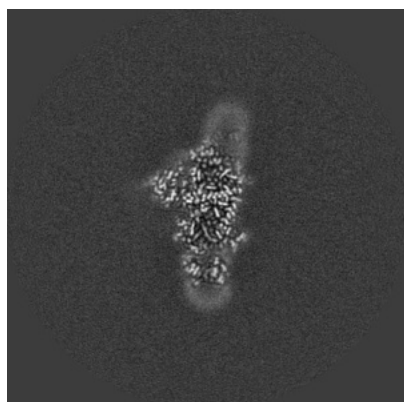


Y Index: 180

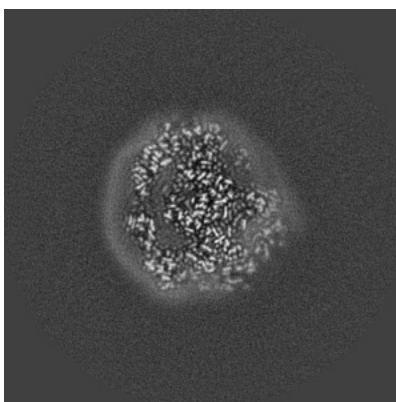


Z Index: 180

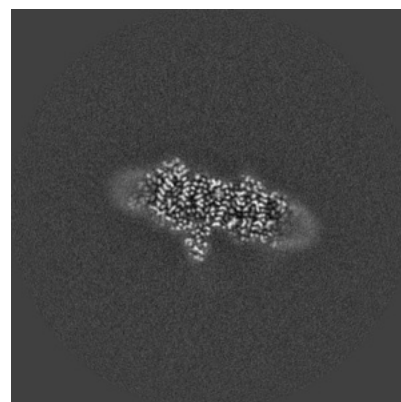
6.2.2 Raw map



X Index: 180



Y Index: 180

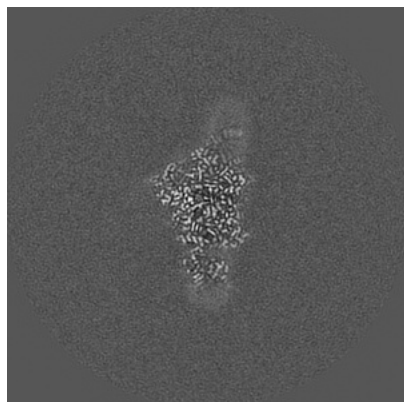


Z Index: 180

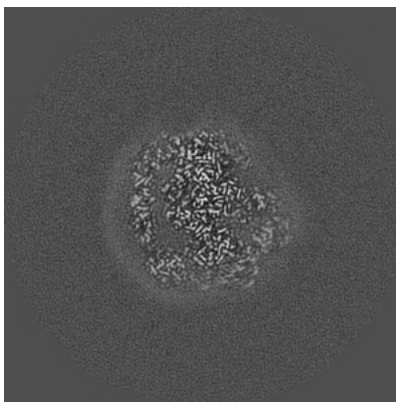
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

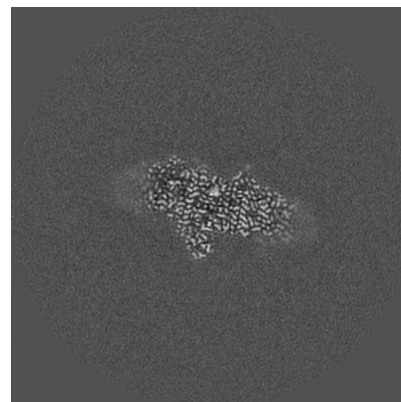
6.3.1 Primary map



X Index: 177

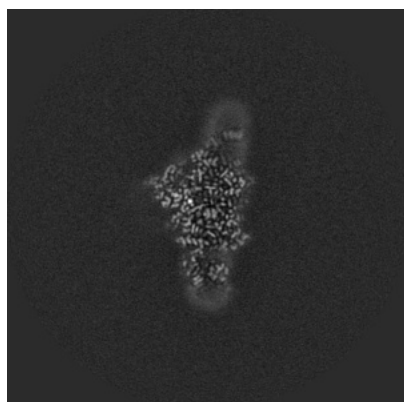


Y Index: 184

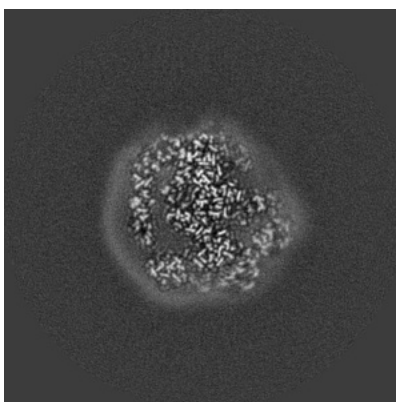


Z Index: 185

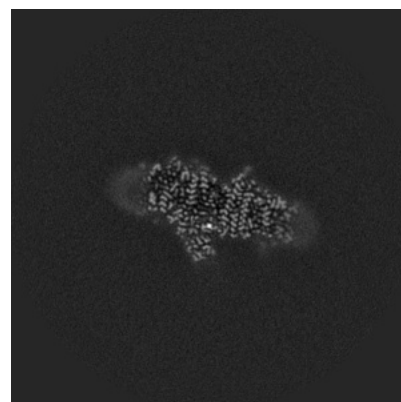
6.3.2 Raw map



X Index: 177



Y Index: 184

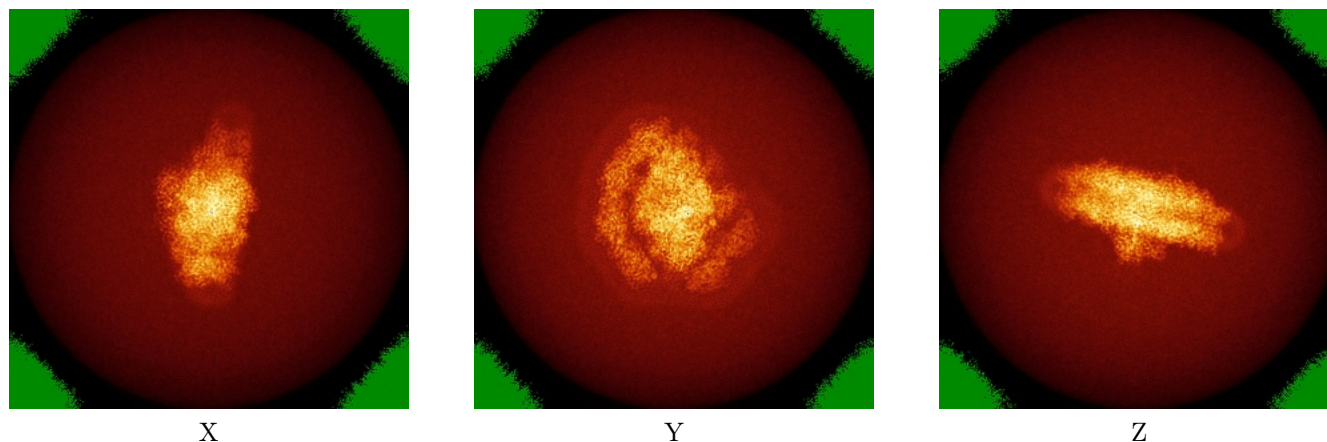


Z Index: 186

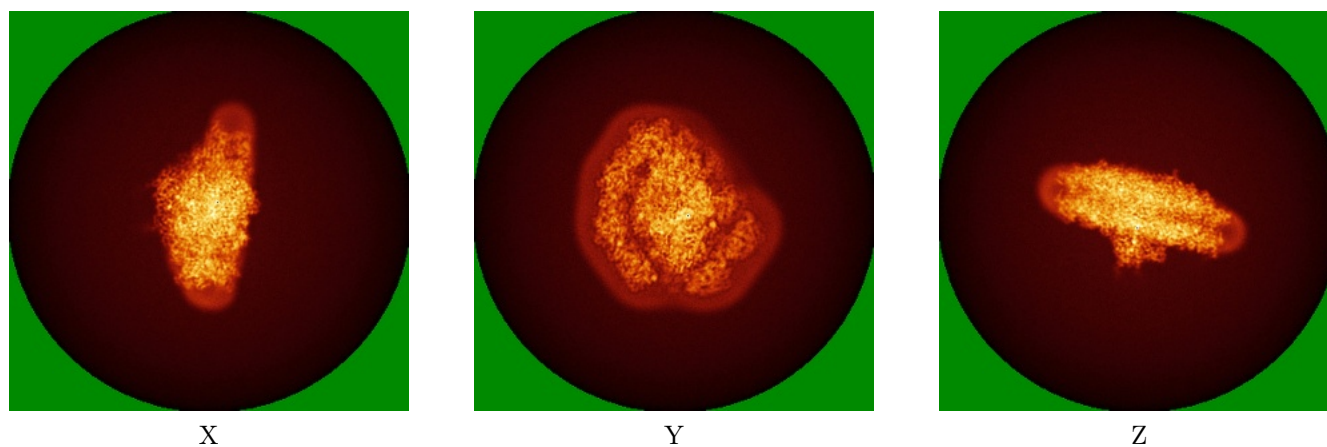
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

6.4.1 Primary map



6.4.2 Raw map



The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



Y



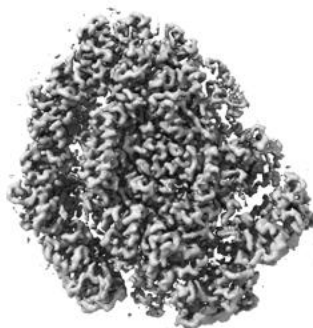
Z

The images above show the 3D surface view of the map at the recommended contour level 0.0247. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X



Y



Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

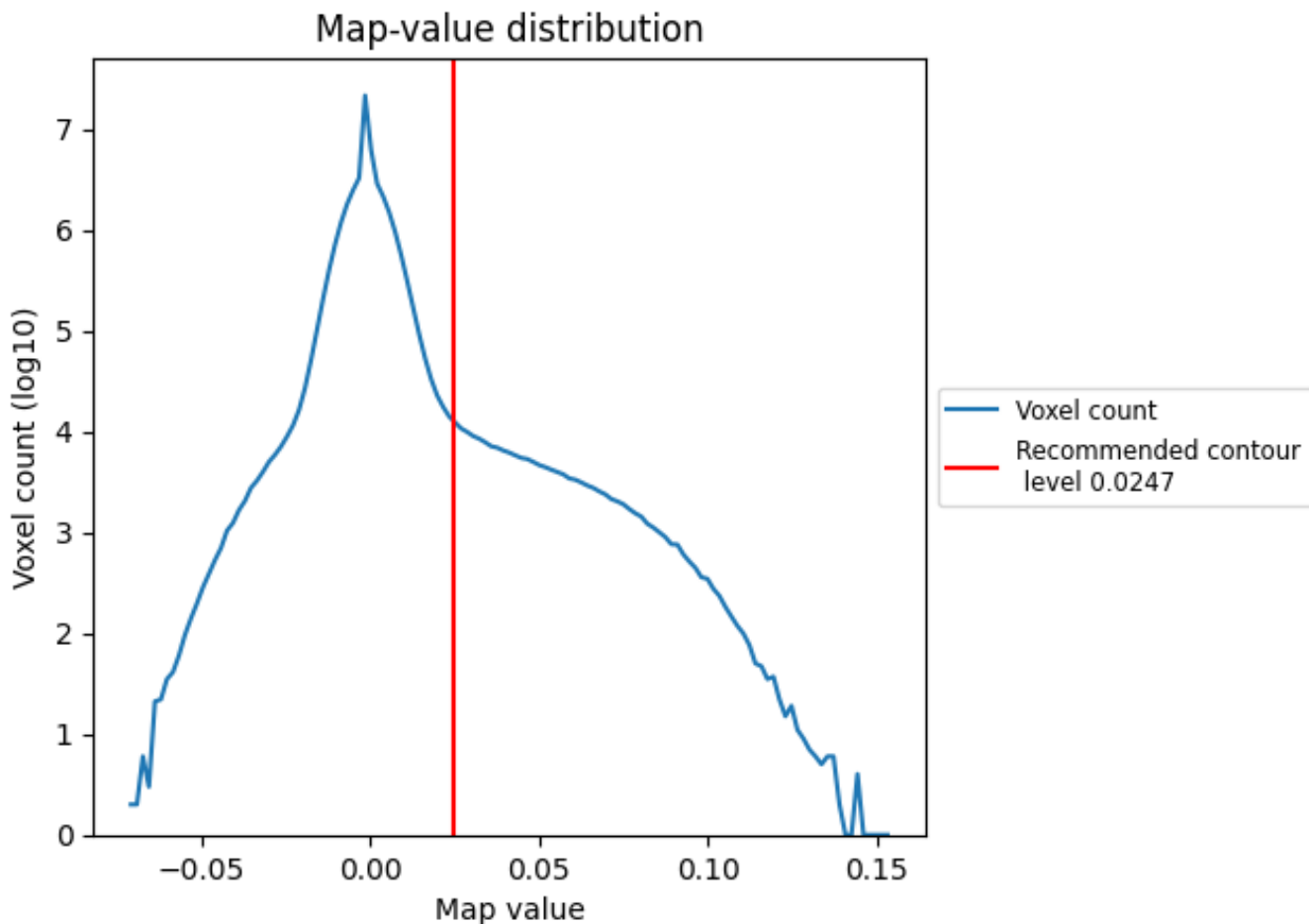
6.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis [i](#)

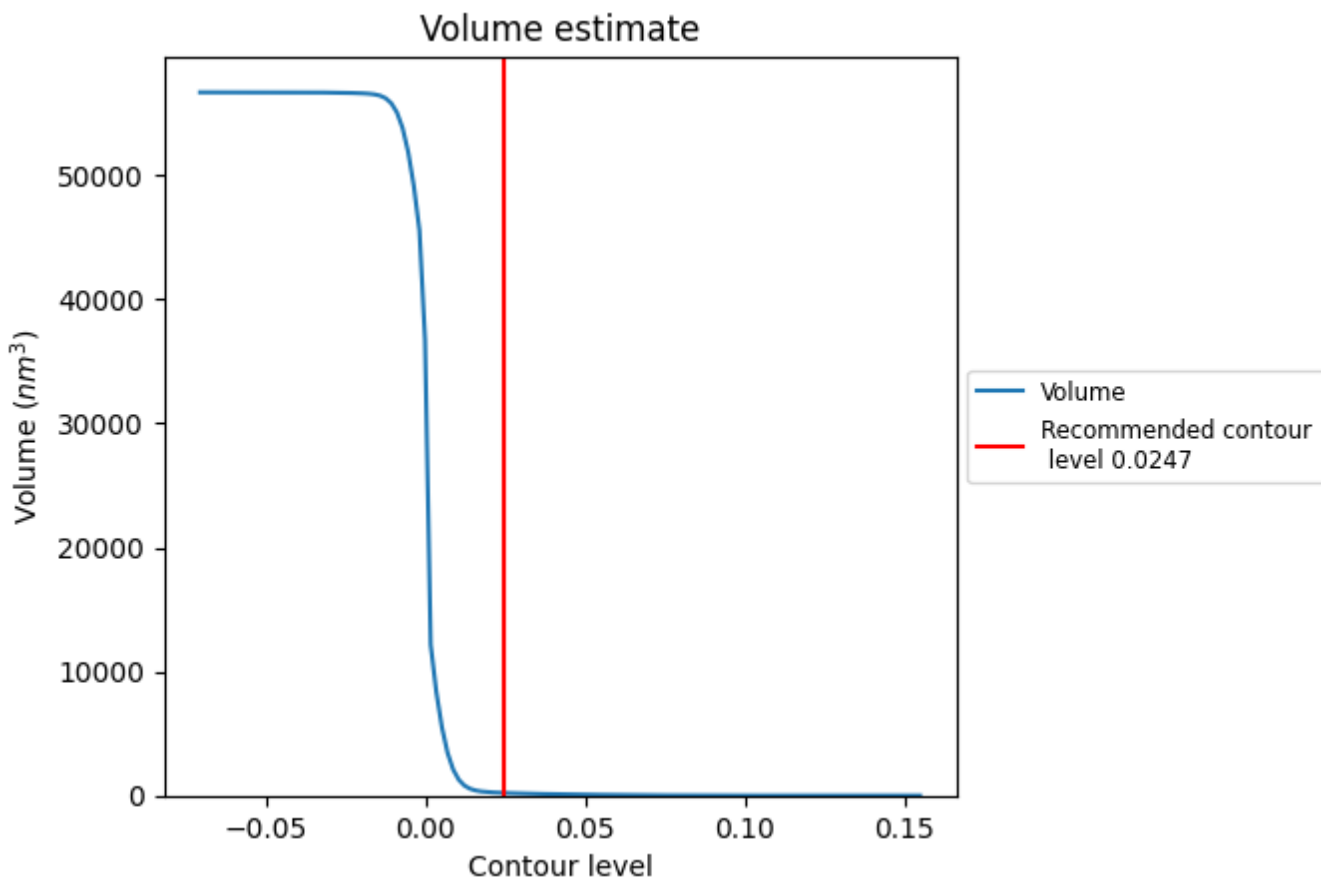
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

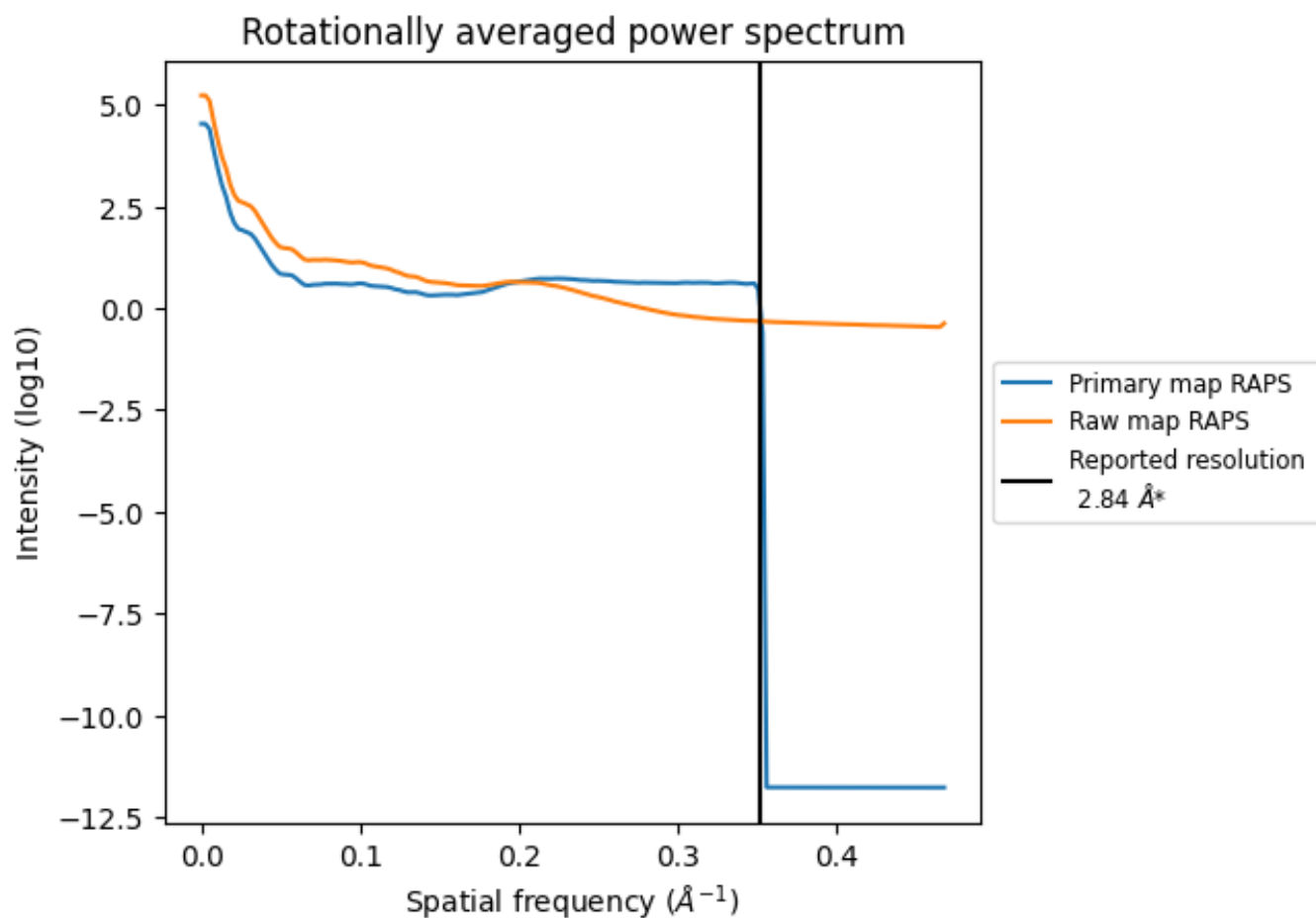
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 209 nm³; this corresponds to an approximate mass of 188 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [i](#)

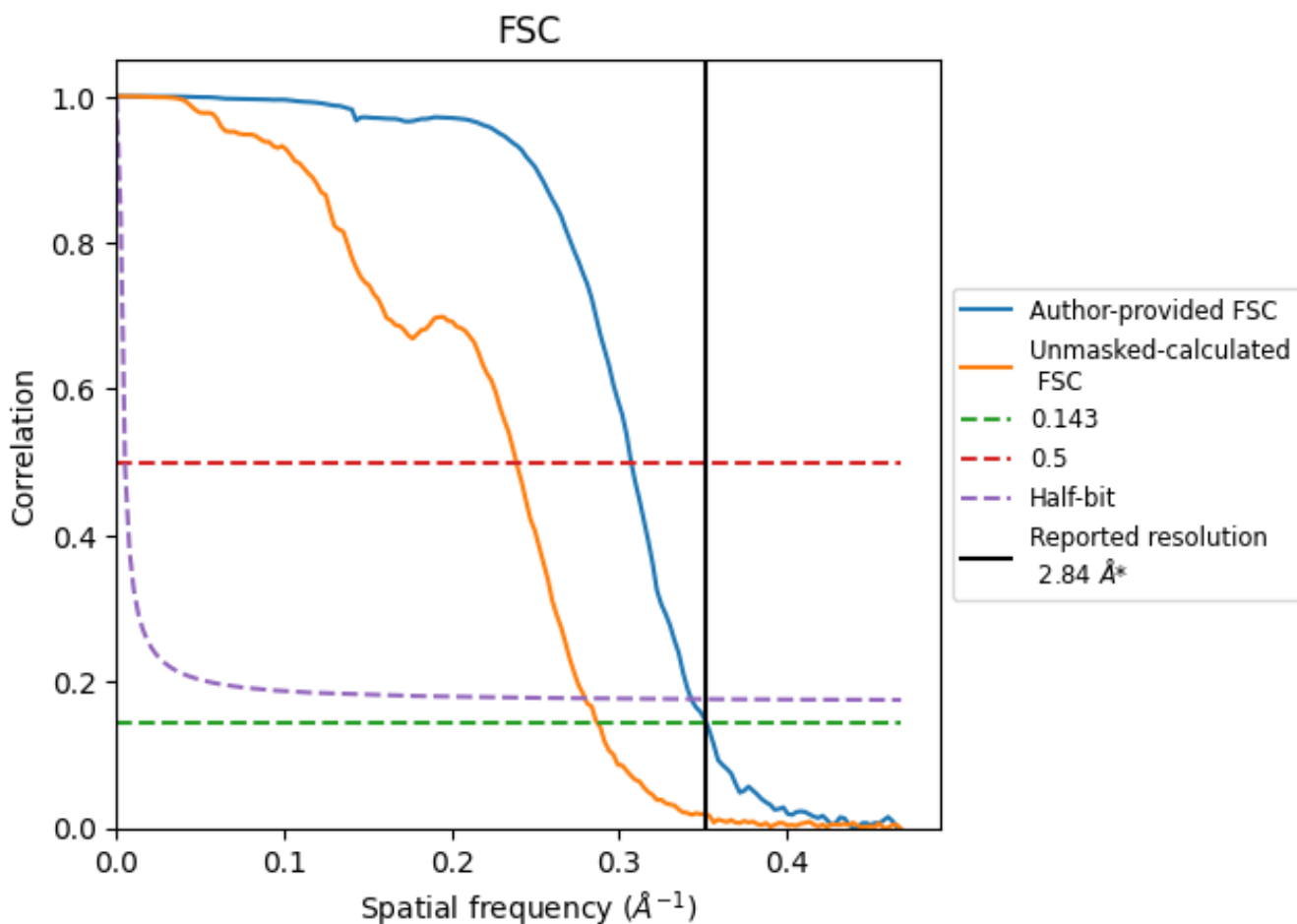


*Reported resolution corresponds to spatial frequency of 0.352 \AA^{-1}

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.352 \AA^{-1}

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.84	-	-
Author-provided FSC curve	2.84	3.25	2.91
Unmasked-calculated*	3.48	4.19	3.57

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.48 differs from the reported value 2.84 by more than 10 %

9 Map-model fit [i](#)

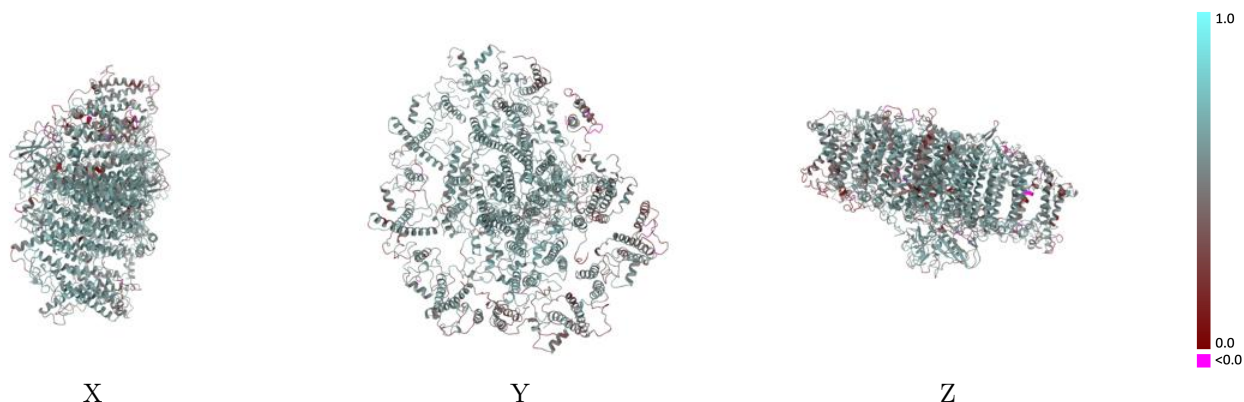
This section contains information regarding the fit between EMDB map EMD-10236 and PDB model 6SL5. Per-residue inclusion information can be found in section 3 on page 37.

9.1 Map-model overlay [i](#)



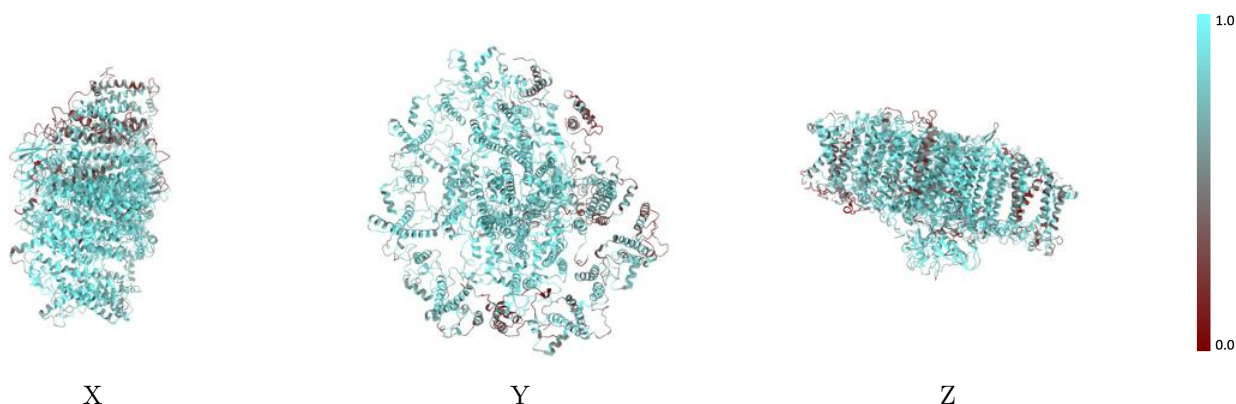
The images above show the 3D surface view of the map at the recommended contour level 0.0247 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



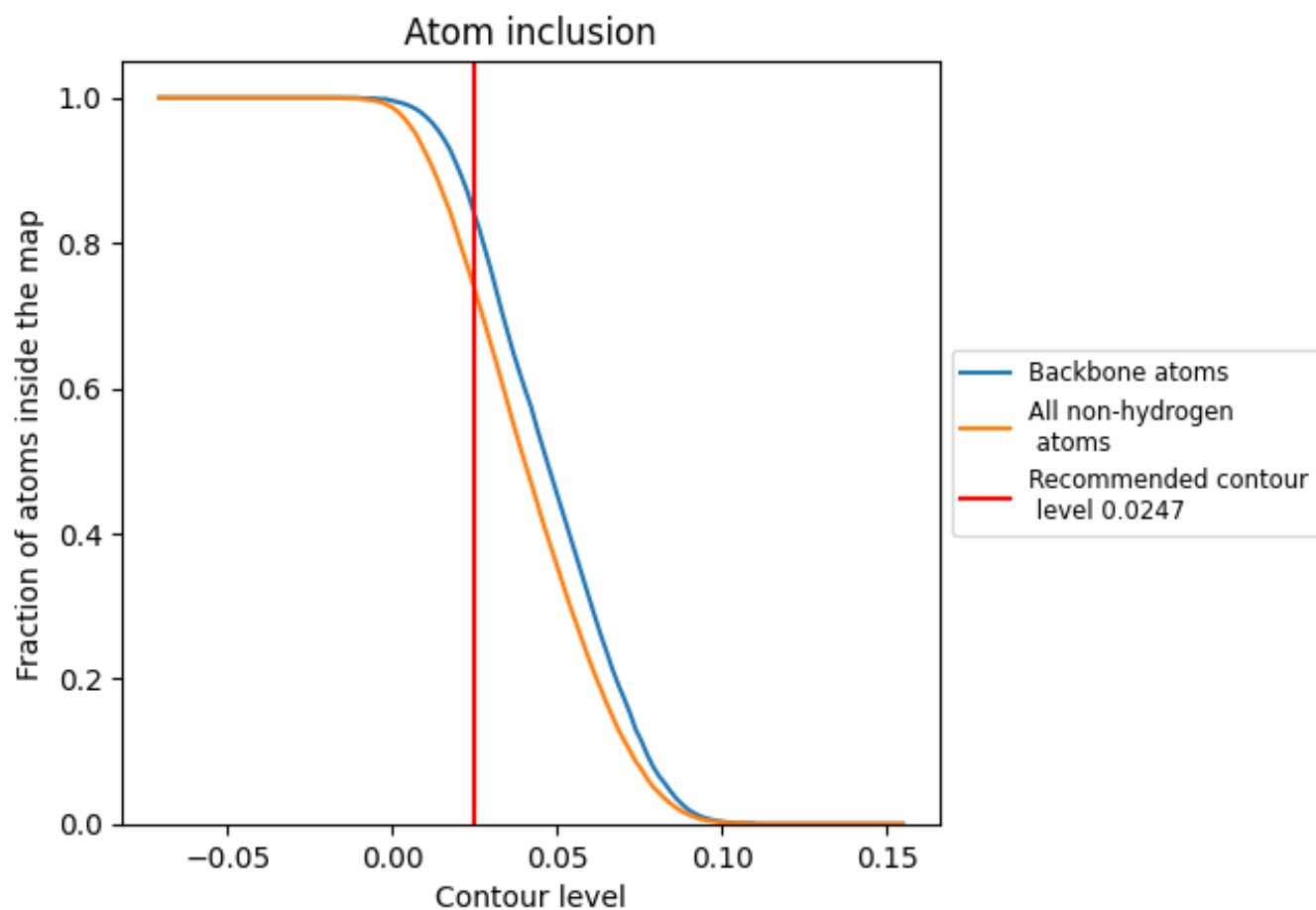
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0247).









































9.4 Atom inclusion [i](#)



At the recommended contour level, 84% of all backbone atoms, 74% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.0247) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7400	 0.5300
1	 0.6550	 0.4930
2	 0.7430	 0.5330
3	 0.7530	 0.5240
4	 0.7140	 0.4980
5	 0.5470	 0.4550
6	 0.6290	 0.4660
A	 0.8750	 0.5960
B	 0.8640	 0.5930
C	 0.9150	 0.6030
D	 0.8050	 0.5410
E	 0.8020	 0.5550
F	 0.7420	 0.5350
G	 0.2700	 0.3280
H	 0.3330	 0.3910
I	 0.7370	 0.5120
J	 0.7720	 0.5060
K	 0.5120	 0.4340
L	 0.5980	 0.4500
O	 0.3310	 0.3300

