



# Full wwPDB X-ray Structure Validation Report ⓘ

Dec 9, 2024 – 03:51 pm GMT

PDB ID : 9F47  
Title : crystal structure of [FeFe]-hydrogenase CbA5H from Clostridium beijerinckii  
Authors : Duan, J.; Rutz, A.; Hofmann, E.; Happe, T.; Kurisu, G.  
Deposited on : 2024-04-26  
Resolution : 2.90 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

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>.

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

MolProbity : 4.02b-467  
Mogul : 1.8.4, CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 3.0  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
CCP4 : 9.0.003 (Gargrove)  
Density-Fitness : 1.0.11  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.40

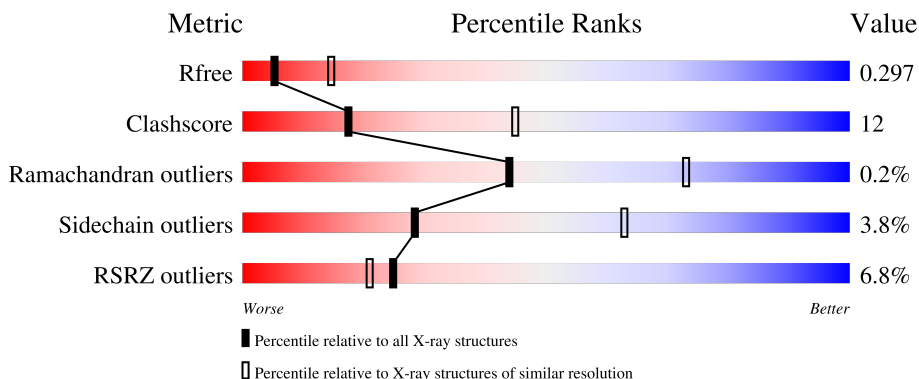
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.90 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)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	164625	2335 (2.90-2.90)
Clashscore	180529	2564 (2.90-2.90)
Ramachandran outliers	177936	2514 (2.90-2.90)
Sidechain outliers	177891	2516 (2.90-2.90)
RSRZ outliers	164620	2337 (2.90-2.90)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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 electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	674	
1	B	674	

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
2	402	A	701	-	-	X	-
2	402	B	701	-	-	X	-

## 2 Entry composition i

There are 6 unique types of molecules in this entry. The entry contains 19475 atoms, of which 9665 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 [FeFe]-hydrogenase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	H	N	O	S			
1	A	621	9695	3070	4843	819	927	36	0	0	0
1	B	618	9654	3057	4822	816	923	36	0	0	0

There are 60 discrepancies between the modelled and reference sequences:

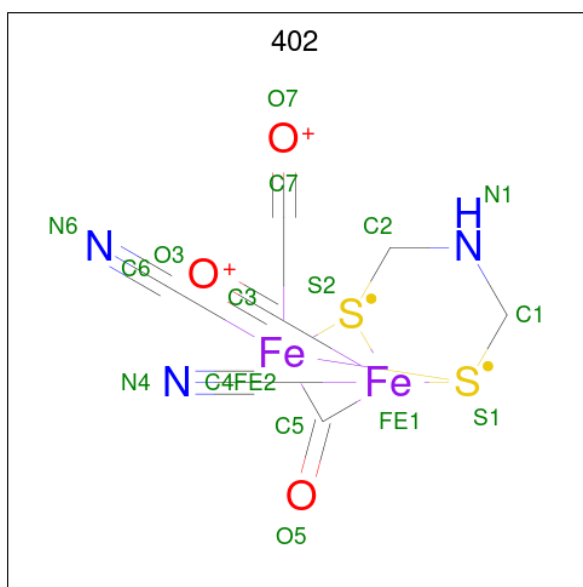
Chain	Residue	Modelled	Actual	Comment	Reference
A	645	ASP	-	expression tag	UNP A0A1I9RYV3
A	646	ILE	-	expression tag	UNP A0A1I9RYV3
A	647	TRP	-	expression tag	UNP A0A1I9RYV3
A	648	SER	-	expression tag	UNP A0A1I9RYV3
A	649	VAL	-	expression tag	UNP A0A1I9RYV3
A	650	GLY	-	expression tag	UNP A0A1I9RYV3
A	651	VAL	-	expression tag	UNP A0A1I9RYV3
A	652	LYS	-	expression tag	UNP A0A1I9RYV3
A	653	LEU	-	expression tag	UNP A0A1I9RYV3
A	654	PHE	-	expression tag	UNP A0A1I9RYV3
A	655	GLY	-	expression tag	UNP A0A1I9RYV3
A	656	GLY	-	expression tag	UNP A0A1I9RYV3
A	657	GLY	-	expression tag	UNP A0A1I9RYV3
A	658	SER	-	expression tag	UNP A0A1I9RYV3
A	659	GLY	-	expression tag	UNP A0A1I9RYV3
A	660	GLY	-	expression tag	UNP A0A1I9RYV3
A	661	GLY	-	expression tag	UNP A0A1I9RYV3
A	662	SER	-	expression tag	UNP A0A1I9RYV3
A	663	GLY	-	expression tag	UNP A0A1I9RYV3
A	664	GLY	-	expression tag	UNP A0A1I9RYV3
A	665	GLY	-	expression tag	UNP A0A1I9RYV3
A	666	SER	-	expression tag	UNP A0A1I9RYV3
A	667	TRP	-	expression tag	UNP A0A1I9RYV3
A	668	SER	-	expression tag	UNP A0A1I9RYV3
A	669	HIS	-	expression tag	UNP A0A1I9RYV3

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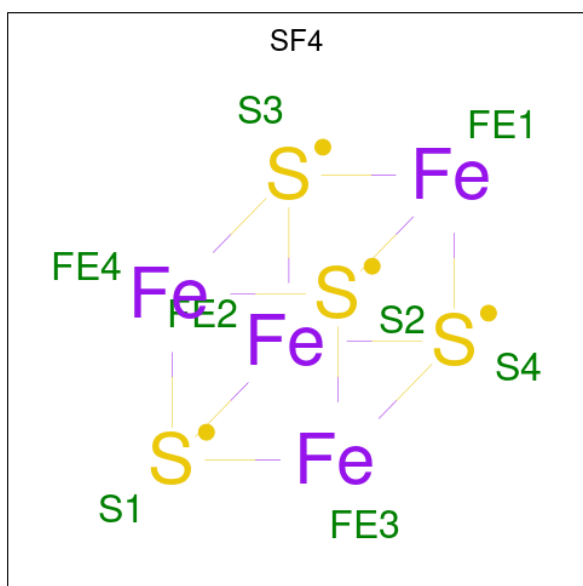
Chain	Residue	Modelled	Actual	Comment	Reference
A	670	PRO	-	expression tag	UNP A0A1I9RYV3
A	671	GLN	-	expression tag	UNP A0A1I9RYV3
A	672	PHE	-	expression tag	UNP A0A1I9RYV3
A	673	GLU	-	expression tag	UNP A0A1I9RYV3
A	674	LYS	-	expression tag	UNP A0A1I9RYV3
B	645	ASP	-	expression tag	UNP A0A1I9RYV3
B	646	ILE	-	expression tag	UNP A0A1I9RYV3
B	647	TRP	-	expression tag	UNP A0A1I9RYV3
B	648	SER	-	expression tag	UNP A0A1I9RYV3
B	649	VAL	-	expression tag	UNP A0A1I9RYV3
B	650	GLY	-	expression tag	UNP A0A1I9RYV3
B	651	VAL	-	expression tag	UNP A0A1I9RYV3
B	652	LYS	-	expression tag	UNP A0A1I9RYV3
B	653	LEU	-	expression tag	UNP A0A1I9RYV3
B	654	PHE	-	expression tag	UNP A0A1I9RYV3
B	655	GLY	-	expression tag	UNP A0A1I9RYV3
B	656	GLY	-	expression tag	UNP A0A1I9RYV3
B	657	GLY	-	expression tag	UNP A0A1I9RYV3
B	658	SER	-	expression tag	UNP A0A1I9RYV3
B	659	GLY	-	expression tag	UNP A0A1I9RYV3
B	660	GLY	-	expression tag	UNP A0A1I9RYV3
B	661	GLY	-	expression tag	UNP A0A1I9RYV3
B	662	SER	-	expression tag	UNP A0A1I9RYV3
B	663	GLY	-	expression tag	UNP A0A1I9RYV3
B	664	GLY	-	expression tag	UNP A0A1I9RYV3
B	665	GLY	-	expression tag	UNP A0A1I9RYV3
B	666	SER	-	expression tag	UNP A0A1I9RYV3
B	667	TRP	-	expression tag	UNP A0A1I9RYV3
B	668	SER	-	expression tag	UNP A0A1I9RYV3
B	669	HIS	-	expression tag	UNP A0A1I9RYV3
B	670	PRO	-	expression tag	UNP A0A1I9RYV3
B	671	GLN	-	expression tag	UNP A0A1I9RYV3
B	672	PHE	-	expression tag	UNP A0A1I9RYV3
B	673	GLU	-	expression tag	UNP A0A1I9RYV3
B	674	LYS	-	expression tag	UNP A0A1I9RYV3

- Molecule 2 is dicarbonyl[bis(cyanide-kappaC)]-mu-(iminodimethanethiolatato-1kappaS:2kappaS)-mu-(oxomethylidene)diiron(2+) (three-letter code: 402) (formula: C<sub>7</sub>H<sub>5</sub>Fe<sub>2</sub>N<sub>3</sub>O<sub>3</sub>S<sub>2</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	
			Total	C	Fe	N	O			S
2	A	1	17	7	2	3	3	2	0	0
2	B	1	17	7	2	3	3	2	0	0

- Molecule 3 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula:  $\text{Fe}_4\text{S}_4$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Fe S		
3	A	1	8	4 4	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	Fe	S	0	0
			8	4	4		
3	A	1	Total	Fe	S	0	0
			8	4	4		
3	B	1	Total	Fe	S	0	0
			8	4	4		
3	B	1	Total	Fe	S	0	0
			8	4	4		
3	B	1	Total	Fe	S	0	0
			8	4	4		

- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Zn	0	0
			1	1		
4	B	1	Total	Zn	0	0
			1	1		

- Molecule 5 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

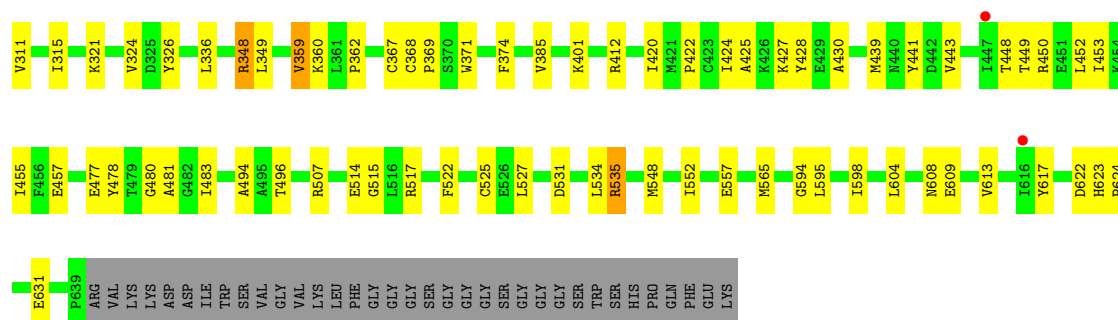
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	6	Total	Cl	0	0
			6	6		
5	B	4	Total	Cl	0	0
			4	4		

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	15	Total	O	0	0
			15	15		
6	B	17	Total	O	0	0
			17	17		







## 4 Data and refinement statistics

Property	Value	Source
Space group	P 42 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	169.00Å 169.00Å 127.00Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.26 – 2.90 49.26 – 2.90	Depositor EDS
% Data completeness (in resolution range)	99.8 (49.26-2.90) 100.0 (49.26-2.90)	Depositor EDS
$R_{merge}$	0.22	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.35 (at 2.91Å)	Xtrriage
Refinement program	PHENIX (1.20.1_4487: ???)	Depositor
R, $R_{free}$	0.242 , 0.298 0.244 , 0.297	Depositor DCC
$R_{free}$ test set	2070 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	87.5	Xtrriage
Anisotropy	0.091	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.39 , 55.6	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	19475	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	94.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 62.04 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 1.1968e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 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: ZN, 402, SF4, CL

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	0.29	0/4931	0.55	4/6635 (0.1%)
1	B	0.32	1/4910 (0.0%)	0.53	0/6604
All	All	0.30	1/9841 (0.0%)	0.54	4/13239 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	40	VAL	CB-CG1	5.34	1.64	1.52

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	221	LYS	CB-CG-CD	-8.11	90.53	111.60
1	A	65	ILE	CB-CG1-CD1	6.13	131.06	113.90
1	A	221	LYS	CA-CB-CG	6.12	126.87	113.40
1	A	65	ILE	CG1-CB-CG2	6.04	124.70	111.40

There are no chirality outliers.

There are no planarity outliers.

### 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	4852	4843	4845	131	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	4832	4822	4820	111	0
2	A	17	0	5	6	0
2	B	17	0	5	9	0
3	A	24	0	0	0	0
3	B	24	0	0	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
5	A	6	0	0	1	0
5	B	4	0	0	1	0
6	A	15	0	0	1	0
6	B	17	0	0	1	0
All	All	9810	9665	9675	240	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 12.

All (240) 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)
1:B:367:CYS:SG	2:B:701:402:N1	2.48	0.86
1:A:19:VAL:HG21	1:A:273:THR:CG2	2.06	0.85
1:A:116:GLN:NE2	1:A:210:CYS:SG	2.53	0.82
1:A:271:ASP:OD1	1:A:273:THR:OG1	1.96	0.82
1:B:40:VAL:HG21	1:B:61:CYS:HB3	1.61	0.81
1:A:131:ASP:OD1	1:A:133:SER:OG	1.99	0.79
1:A:19:VAL:HG11	1:A:455:ILE:HG12	1.66	0.78
1:A:19:VAL:HG13	1:A:277:LEU:HD21	1.66	0.77
1:B:142:GLU:N	1:B:142:GLU:OE1	2.19	0.74
1:B:19:VAL:HG11	1:B:455:ILE:HA	1.68	0.74
1:B:369:PRO:HG2	1:B:425:ALA:HB1	1.70	0.74
1:A:64:LEU:HD12	1:A:68:SER:O	1.88	0.73
1:B:77:LEU:HD13	1:B:106:ILE:HD11	1.70	0.73
1:B:114:ILE:HG23	1:B:115:ILE:HD13	1.70	0.73
1:A:19:VAL:HG21	1:A:273:THR:HG22	1.69	0.73
1:B:507:ARG:NH1	6:B:801:HOH:O	2.23	0.72
1:B:177:LYS:HD2	1:B:177:LYS:N	2.05	0.72
1:B:223:ILE:HD11	1:B:225:CYS:SG	2.31	0.71
1:A:19:VAL:HG21	1:A:273:THR:HG21	1.71	0.71
1:B:271:ASP:OD1	1:B:273:THR:OG1	2.07	0.71
1:A:173:THR:HG22	1:A:177:LYS:HE3	1.74	0.70
1:B:40:VAL:CG2	1:B:61:CYS:HB3	2.23	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:274:MET:HE3	1:B:274:MET:HA	1.74	0.68
1:B:349:LEU:HD21	1:B:534:LEU:HD21	1.75	0.68
1:B:422:PRO:HD2	2:B:701:402:O3	1.94	0.68
1:B:168:ARG:O	1:B:172:VAL:HG23	1.94	0.68
1:A:16:VAL:HG13	1:A:19:VAL:N	2.08	0.68
1:A:240:GLU:HG3	1:A:241:LEU:HD23	1.76	0.67
1:A:250:ASN:O	1:A:373:LYS:NZ	2.25	0.66
1:A:16:VAL:HG13	1:A:19:VAL:H	1.60	0.66
1:A:356:ASP:OD2	1:A:358:SER:OG	2.06	0.64
1:A:636:VAL:HG23	1:A:636:VAL:O	1.98	0.64
1:A:367:CYS:SG	2:A:701:402:N1	2.71	0.63
1:B:19:VAL:HG21	1:B:455:ILE:HG12	1.80	0.61
1:B:430:ALA:HB1	1:B:443:VAL:HB	1.82	0.61
1:A:159:SER:HB2	1:A:163:GLU:HG3	1.81	0.61
1:B:19:VAL:HG21	1:B:455:ILE:CG1	2.31	0.61
1:B:565:MET:HE1	2:B:701:402:N1	2.15	0.61
1:A:273:THR:HG23	1:A:455:ILE:HD11	1.83	0.60
1:A:251:ARG:HG3	1:A:377:GLN:HG2	1.83	0.60
1:B:57:ILE:HD11	1:B:92:PHE:CG	2.36	0.60
1:A:77:LEU:HD23	1:A:124:TYR:CE1	2.36	0.60
1:A:507:ARG:NH1	6:A:802:HOH:O	2.32	0.60
1:A:368:CYS:N	2:A:701:402:H8	2.16	0.60
1:B:77:LEU:HD13	1:B:106:ILE:CD1	2.31	0.59
1:B:594:GLY:O	1:B:598:ILE:HG13	2.02	0.59
1:B:617:TYR:O	1:B:622:ASP:N	2.32	0.59
1:A:496:THR:HG21	1:A:527:LEU:HD13	1.84	0.59
1:B:32:ARG:HD2	1:B:48:VAL:HG13	1.83	0.58
1:B:98:TYR:O	1:B:101:ILE:N	2.37	0.58
1:B:565:MET:HE2	2:B:701:402:H12	1.84	0.58
1:A:565:MET:HG2	1:A:570:GLY:HA2	1.86	0.58
1:A:77:LEU:HB3	1:A:78:PRO:HD3	1.86	0.57
1:B:565:MET:CE	2:B:701:402:H12	2.34	0.57
1:A:220:LYS:HD3	1:A:220:LYS:N	2.19	0.57
1:B:368:CYS:N	2:B:701:402:H8	2.20	0.57
1:A:75:ILE:HD11	1:A:83:LEU:CD1	2.35	0.56
1:B:13:LEU:O	1:B:22:GLU:HG2	2.04	0.56
1:A:17:PHE:HB3	1:A:65:ILE:HG13	1.87	0.56
1:B:481:ALA:HB1	1:B:494:ALA:HB1	1.87	0.56
1:A:168:ARG:NH2	1:B:631:GLU:OE2	2.39	0.56
1:A:422:PRO:HD2	2:A:701:402:O3	2.05	0.56
1:B:348:ARG:HG2	1:B:359:VAL:HG22	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:16:VAL:HG12	1:A:20:PHE:N	2.21	0.56
1:A:514:GLU:HA	1:A:517:ARG:HD2	1.88	0.55
1:B:40:VAL:HG21	1:B:61:CYS:CB	2.33	0.55
1:A:346:GLN:NE2	1:A:350:GLU:OE2	2.34	0.55
1:B:264:VAL:HG12	1:B:265:ASP:H	1.72	0.55
1:A:545:ALA:HB1	1:A:564:ILE:HD13	1.89	0.54
1:A:310:ASN:HB2	1:A:598:ILE:HD11	1.90	0.54
1:B:477:GLU:OE2	5:B:707:CL:CL	2.63	0.54
1:A:225:CYS:SG	1:A:226:GLY:N	2.81	0.53
1:A:40:VAL:HG21	1:A:61:CYS:HB2	1.90	0.53
1:B:348:ARG:HG2	1:B:359:VAL:CG2	2.38	0.53
1:A:617:TYR:O	1:A:622:ASP:N	2.34	0.53
1:B:158:VAL:HG21	1:B:439:MET:SD	2.49	0.53
1:A:222:CYS:O	1:A:244:LYS:HE2	2.08	0.53
1:A:240:GLU:O	1:A:243:LYS:HB3	2.09	0.53
1:B:453:ILE:O	1:B:457:GLU:HG3	2.07	0.53
1:A:259:VAL:HG22	1:A:267:ILE:HG21	1.91	0.52
1:B:622:ASP:O	1:B:623:HIS:HB3	2.08	0.52
1:A:223:ILE:HD11	1:A:225:CYS:CB	2.40	0.52
1:A:137:TYR:O	1:A:140:VAL:HG22	2.09	0.52
1:A:362:PRO:O	1:A:385:VAL:HG13	2.09	0.52
1:A:548:MET:O	1:A:552:ILE:HG13	2.10	0.52
1:B:223:ILE:HD12	1:B:223:ILE:C	2.29	0.52
1:B:565:MET:CE	2:B:701:402:C1	2.88	0.52
1:A:101:ILE:HG23	1:A:103:ARG:H	1.75	0.52
1:B:215:LYS:HB3	1:B:249:TYR:CE2	2.44	0.52
1:A:65:ILE:HG22	1:A:66:ASN:N	2.23	0.52
1:A:496:THR:HG22	1:A:500:LEU:HD22	1.92	0.51
1:B:97:PHE:HB3	1:B:101:ILE:HD12	1.92	0.51
1:A:604:LEU:HD22	1:A:609:GLU:HB3	1.91	0.51
1:A:77:LEU:HD23	1:A:124:TYR:HE1	1.74	0.51
1:A:211:ASN:HB3	1:A:272:ASN:OD1	2.11	0.51
1:A:369:PRO:O	1:A:372:ILE:HD12	2.10	0.51
1:A:77:LEU:HD13	1:A:106:ILE:HD11	1.93	0.51
1:A:183:ASN:OD1	1:A:185:MET:N	2.43	0.51
1:B:223:ILE:HD12	1:B:224:GLY:N	2.26	0.50
1:B:306:GLU:HG3	1:B:307:PRO:HD2	1.93	0.50
1:B:448:THR:HG22	1:B:449:THR:N	2.27	0.50
1:B:34:ILE:HB	1:B:46:ILE:CD1	2.41	0.50
1:A:14:GLY:O	1:A:15:SER:OG	2.28	0.50
1:A:75:ILE:O	1:A:80:GLY:HA3	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:128:LYS:HB3	1:B:134:TYR:CE2	2.48	0.49
1:A:222:CYS:O	1:A:244:LYS:CE	2.61	0.49
1:B:565:MET:HE2	2:B:701:402:C1	2.43	0.49
1:A:234:VAL:O	1:A:251:ARG:NH1	2.46	0.49
1:B:122:ILE:HG21	1:B:148:PHE:HB2	1.95	0.49
1:B:38:GLY:HA3	1:B:107:VAL:H	1.78	0.49
1:B:221:LYS:NZ	1:B:264:VAL:HG12	2.27	0.49
1:A:66:ASN:O	1:A:67:LYS:HD2	2.13	0.49
1:A:511:ILE:HD13	1:A:606:ARG:CZ	2.43	0.49
1:B:336:LEU:HD13	1:B:613:VAL:HG13	1.95	0.49
1:A:594:GLY:O	1:A:598:ILE:HG13	2.14	0.48
1:A:216:LEU:HB3	1:A:249:TYR:HE2	1.77	0.48
1:A:236:CYS:SG	1:A:251:ARG:HB3	2.54	0.48
1:B:424:ILE:HA	1:B:427:LYS:HD2	1.95	0.48
1:A:192:PHE:O	1:A:196:ILE:HG13	2.14	0.48
1:A:622:ASP:O	1:A:623:HIS:HB3	2.14	0.48
1:B:139:VAL:HG13	1:B:140:VAL:HG13	1.96	0.48
1:B:401:LYS:NZ	1:B:441:TYR:O	2.47	0.47
1:A:211:ASN:O	1:A:214:VAL:HG12	2.13	0.47
1:A:367:CYS:HB2	2:A:701:402:C6	2.44	0.47
1:B:220:LYS:HD3	1:B:220:LYS:N	2.30	0.47
1:B:448:THR:HG22	1:B:450:ARG:H	1.79	0.47
1:B:548:MET:O	1:B:552:ILE:HD12	2.14	0.47
1:A:539:ALA:HB2	1:A:548:MET:HE2	1.97	0.47
1:A:223:ILE:HD12	1:A:223:ILE:O	2.15	0.47
1:A:311:VAL:O	1:A:315:ILE:HG13	2.14	0.47
1:A:631:GLU:OE2	1:B:168:ARG:NH2	2.48	0.47
1:A:221:LYS:NZ	1:A:265:ASP:HB3	2.29	0.47
1:B:16:VAL:HG12	1:B:20:PHE:HB2	1.97	0.47
1:B:617:TYR:O	1:B:622:ASP:HA	2.15	0.47
1:A:477:GLU:OE2	5:A:706:CL:CL	2.70	0.46
1:A:636:VAL:O	1:A:636:VAL:CG2	2.63	0.46
1:B:420:ILE:HD13	1:B:452:LEU:HD22	1.97	0.46
1:A:240:GLU:O	1:A:241:LEU:O	2.34	0.46
1:B:216:LEU:HD13	1:B:269:ALA:HB2	1.96	0.46
1:B:496:THR:HG21	1:B:527:LEU:HD13	1.96	0.46
1:A:32:ARG:HE	1:A:48:VAL:HG13	1.81	0.46
1:B:137:TYR:O	1:B:140:VAL:HG22	2.16	0.46
1:A:41:ASN:O	1:A:61:CYS:O	2.33	0.46
1:B:35:ALA:HB2	1:B:45:ILE:HD12	1.98	0.46
1:A:131:ASP:OD1	1:A:131:ASP:C	2.53	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:273:THR:HG23	1:B:455:ILE:HD11	1.98	0.46
1:A:180:GLN:OE1	1:A:181:LYS:N	2.49	0.46
1:B:86:ASP:OD1	1:B:86:ASP:N	2.48	0.46
1:B:170:LEU:O	1:B:174:VAL:HG23	2.16	0.46
1:A:82:PHE:HB2	1:A:184:ILE:HD12	1.97	0.46
1:B:478:TYR:CE1	1:B:483:ILE:HD13	2.51	0.46
1:A:223:ILE:HD11	1:A:225:CYS:HB3	1.98	0.46
1:A:446:VAL:O	1:A:447:ILE:HD12	2.16	0.46
1:A:265:ASP:OD1	1:A:265:ASP:O	2.34	0.45
1:A:401:LYS:NZ	1:A:441:TYR:O	2.48	0.45
1:A:19:VAL:O	1:A:458:ASN:HB2	2.16	0.45
1:B:274:MET:HA	1:B:274:MET:CE	2.45	0.45
1:A:385:VAL:HB	1:A:386:PRO:CD	2.47	0.45
1:A:571:CYS:CB	2:A:701:402:C4	2.94	0.45
1:B:348:ARG:HD3	1:B:360:LYS:O	2.17	0.45
1:B:481:ALA:HB1	1:B:494:ALA:CB	2.47	0.45
1:A:220:LYS:HD3	1:A:220:LYS:H	1.82	0.45
1:B:18:SER:O	1:B:19:VAL:HB	2.16	0.45
1:B:19:VAL:HG22	1:B:277:LEU:HD11	1.99	0.45
1:A:19:VAL:O	1:A:458:ASN:CB	2.65	0.45
1:A:84:THR:OG1	1:A:85:GLU:N	2.49	0.45
1:B:448:THR:CG2	1:B:449:THR:N	2.80	0.45
1:A:367:CYS:HB3	1:A:392:PRO:HD2	1.99	0.45
1:B:13:LEU:C	1:B:13:LEU:HD23	2.38	0.45
1:A:220:LYS:H	1:A:220:LYS:CD	2.30	0.45
1:A:508:PHE:N	1:A:508:PHE:CD2	2.83	0.45
1:A:220:LYS:N	1:A:220:LYS:CD	2.80	0.45
1:A:150:ILE:HG23	1:A:163:GLU:HB3	1.98	0.44
1:A:496:THR:CG2	1:A:500:LEU:HD22	2.47	0.44
1:A:240:GLU:CG	1:A:241:LEU:HD23	2.45	0.44
1:A:508:PHE:N	1:A:508:PHE:HD2	2.16	0.44
1:B:14:GLY:O	1:B:15:SER:OG	2.33	0.44
1:A:67:LYS:HD2	1:A:67:LYS:HA	1.78	0.44
1:B:362:PRO:O	1:B:385:VAL:HG13	2.17	0.44
1:A:339:MET:SD	1:A:608:ASN:HA	2.58	0.44
1:A:373:LYS:NZ	1:A:377:GLN:OE1	2.51	0.44
1:A:480:GLY:O	1:A:484:ILE:HG12	2.18	0.44
1:B:623:HIS:ND1	1:B:624:PRO:O	2.51	0.43
1:A:34:ILE:HG22	1:A:35:ALA:N	2.33	0.43
1:B:275:LEU:HD12	1:B:275:LEU:O	2.18	0.43
1:B:422:PRO:CD	2:B:701:402:O3	2.64	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:535:ARG:HH21	1:B:557:GLU:HB3	1.83	0.43
1:B:311:VAL:O	1:B:315:ILE:HG13	2.18	0.43
1:A:17:PHE:HD2	1:A:65:ILE:HG21	1.83	0.43
1:B:604:LEU:HD22	1:B:609:GLU:HB3	1.99	0.43
1:B:514:GLU:HA	1:B:517:ARG:HG3	2.00	0.43
1:A:68:SER:CB	1:A:111:GLU:HG3	2.49	0.43
1:A:346:GLN:OE1	1:A:502:LYS:HG3	2.19	0.43
1:B:371:TRP:HA	1:B:374:PHE:HB3	2.01	0.43
1:B:140:VAL:HG23	1:B:144:ILE:HG13	2.01	0.42
1:B:219:THR:OG1	1:B:266:ALA:O	2.24	0.42
1:B:515:GLY:HA3	1:B:525:CYS:SG	2.59	0.42
1:A:226:GLY:HA2	1:A:229:LYS:HD2	2.01	0.42
1:B:75:ILE:CG1	1:B:83:LEU:HD13	2.49	0.42
1:B:480:GLY:HA2	1:B:483:ILE:HG22	1.99	0.42
1:A:40:VAL:HA	1:A:64:LEU:HA	2.00	0.42
1:A:48:VAL:HG11	1:A:94:PHE:HZ	1.83	0.42
1:A:219:THR:OG1	1:A:266:ALA:O	2.31	0.42
1:B:37:CYS:O	1:B:37:CYS:SG	2.76	0.42
1:A:492:ILE:HG12	1:A:536:ILE:HG21	2.02	0.42
1:B:483:ILE:HG13	1:B:595:LEU:HD22	2.02	0.42
1:A:83:LEU:HD23	1:A:87:SER:CB	2.50	0.42
1:A:427:LYS:HG2	1:A:446:VAL:HB	2.01	0.42
1:B:125:LEU:HD23	1:B:125:LEU:O	2.19	0.42
1:B:617:TYR:O	1:B:622:ASP:CA	2.68	0.42
1:A:122:ILE:HG23	1:A:144:ILE:CG2	2.50	0.42
1:A:571:CYS:SG	2:A:701:402:H12	2.59	0.42
1:B:289:THR:HG23	1:B:324:VAL:HG11	2.02	0.41
1:A:79:PHE:HE1	1:A:134:TYR:CZ	2.38	0.41
1:B:83:LEU:N	1:B:83:LEU:HD12	2.35	0.41
1:A:352:HIS:CG	1:A:361:LEU:HD11	2.54	0.41
1:B:32:ARG:CD	1:B:48:VAL:HG13	2.49	0.41
1:A:32:ARG:NE	1:A:48:VAL:HG13	2.35	0.41
1:A:38:GLY:HA3	1:A:107:VAL:H	1.85	0.41
1:A:31:GLY:C	1:A:103:ARG:HH22	2.24	0.41
1:A:229:LYS:HG2	1:A:230:ARG:N	2.35	0.41
1:A:157:GLY:O	1:A:203:LYS:HE3	2.21	0.41
1:B:13:LEU:O	1:B:22:GLU:O	2.38	0.41
1:B:36:ILE:HG12	1:B:46:ILE:HD11	2.02	0.41
1:A:77:LEU:CD2	1:A:124:TYR:CE1	3.03	0.41
1:A:259:VAL:HG22	1:A:267:ILE:CG2	2.51	0.41
1:A:545:ALA:O	1:A:549:LEU:HG	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:33:LYS:HE2	1:B:103:ARG:NH1	2.36	0.41
1:B:57:ILE:HD11	1:B:92:PHE:CD2	2.56	0.41
1:B:76:GLY:HA2	1:B:102:ALA:HB3	2.01	0.41
1:A:48:VAL:HG11	1:A:94:PHE:CZ	2.55	0.41
1:A:75:ILE:HB	1:A:81:GLY:H	1.86	0.41
1:B:101:ILE:HG23	1:B:103:ARG:H	1.86	0.41
1:A:521:GLY:O	1:A:539:ALA:HA	2.21	0.40
1:A:77:LEU:HD12	1:A:77:LEU:HA	1.94	0.40
1:B:75:ILE:O	1:B:80:GLY:HA3	2.21	0.40
1:B:288:ILE:HG22	1:B:326:TYR:HB2	2.03	0.40
1:A:220:LYS:H	1:A:220:LYS:HE2	1.87	0.40
1:B:74:GLN:HB2	1:B:117:PHE:HZ	1.86	0.40
1:B:135:LYS:O	1:B:138:GLU:HB2	2.20	0.40

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 X-ray entries followed by that with respect to entries of similar resolution.

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	617/674 (92%)	583 (94%)	32 (5%)	2 (0%)	37 66
1	B	612/674 (91%)	580 (95%)	31 (5%)	1 (0%)	44 73
All	All	1229/1348 (91%)	1163 (95%)	63 (5%)	3 (0%)	44 73

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	241	LEU
1	B	19	VAL
1	A	19	VAL

### 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 X-ray entries followed by that with respect to entries of similar resolution.

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	523/565 (93%)	504 (96%)	19 (4%)	30	65
1	B	521/565 (92%)	500 (96%)	21 (4%)	27	61
All	All	1044/1130 (92%)	1004 (96%)	40 (4%)	28	63

All (40) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	41	ASN
1	A	68	SER
1	A	79	PHE
1	A	124	TYR
1	A	133	SER
1	A	135	LYS
1	A	186	GLU
1	A	220	LYS
1	A	225	CYS
1	A	229	LYS
1	A	264	VAL
1	A	367	CYS
1	A	384	ASP
1	A	413	ASP
1	A	428	TYR
1	A	506	GLU
1	A	514	GLU
1	A	535	ARG
1	A	548	MET
1	B	18	SER
1	B	32	ARG
1	B	37	CYS
1	B	46	ILE
1	B	78	PRO
1	B	113	CYS
1	B	143	ASP
1	B	160	ASN

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Mol	Chain	Res	Type
1	B	177	LYS
1	B	190	ASP
1	B	220	LYS
1	B	260	SER
1	B	321	LYS
1	B	348	ARG
1	B	359	VAL
1	B	412	ARG
1	B	428	TYR
1	B	522	PHE
1	B	531	ASP
1	B	535	ARG
1	B	608	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	378	ASN

### 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 oligosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

Of 20 ligands modelled in this entry, 12 are monoatomic - leaving 8 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
3	SF4	B	702	1	0,12,12	-	-	-		
2	402	B	701	1	13,19,19	2.29	6 (46%)	2,36,36	1.95	1 (50%)
3	SF4	A	702	1	0,12,12	-	-	-		
3	SF4	B	703	1	0,12,12	-	-	-		
3	SF4	A	704	1	0,12,12	-	-	-		
2	402	A	701	1	13,19,19	2.28	6 (46%)	2,36,36	1.96	1 (50%)
3	SF4	B	704	1	0,12,12	-	-	-		
3	SF4	A	703	1	0,12,12	-	-	-		

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
3	SF4	B	702	1	-	-	0/6/5/5
2	402	B	701	1	-	-	0/5/3/3
3	SF4	A	702	1	-	-	0/6/5/5
3	SF4	B	703	1	-	-	0/6/5/5
3	SF4	A	704	1	-	-	0/6/5/5
2	402	A	701	1	-	-	0/5/3/3
3	SF4	B	704	1	-	-	0/6/5/5
3	SF4	A	703	1	-	-	0/6/5/5

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	701	402	S2-FE2	4.72	2.33	2.26
2	A	701	402	S2-FE2	4.70	2.33	2.26
2	B	701	402	S2-FE1	4.69	2.33	2.26
2	A	701	402	S2-FE1	4.68	2.33	2.26
2	B	701	402	C1-S1	2.68	1.89	1.85
2	A	701	402	C1-S1	2.64	1.89	1.85
2	A	701	402	C2-S2	2.32	1.89	1.85
2	B	701	402	C2-S2	2.31	1.89	1.85
2	B	701	402	C6-N6	2.09	1.18	1.15
2	A	701	402	C4-N4	2.05	1.18	1.15
2	A	701	402	C6-N6	2.05	1.18	1.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	701	402	C4-N4	2.04	1.18	1.15

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	701	402	S1-C1-N1	-2.12	111.35	117.18
2	B	701	402	S1-C1-N1	-2.12	111.35	117.18

There are no chirality outliers.

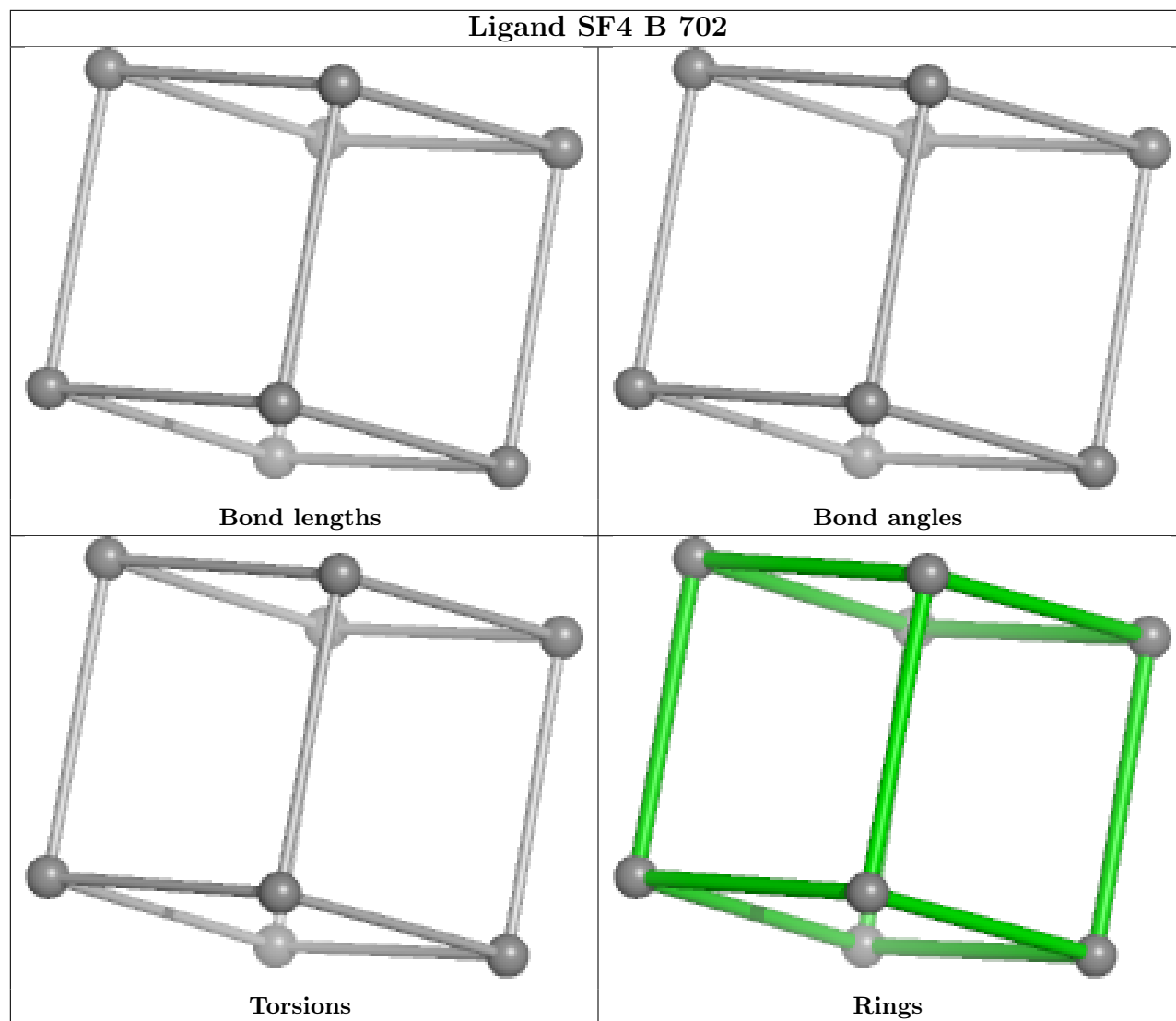
There are no torsion outliers.

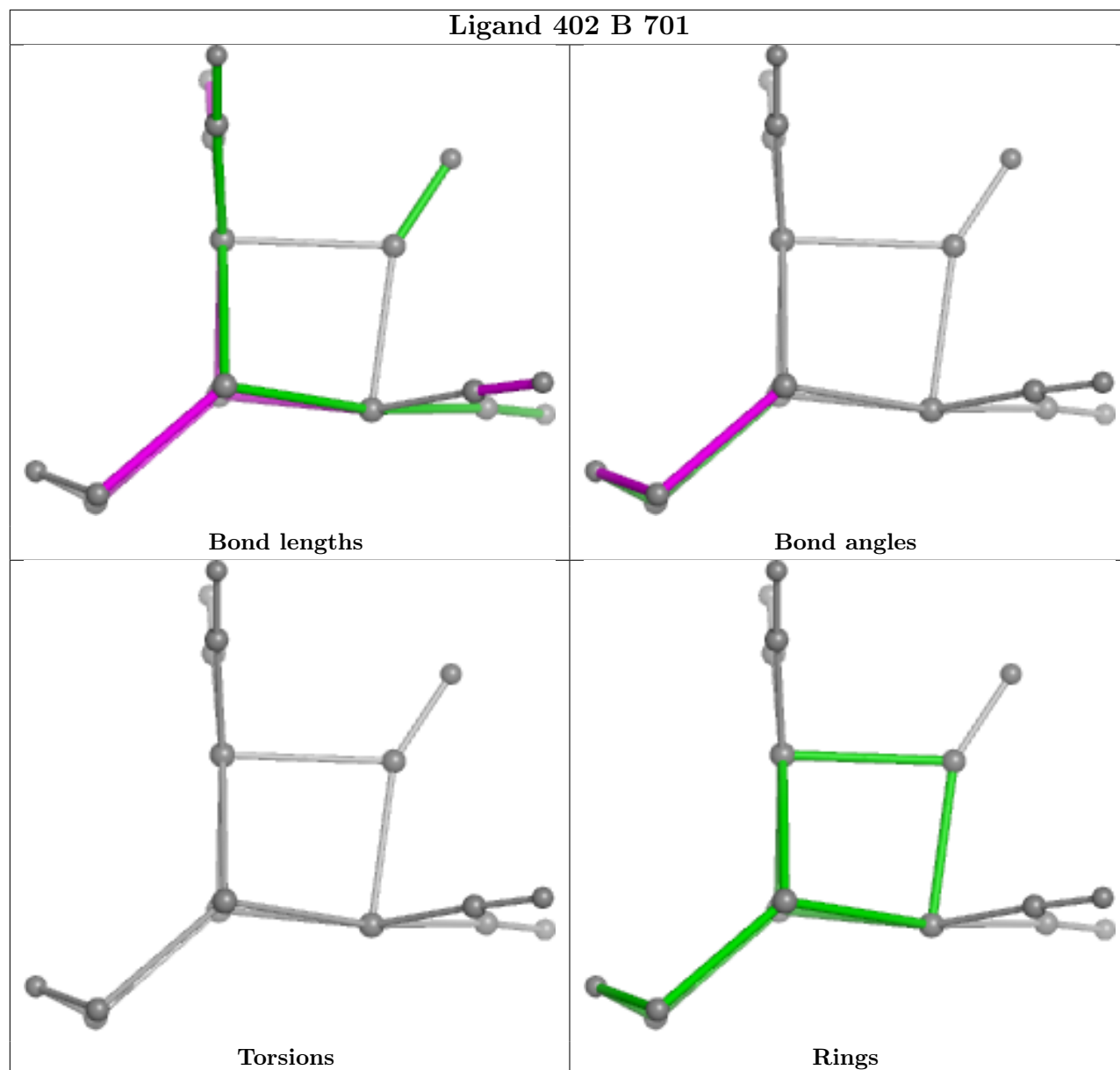
There are no ring outliers.

2 monomers are involved in 15 short contacts:

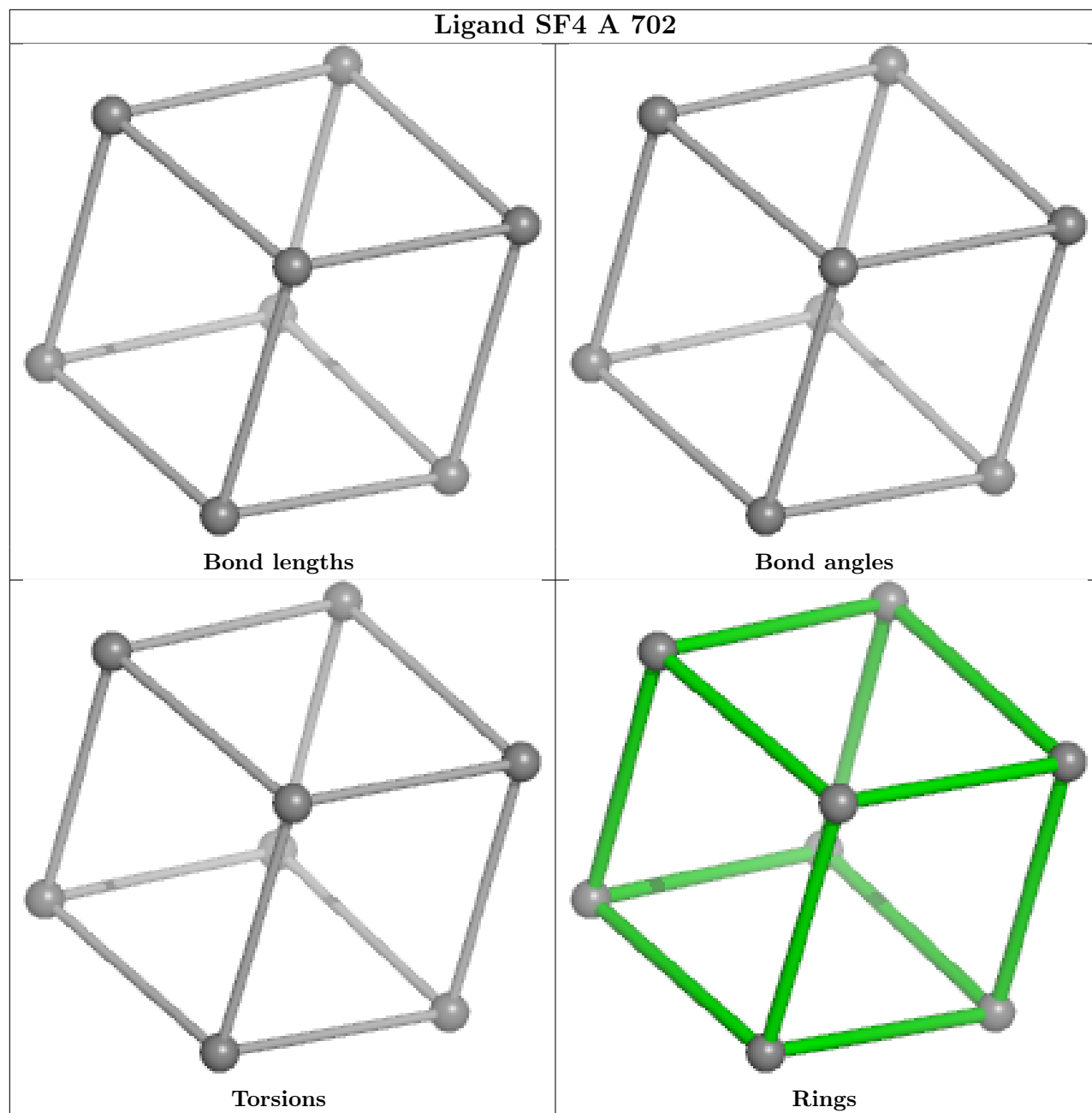
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	701	402	9	0
2	A	701	402	6	0

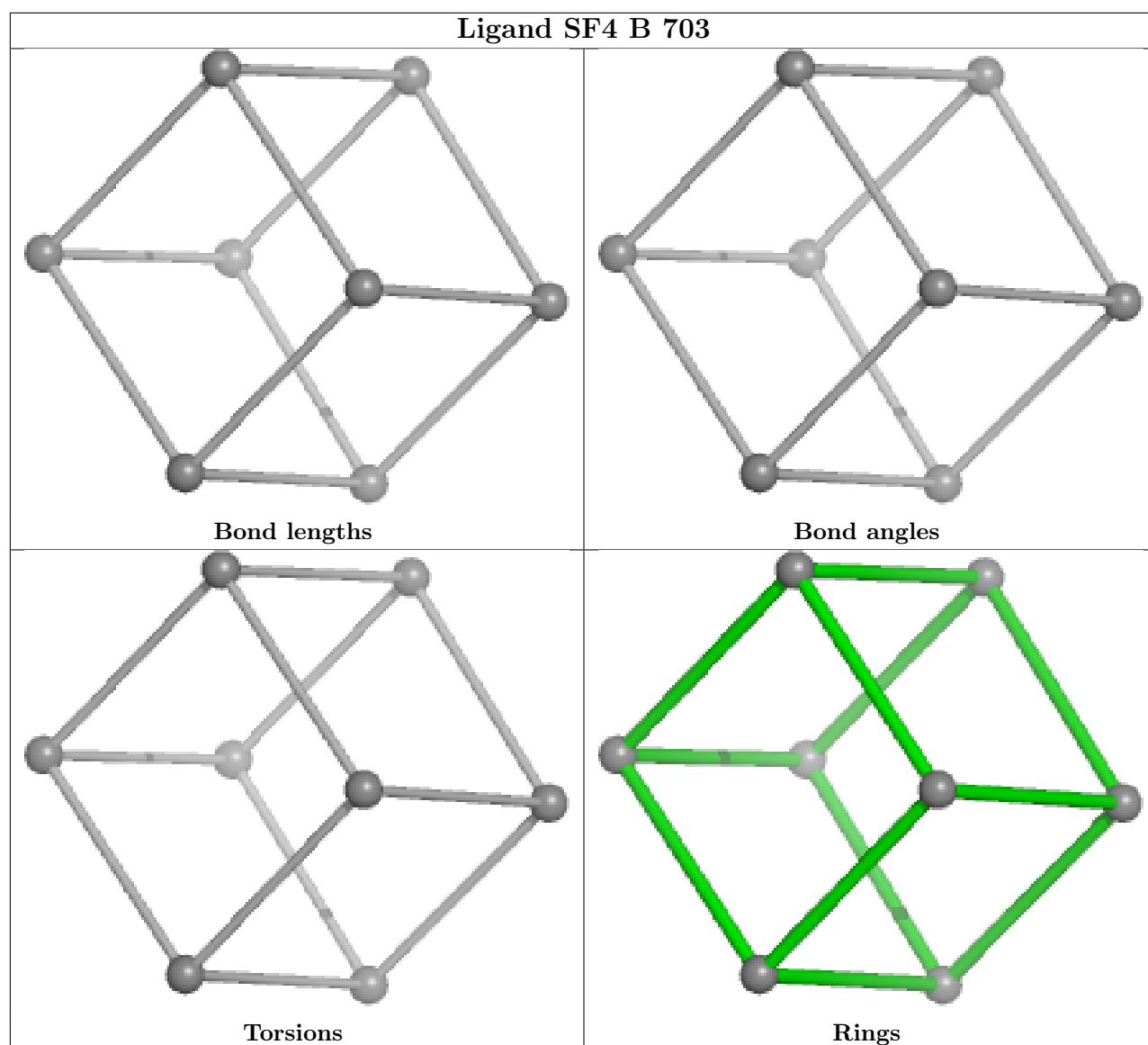
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

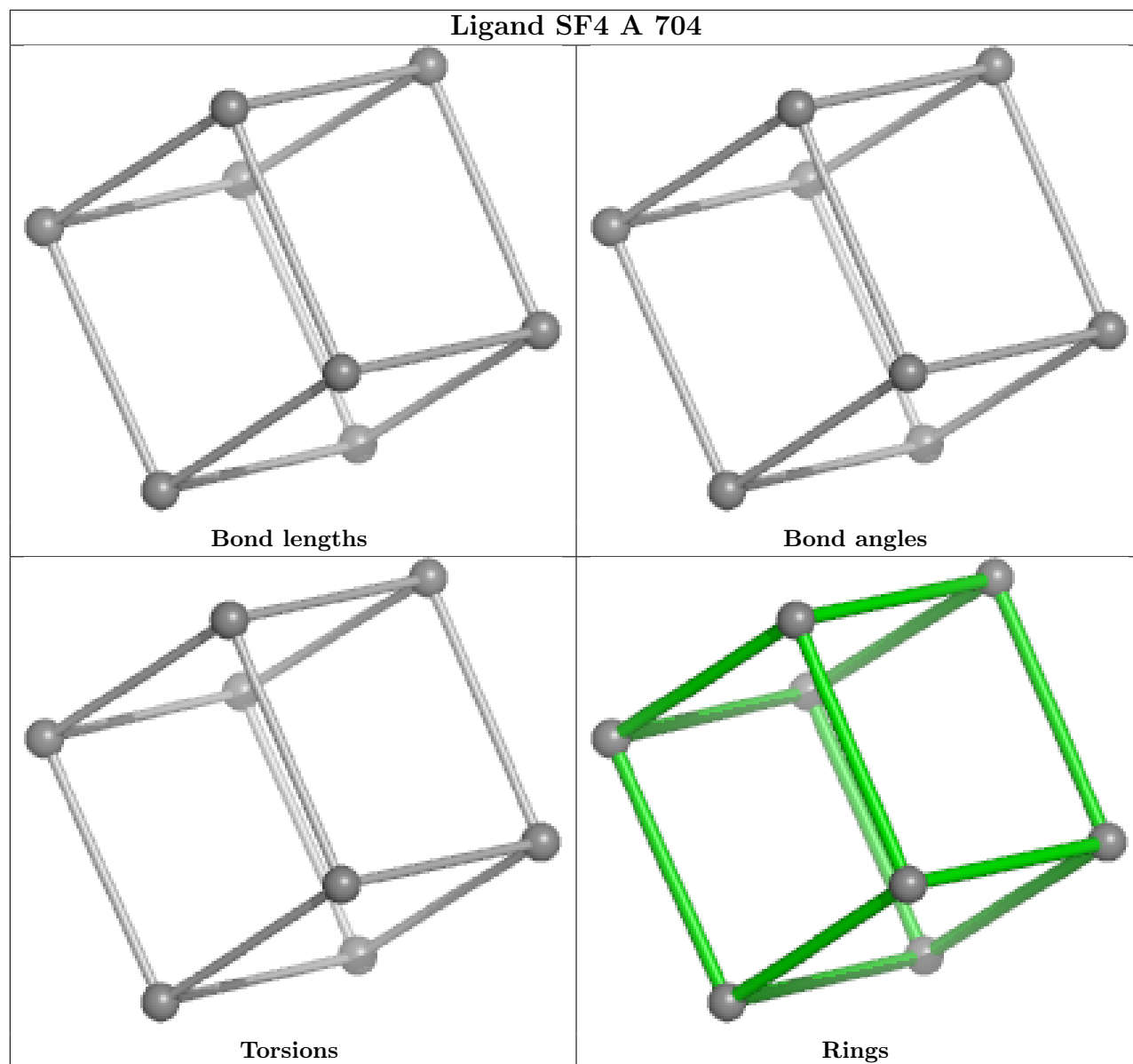


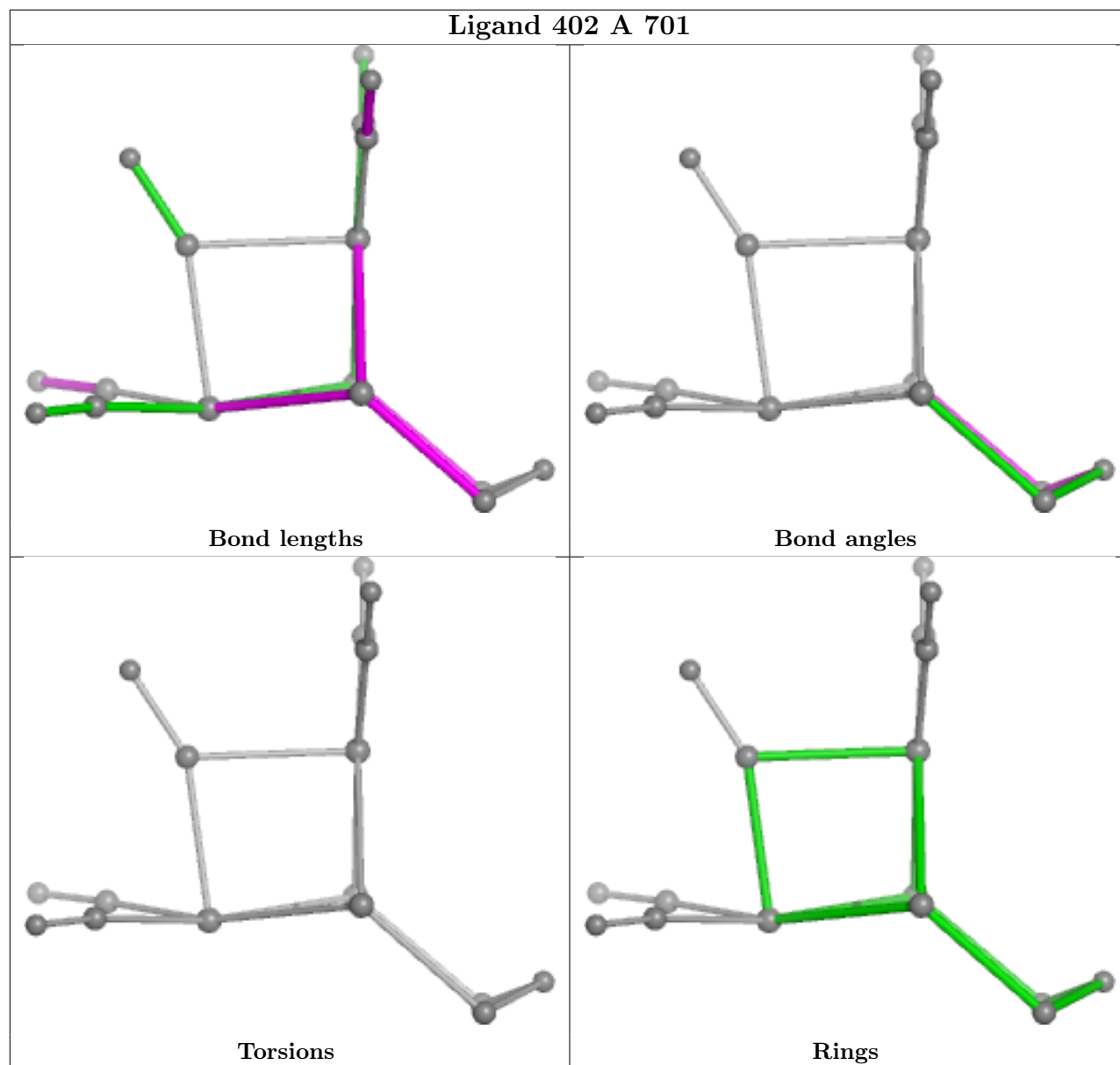


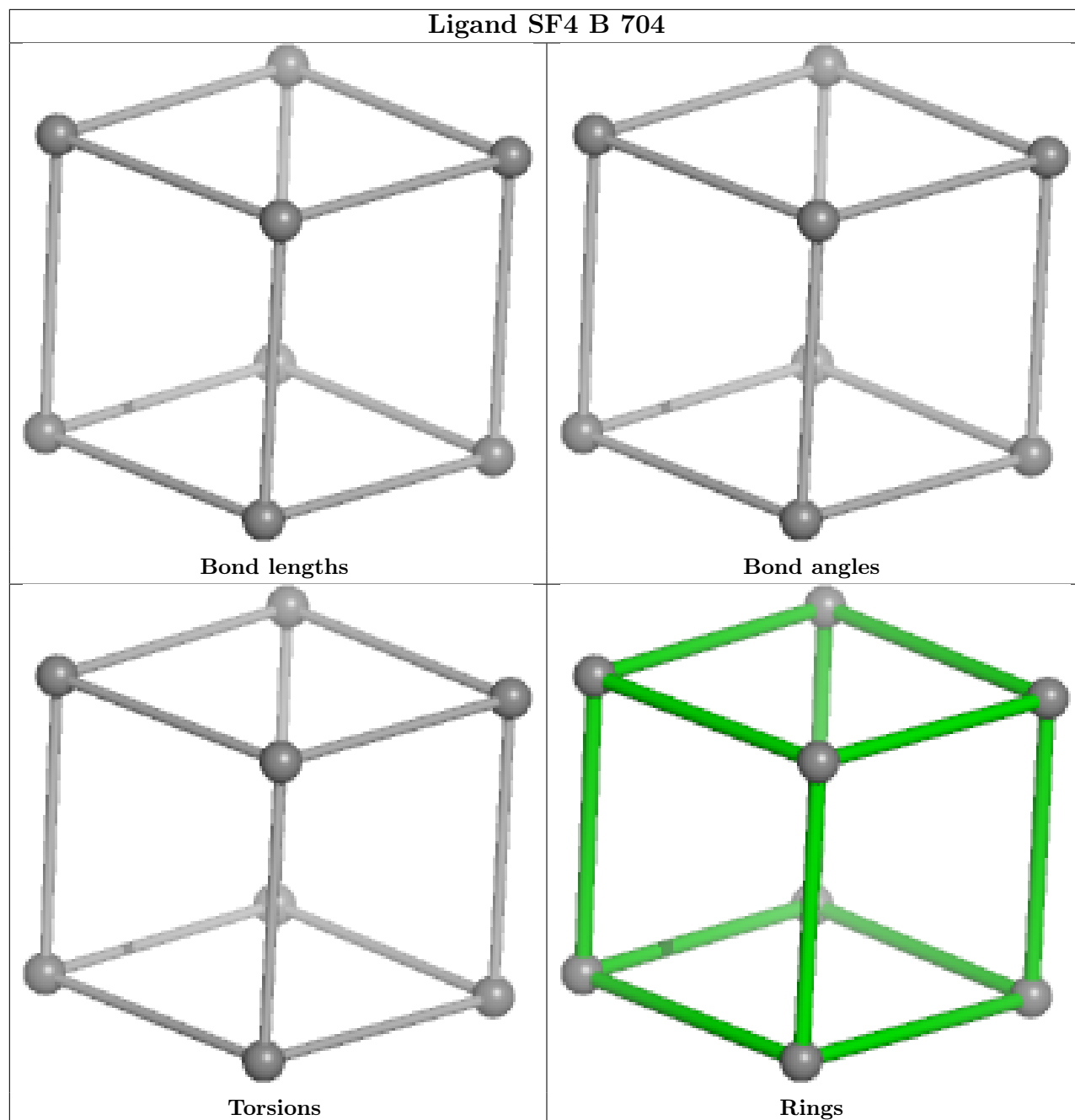


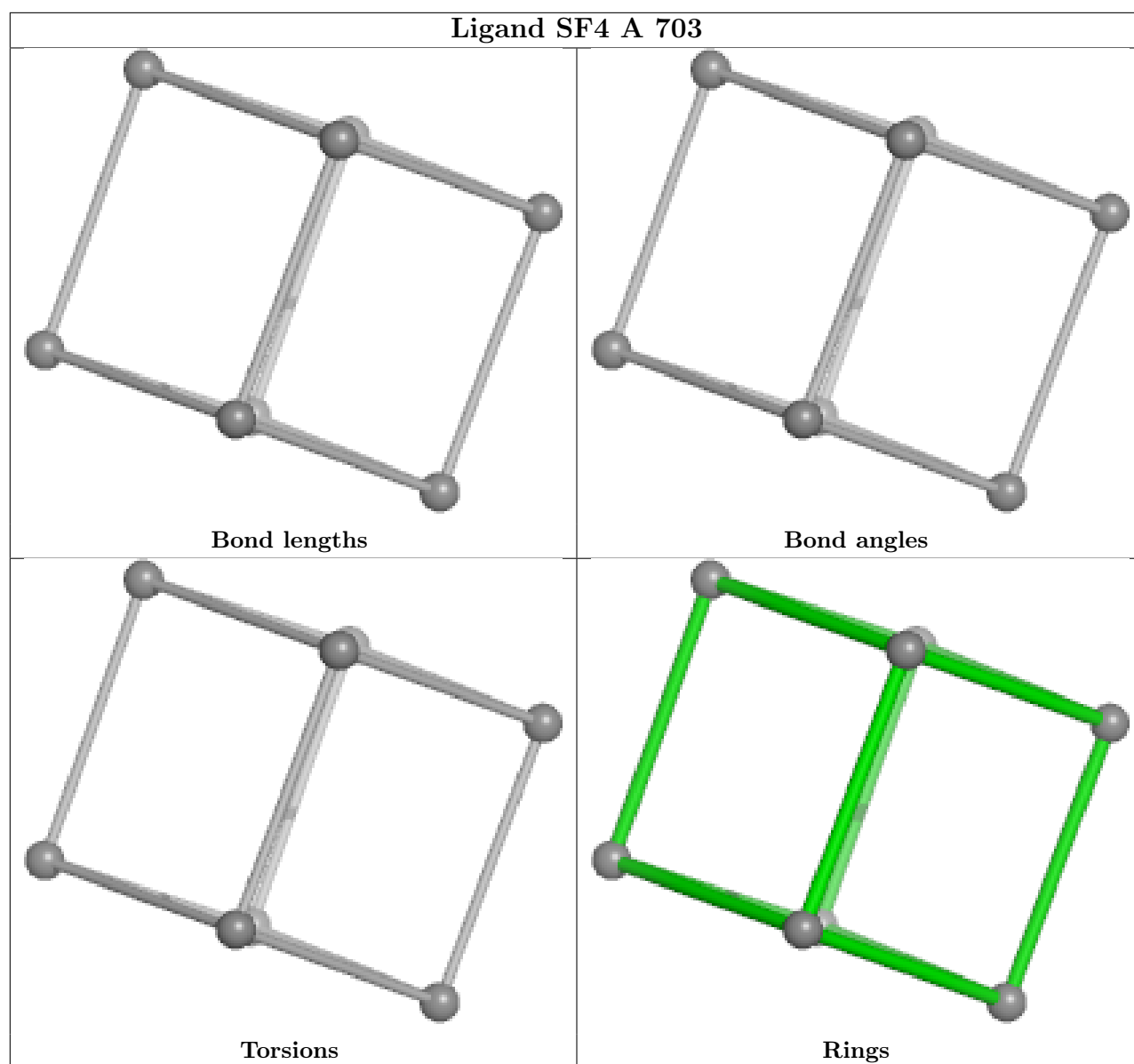












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	621/674 (92%)	0.53	35 (5%) 31 27	59, 87, 135, 192	0
1	B	618/674 (91%)	0.61	49 (7%) 20 17	58, 88, 153, 203	0
All	All	1239/1348 (91%)	0.57	84 (6%) 25 21	58, 87, 144, 203	0

All (84) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	40	VAL	5.5
1	A	19	VAL	5.0
1	A	17	PHE	4.6
1	B	101	ILE	4.4
1	A	20	PHE	4.2
1	B	17	PHE	4.1
1	A	96	ILE	4.0
1	B	21	SER	3.8
1	B	20	PHE	3.8
1	B	45	ILE	3.7
1	B	239	GLY	3.7
1	B	52	ALA	3.7
1	B	241	LEU	3.7
1	A	77	LEU	3.6
1	A	54	LEU	3.5
1	B	57	ILE	3.4
1	B	92	PHE	3.4
1	B	48	VAL	3.3
1	A	264	VAL	3.2
1	B	60	LEU	3.2
1	B	105	ILE	3.2
1	B	225	CYS	3.2
1	B	22	GLU	3.2
1	B	49	PRO	3.2

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	A	639	PRO	3.2
1	B	88	LEU	3.1
1	B	96	ILE	3.1
1	A	15	SER	3.0
1	A	516	LEU	3.0
1	B	87	SER	3.0
1	A	229	LYS	3.0
1	B	94	PHE	3.0
1	A	383	LEU	3.0
1	A	263	PRO	2.9
1	B	37	CYS	2.9
1	B	13	LEU	2.8
1	B	104	THR	2.8
1	B	102	ALA	2.8
1	B	79	PHE	2.8
1	B	31	GLY	2.8
1	B	97	PHE	2.8
1	B	18	SER	2.7
1	B	44	GLY	2.7
1	B	46	ILE	2.7
1	B	447	ILE	2.6
1	B	98	TYR	2.6
1	A	102	ALA	2.6
1	B	266	ALA	2.6
1	B	19	VAL	2.6
1	B	14	GLY	2.6
1	B	227	ALA	2.5
1	B	616	ILE	2.5
1	A	18	SER	2.5
1	B	264	VAL	2.5
1	B	15	SER	2.4
1	B	263	PRO	2.4
1	A	45	ILE	2.4
1	A	566	ALA	2.4
1	B	70	PHE	2.4
1	A	65	ILE	2.3
1	A	466	ILE	2.3
1	A	38	GLY	2.3
1	A	244	LYS	2.3
1	B	47	GLU	2.3
1	A	451	GLU	2.3
1	A	103	ARG	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	36	ILE	2.2
1	A	98	TYR	2.2
1	B	262	CYS	2.2
1	B	132	GLY	2.2
1	A	613	VAL	2.2
1	B	249	TYR	2.1
1	B	55	ASN	2.1
1	A	78	PRO	2.1
1	A	16	VAL	2.1
1	A	80	GLY	2.1
1	A	471	ILE	2.1
1	B	245	HIS	2.1
1	A	12	ALA	2.1
1	A	492	ILE	2.1
1	A	241	LEU	2.0
1	A	49	PRO	2.0
1	B	41	ASN	2.0
1	A	259	VAL	2.0

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

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

## 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
5	CL	A	707	1/1	0.81	0.30	101,101,101,101	0
5	CL	B	706	1/1	0.83	0.13	103,103,103,103	0
5	CL	A	710	1/1	0.85	0.40	94,94,94,94	0
5	CL	A	708	1/1	0.85	0.32	91,91,91,91	0
5	CL	A	706	1/1	0.86	0.21	73,73,73,73	0

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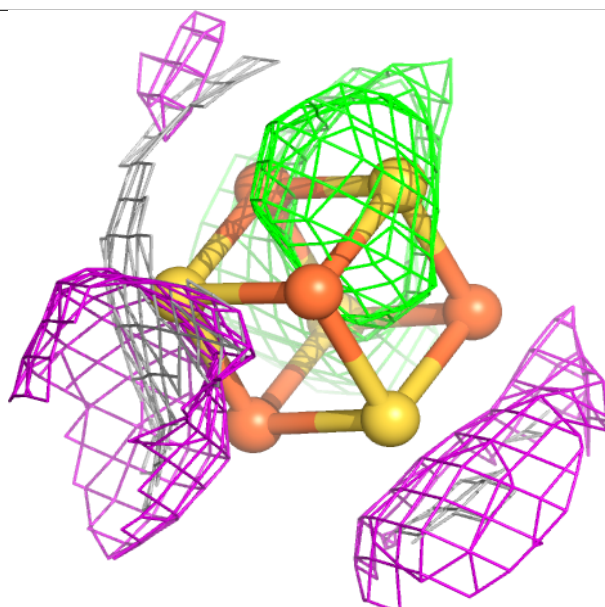
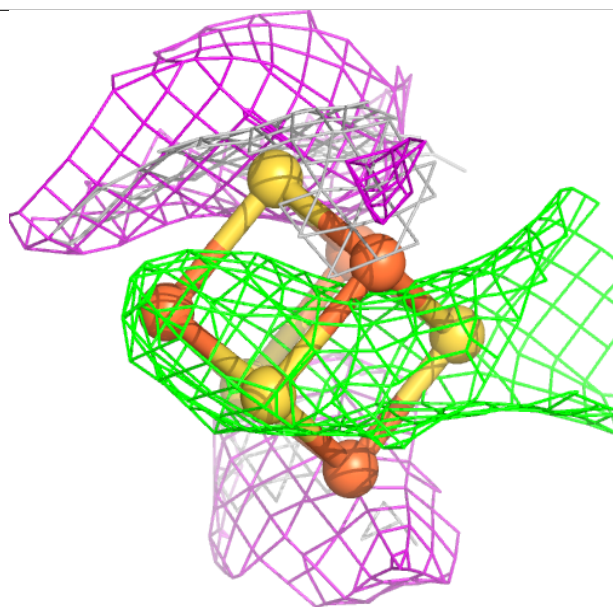
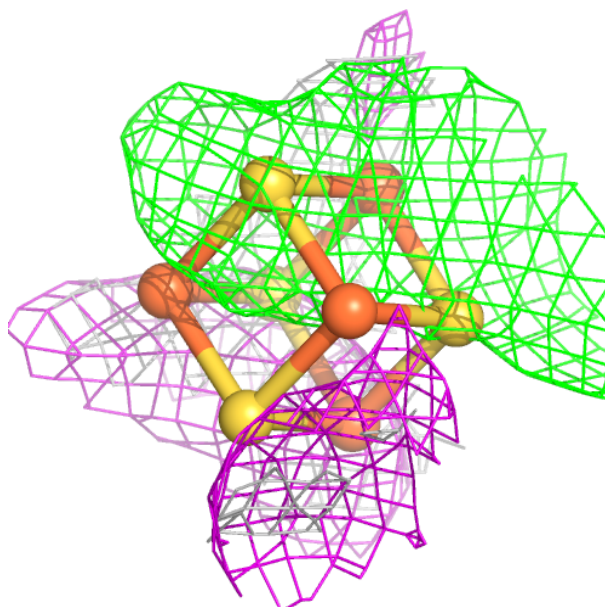
*Continued from previous page...*

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
5	CL	B	707	1/1	0.86	0.22	73,73,73,73	0
3	SF4	B	703	8/8	0.87	0.13	112,133,153,164	0
5	CL	A	711	1/1	0.90	0.40	100,100,100,100	0
5	CL	B	709	1/1	0.94	0.14	84,84,84,84	0
5	CL	A	709	1/1	0.95	0.22	93,93,93,93	0
3	SF4	A	703	8/8	0.96	0.08	94,107,149,157	0
2	402	B	701	17/17	0.97	0.12	52,69,89,104	0
3	SF4	A	704	8/8	0.97	0.06	76,94,103,113	0
2	402	A	701	17/17	0.98	0.11	68,77,94,104	0
3	SF4	B	704	8/8	0.98	0.04	74,81,91,101	0
4	ZN	B	705	1/1	0.98	0.10	95,95,95,95	0
5	CL	B	708	1/1	0.98	0.24	86,86,86,86	0
3	SF4	B	702	8/8	0.98	0.06	68,78,91,92	0
4	ZN	A	705	1/1	0.99	0.08	76,76,76,76	0
3	SF4	A	702	8/8	0.99	0.04	60,71,83,91	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

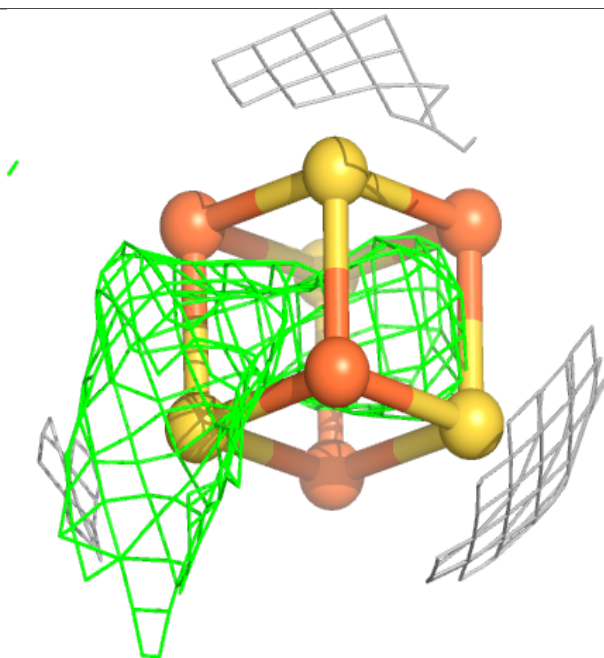
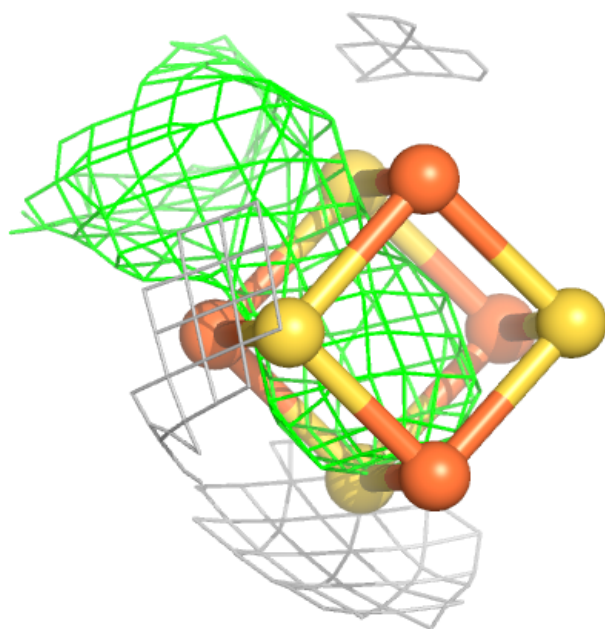
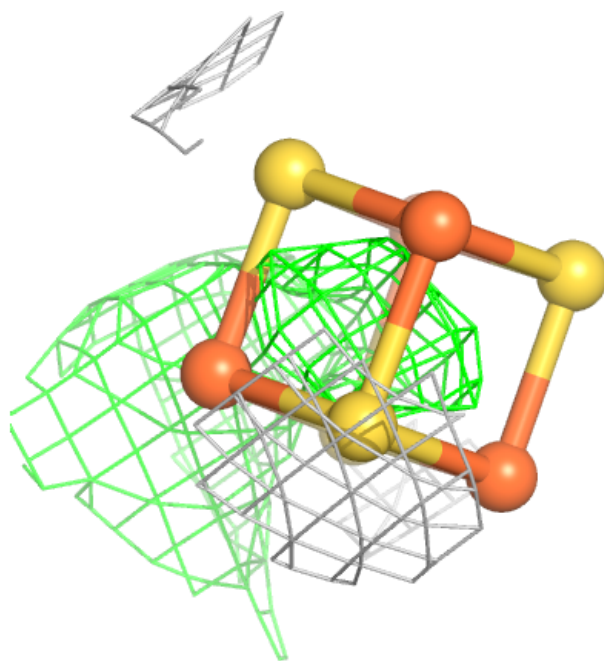
**Electron density around SF4 B 703:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



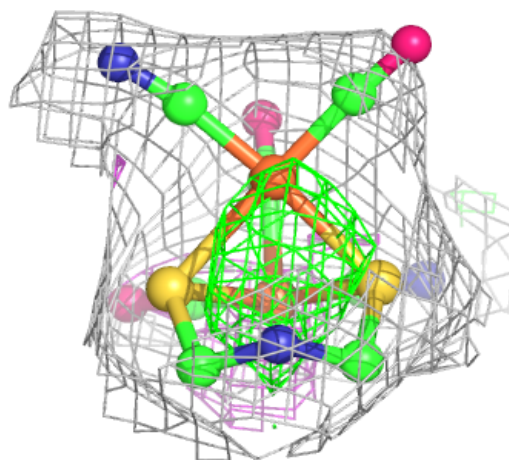
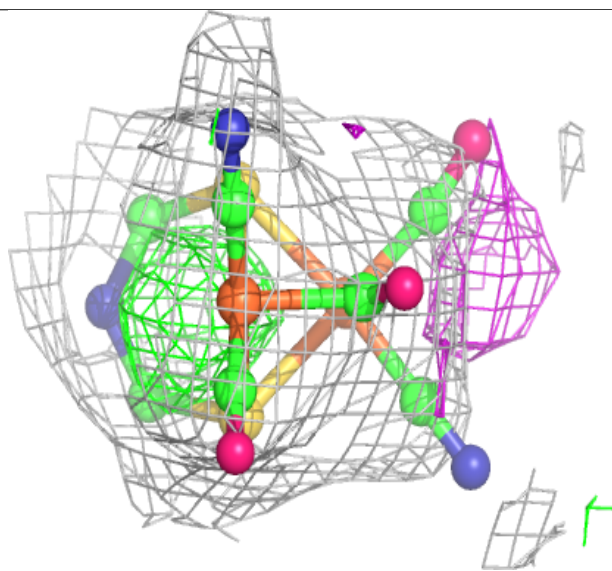
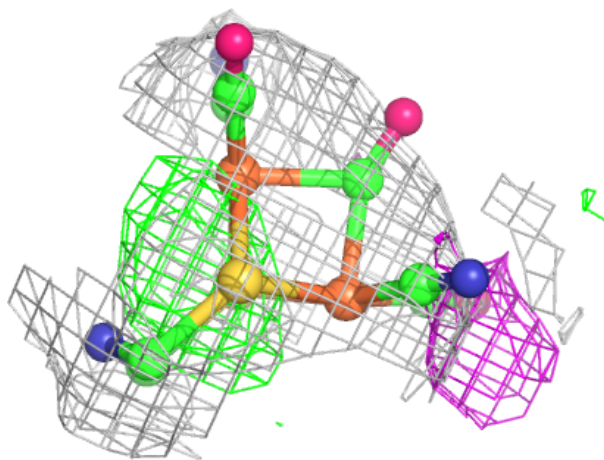
**Electron density around SF4 A 703:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around 402 B 701:**

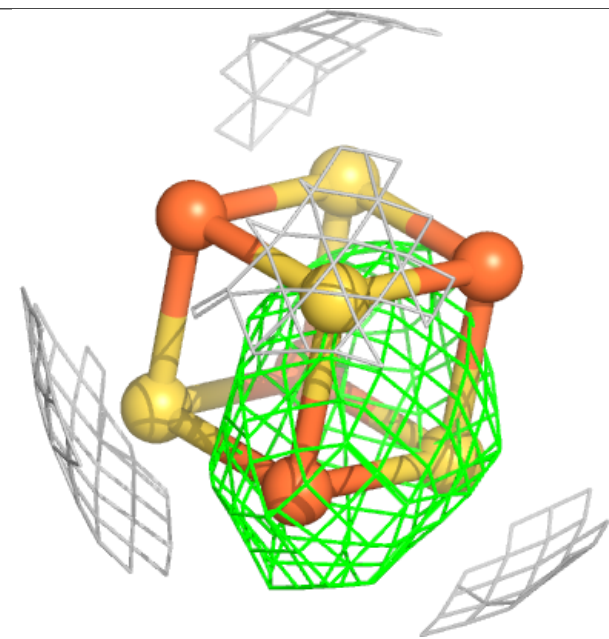
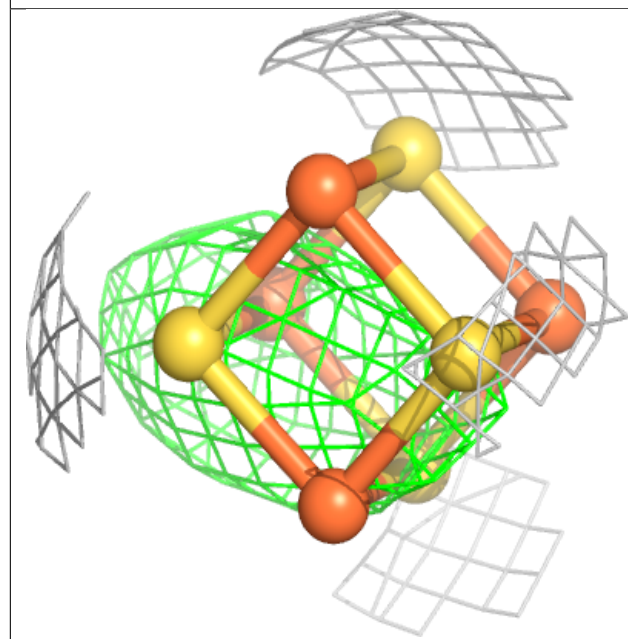
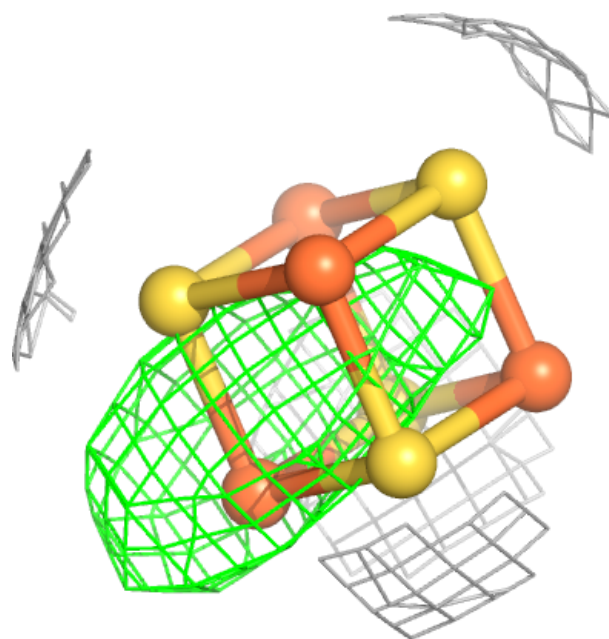
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





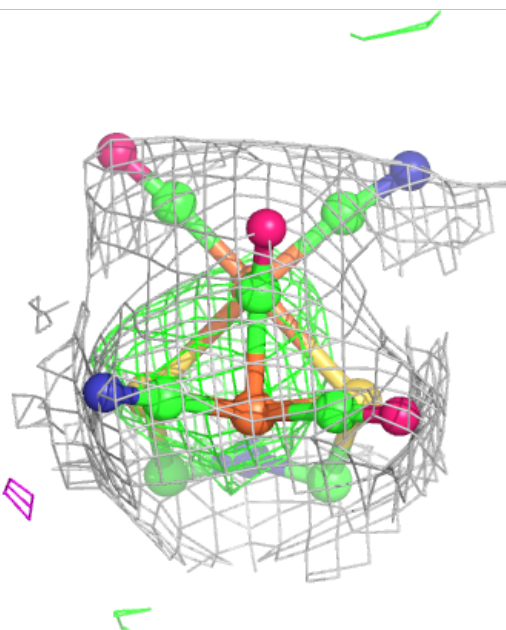
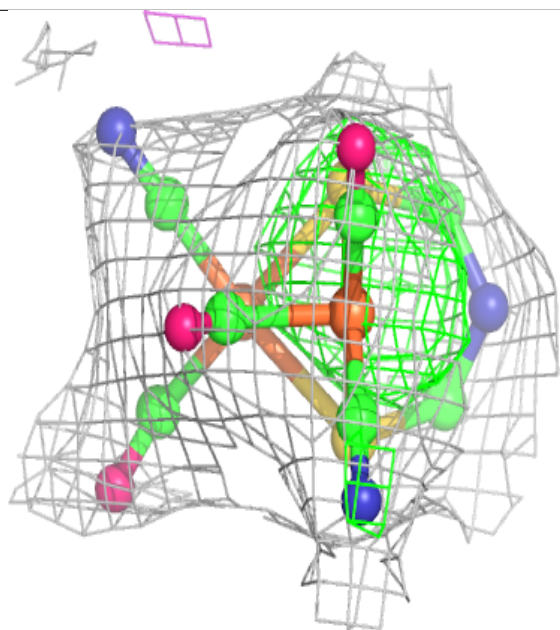
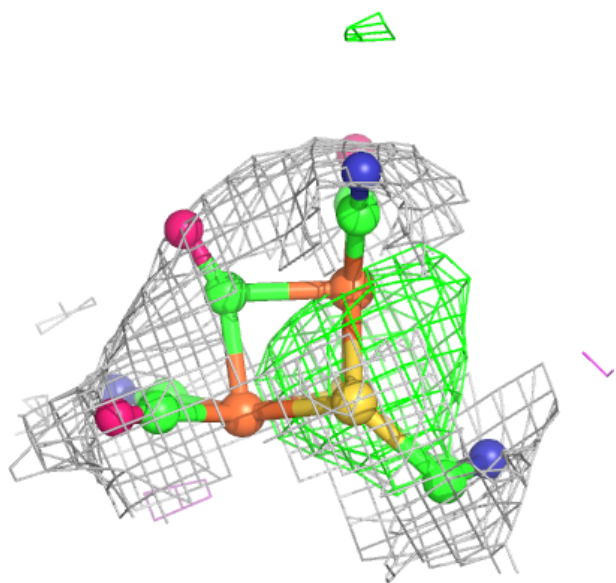
**Electron density around SF4 A 704:**

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and green (positive)



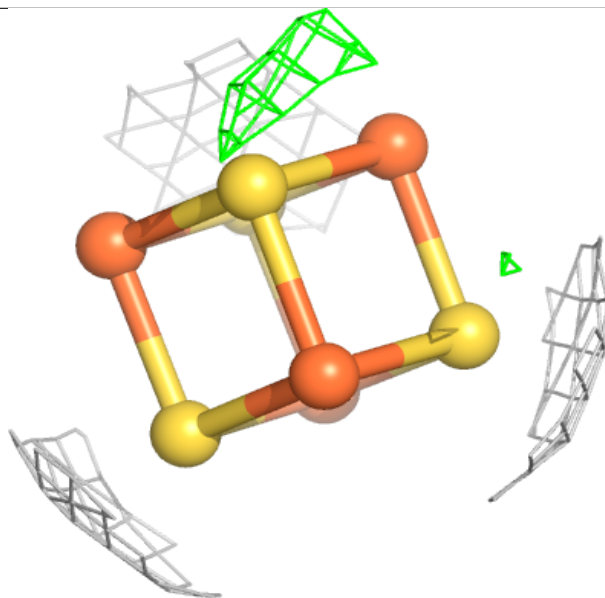
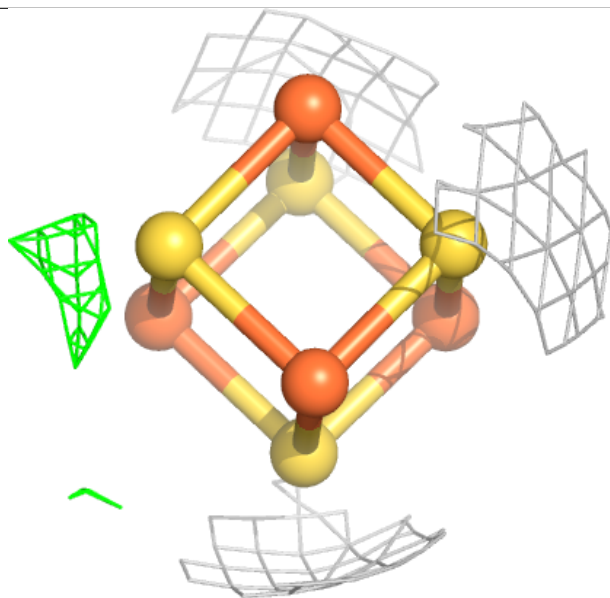
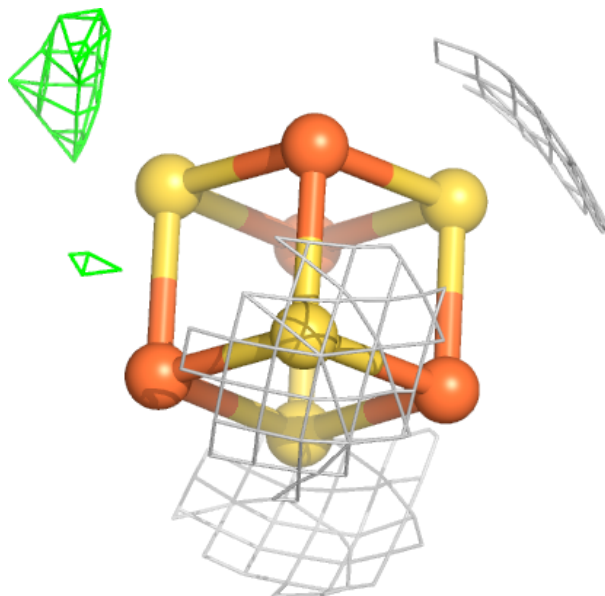
**Electron density around 402 A 701:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around SF4 B 704:**

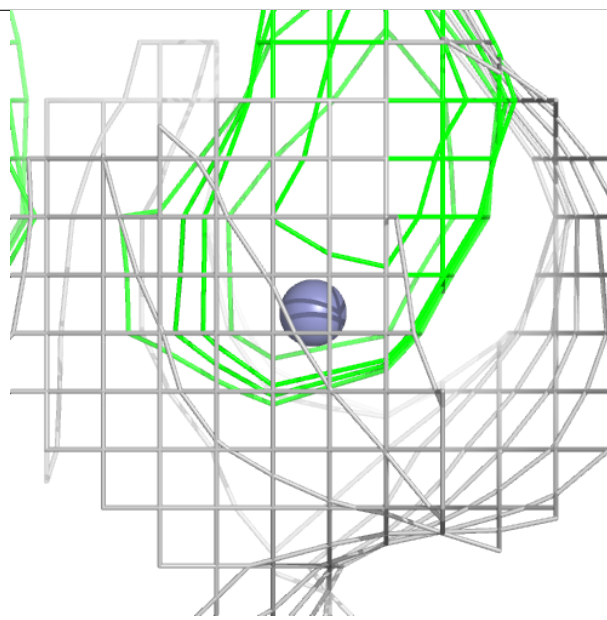
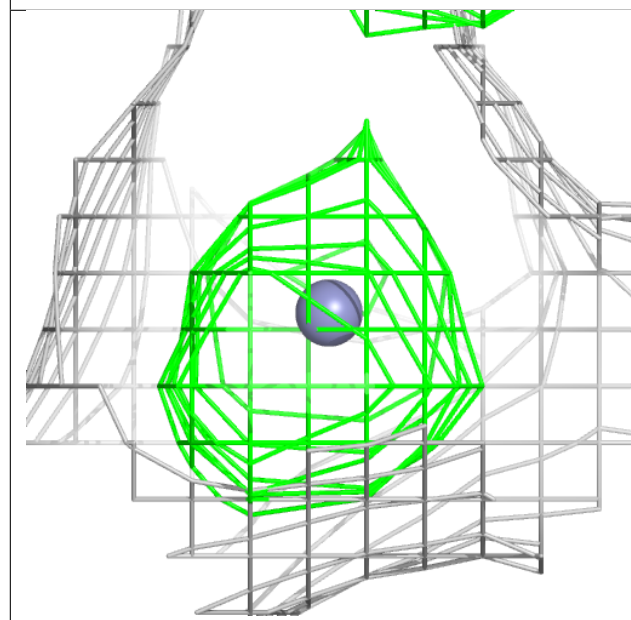
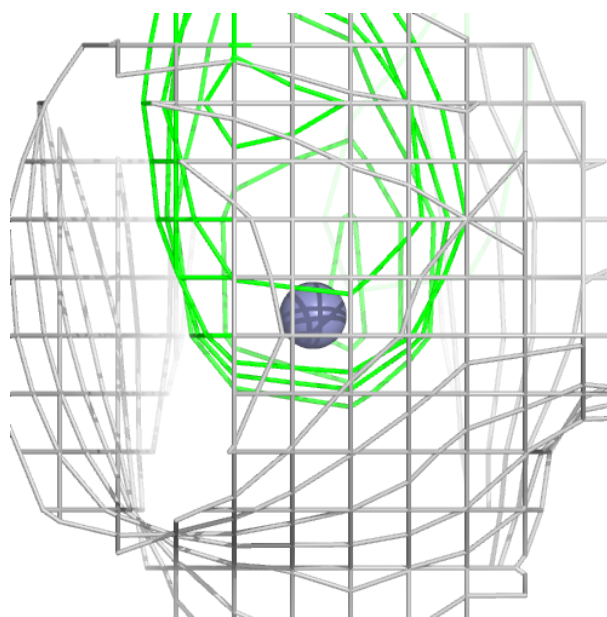
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





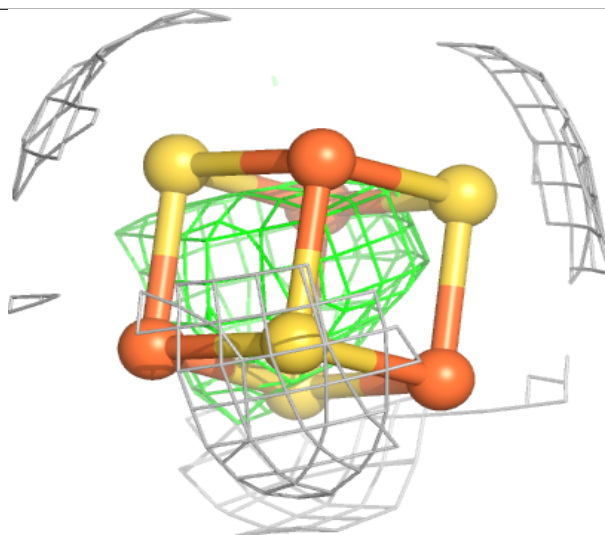
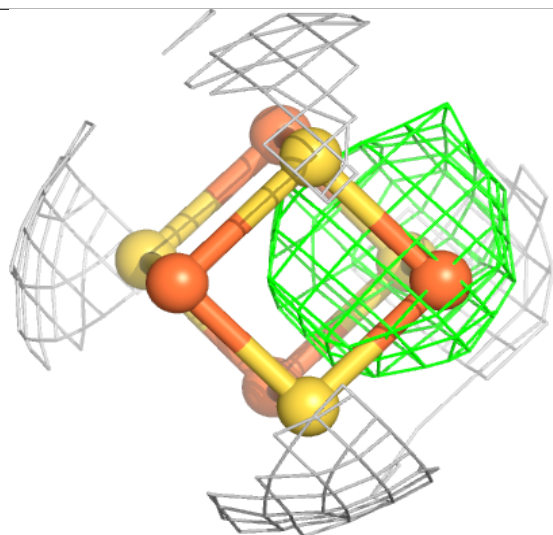
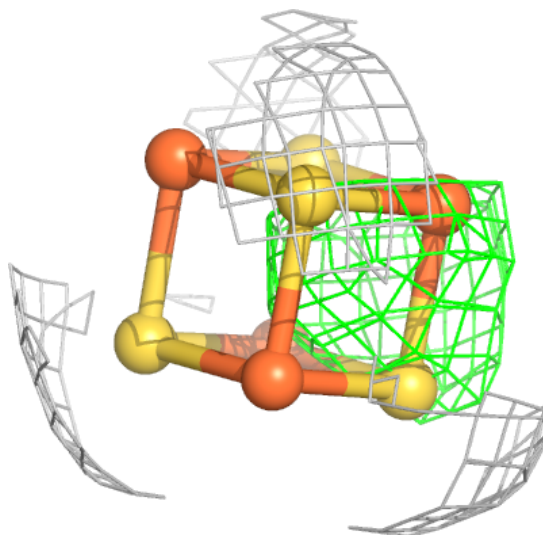
**Electron density around ZN B 705:**

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and green (positive)



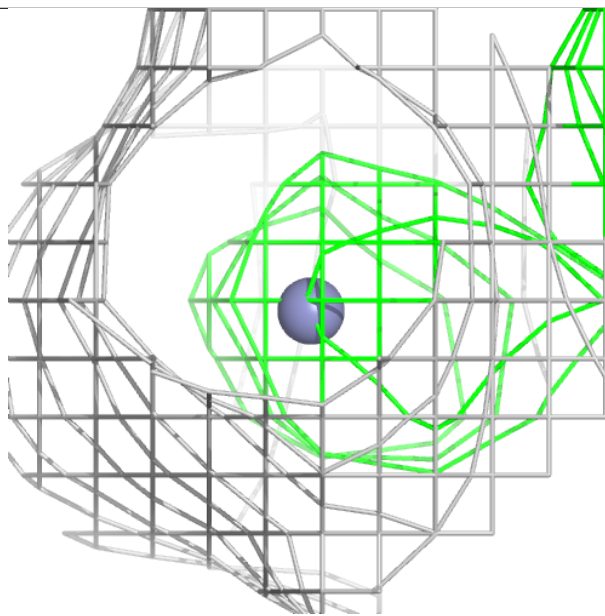
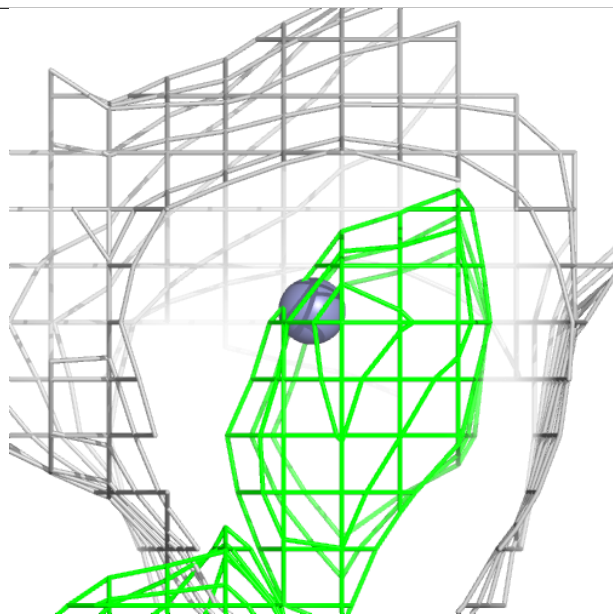
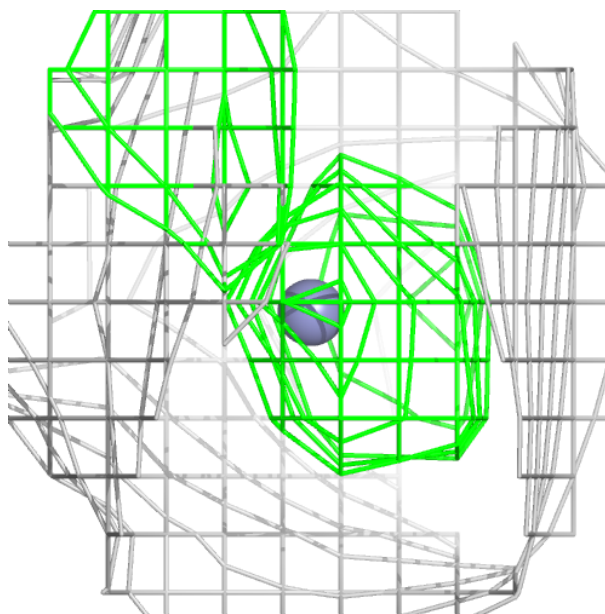
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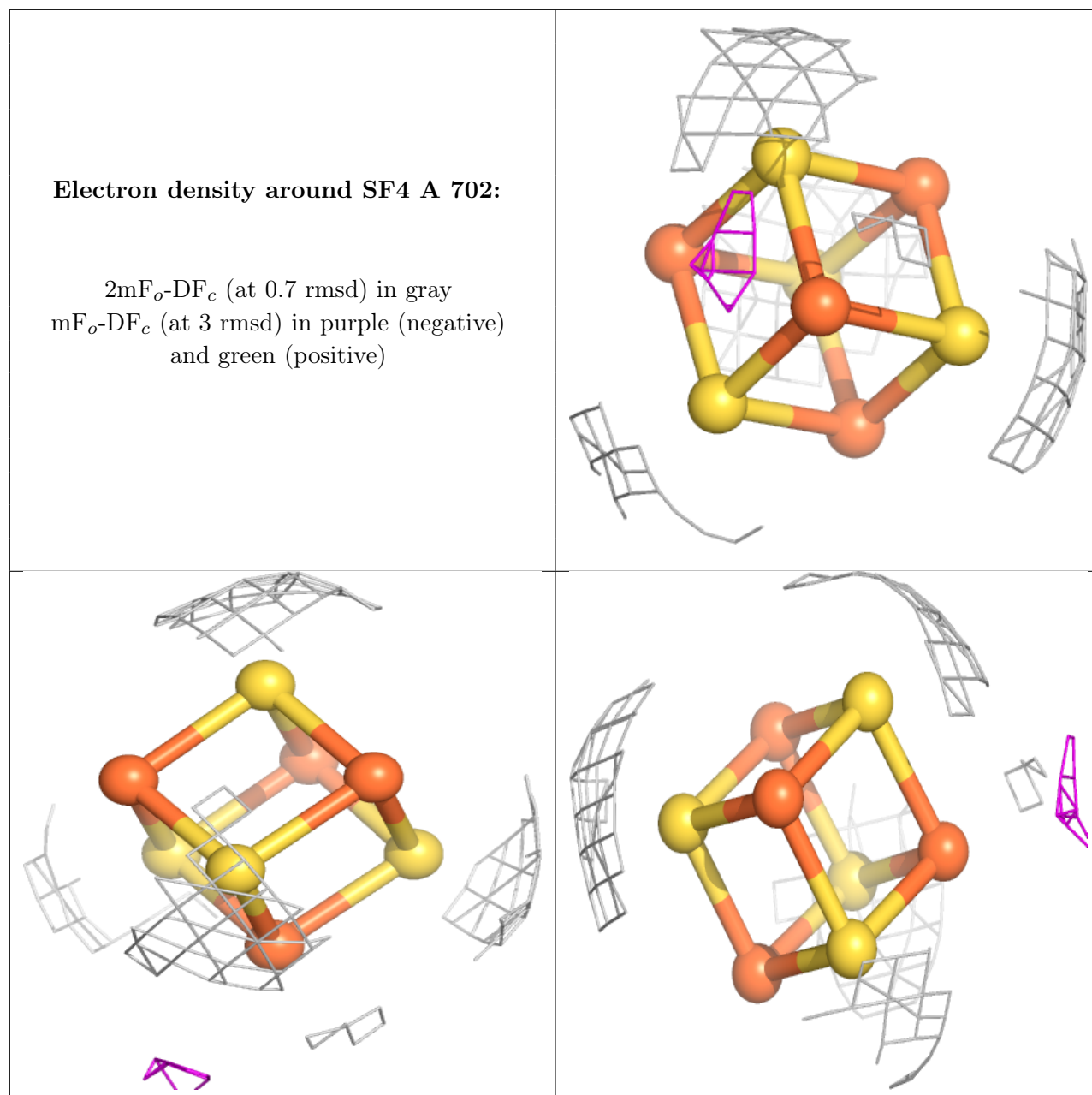
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around ZN A 705:**

$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





## 6.5 Other polymers [i](#)

There are no such residues in this entry.