



# Full wwPDB X-ray Structure Validation Report ⓘ

Apr 15, 2026 – 01:13 AM UTC

PDB ID : 7HK9 / pdb\_00007hk9  
Title : Crystal Structure of N-methylhydantoinase in complex with  $\text{Zn}^{2+}$  and ADPNP  
Authors : Stihle, M.; Benz, J.; Asztalos, P.; Rudolph, M.G.  
Deposited on : 2024-10-10  
Resolution : 2.58 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>.

---

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

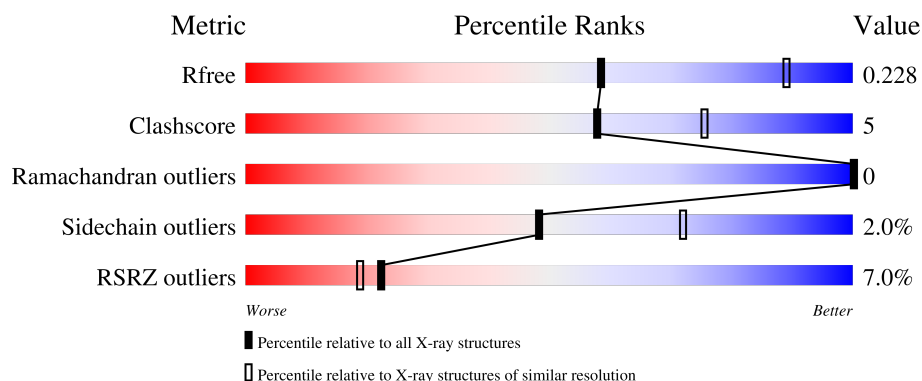
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.58 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))
$R_{free}$	180053	4770 (2.60-2.56)
Clashscore	190562	5124 (2.60-2.56)
Ramachandran outliers	187476	5046 (2.60-2.56)
Sidechain outliers	187428	5046 (2.60-2.56)
RSRZ outliers	180081	4770 (2.60-2.56)

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	1288	<div> <div>%</div> <div> <div></div> <div>88%</div> <div>11%</div> <div>.</div> </div> </div>
1	B	1288	<div> <div>12%</div> <div> <div></div> <div>85%</div> <div>13%</div> <div>..</div> </div> </div>

## 2 Entry composition [i](#)

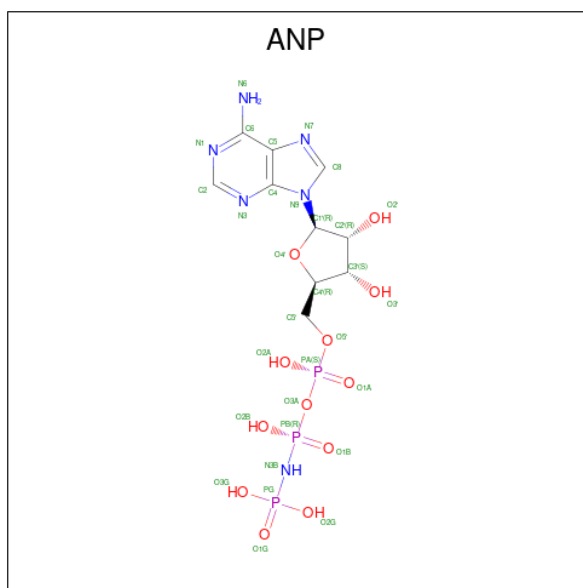
There are 6 unique types of molecules in this entry. The entry contains 20258 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 N-methylhydantoinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1287	Total	C	N	O	S	0	0	0
			9841	6175	1703	1923	40			
1	B	1280	Total	C	N	O	S	0	0	0
			9788	6143	1694	1911	40			

- Molecule 2 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (CCD ID: ANP) (formula:  $C_{10}H_{17}N_6O_{12}P_3$ ) (labeled as "Ligand of Interest" by depositor).

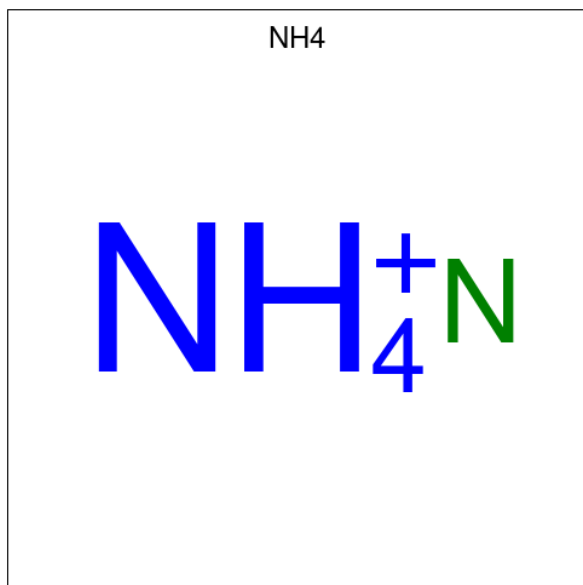


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
2	B	1	Total	C	N	O	P	0	0
			31	10	6	12	3		

- Molecule 3 is ZINC ION (CCD ID: ZN) (formula:  $Zn$ ) (labeled as "Ligand of Interest" by depositor).

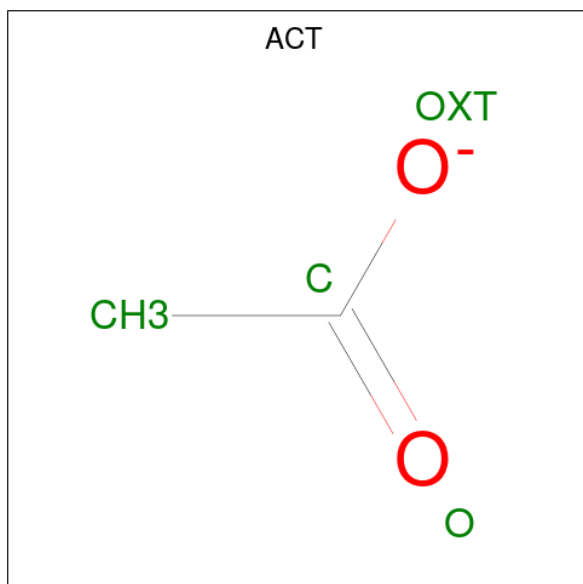
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	12	Total 12	Zn 12	0	0
3	B	11	Total 11	Zn 11	0	0

- Molecule 4 is AMMONIUM ION (CCD ID: NH4) (formula:  $\text{H}_4\text{N}$ ).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total 1	N 1	0	0

- Molecule 5 is ACETATE ION (CCD ID: ACT) (formula:  $\text{C}_2\text{H}_3\text{O}_2$ ).





Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total 4	C 2	O 2	0	0
5	B	1	Total 4	C 2	O 2	0	0

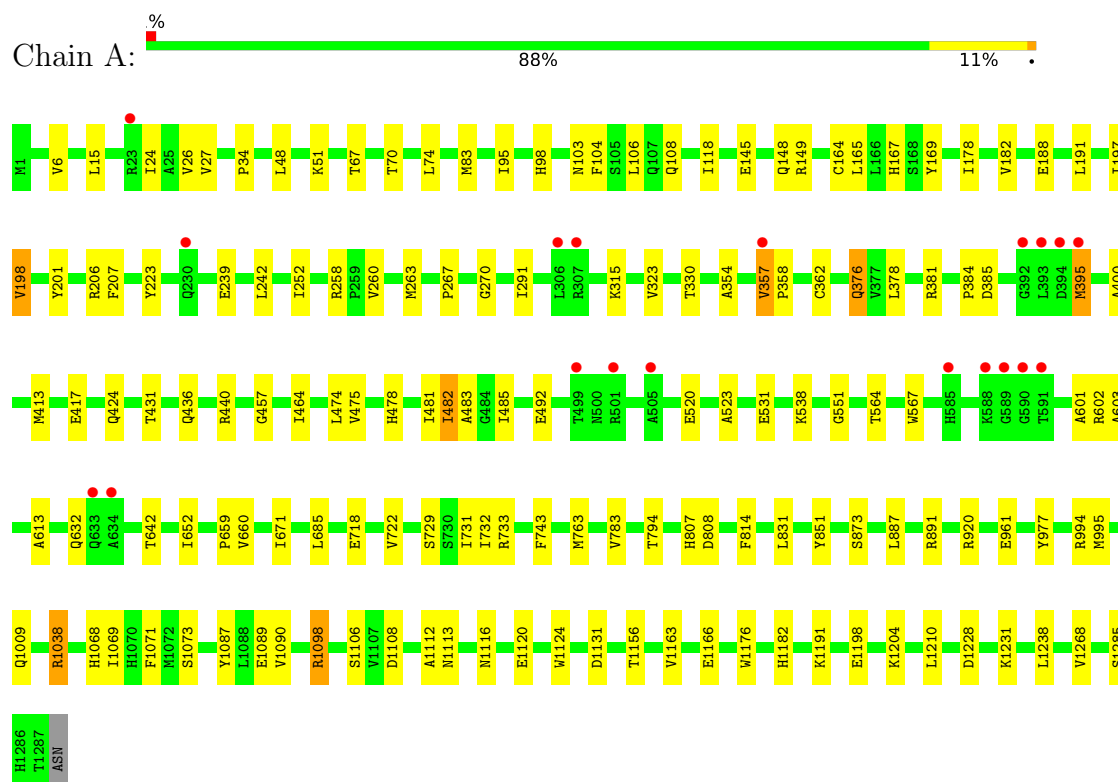
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	420	Total 420	O 420	0	0
6	B	115	Total 115	O 115	0	0

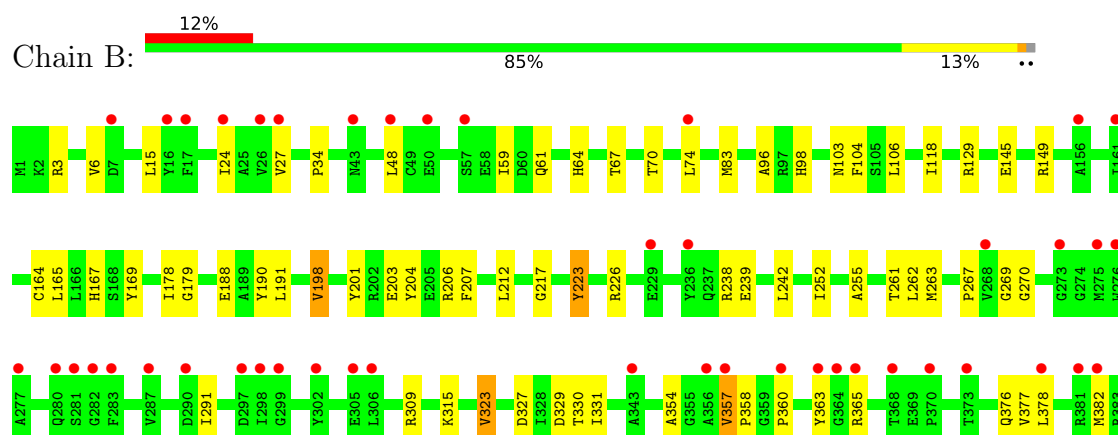
### 3 Residue-property plots [i](#)

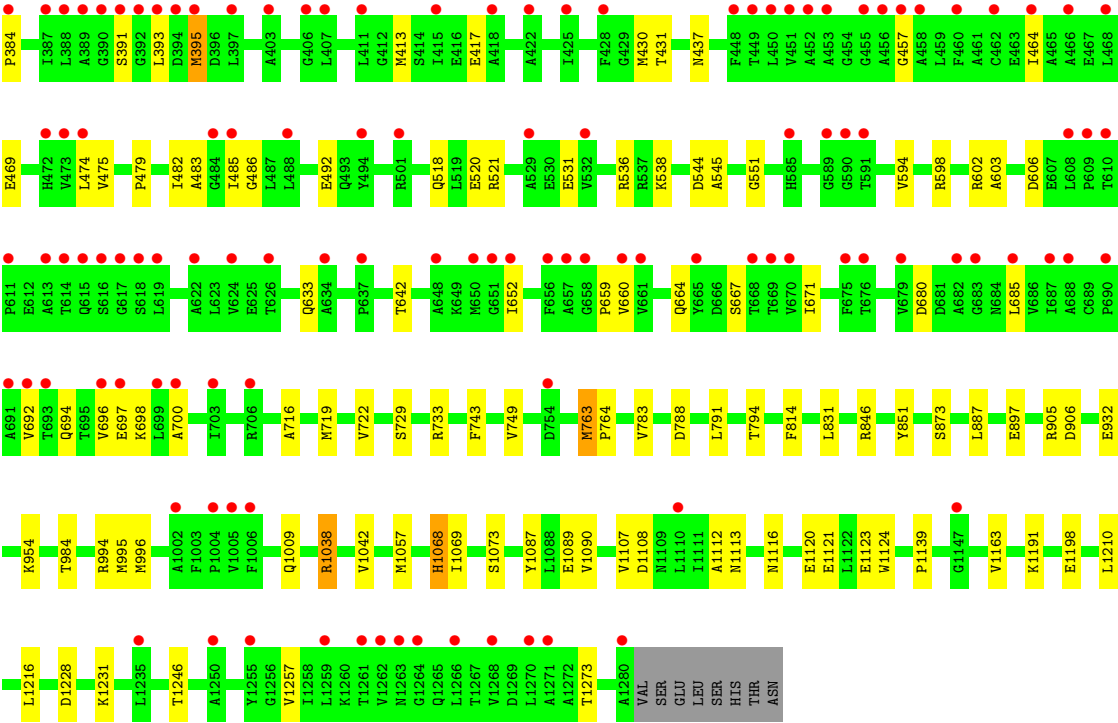
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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 dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). 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: N-methylhydantoinase



#### • Molecule 1: N-methylhydantoinase





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	74.84Å 184.99Å 289.01Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	57.04 – 2.58 57.04 – 2.58	Depositor EDS
% Data completeness (in resolution range)	76.6 (57.04-2.58) 74.7 (57.04-2.58)	Depositor EDS
$R_{merge}$	0.09	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.46 (at 2.58Å)	Xtriage
Refinement program	PHENIX 1.21.1_5286	Depositor
R, $R_{free}$	0.194 , 0.226 0.197 , 0.228	Depositor DCC
$R_{free}$ test set	4832 reflections (3.80%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	56.6	Xtriage
Anisotropy	0.019	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 48.1	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	20258	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	72.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.09% of the height of the origin peak. No significant pseudotranslation is detected.*

<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

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ACT, ZN, NH<sub>4</sub>, ANP

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	0.13	0/10036	0.36	0/13626
1	B	0.13	0/9982	0.36	0/13552
All	All	0.13	0/20018	0.36	0/27178

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts

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	9841	0	9640	77	0
1	B	9788	0	9590	100	0
2	A	31	0	13	0	0
2	B	31	0	13	0	0
3	A	12	0	0	0	0
3	B	11	0	0	0	0
4	A	1	0	0	0	0
5	A	4	0	3	0	0
5	B	4	0	3	1	0
6	A	420	0	0	4	0
6	B	115	0	0	3	0
All	All	20258	0	19262	177	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 5.

All (177) 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:A:108:GLN:O	1:A:1098:ARG:NH2	2.04	0.90
1:A:413:MET:HB3	1:A:417:GLU:HG3	1.61	0.81
1:B:357:VAL:HG13	1:B:358:PRO:HD3	1.65	0.78
1:B:413:MET:HB3	1:B:417:GLU:HG3	1.64	0.78
1:B:469:GLU:HA	1:B:692:VAL:HG21	1.66	0.78
1:B:794:THR:OG1	1:B:1038:ARG:NH1	2.17	0.77
1:A:384:PRO:HA	1:A:395:MET:HB2	1.74	0.68
1:A:808:ASP:OD2	6:A:1401:HOH:O	2.10	0.68
1:A:198:VAL:HG13	1:A:206:ARG:HG3	1.75	0.68
1:B:391:SER:HB2	1:B:393:LEU:HD13	1.75	0.68
1:B:431:THR:HG22	1:B:464:ILE:HG23	1.75	0.68
1:B:897:GLU:OE1	6:B:1401:HOH:O	2.12	0.67
1:A:197:ILE:O	1:A:258:ARG:NH1	2.22	0.66
1:B:994:ARG:HH11	1:B:1009:GLN:HG2	1.60	0.66
1:A:492:GLU:HB2	1:A:603:ALA:HB3	1.78	0.65
1:B:538:LYS:HB2	1:B:602:ARG:HB3	1.80	0.64
1:B:469:GLU:HG2	1:B:692:VAL:HG11	1.80	0.63
1:A:34:PRO:HG2	1:A:357:VAL:HG22	1.79	0.63
1:A:67:THR:HG22	1:A:267:PRO:HD3	1.81	0.62
1:B:70:THR:OG1	1:B:263:MET:O	2.16	0.61
1:B:104:PHE:CE2	1:B:1009:GLN:HG3	2.36	0.61
1:B:354:ALA:O	1:B:358:PRO:HD2	2.02	0.60
1:B:1038:ARG:NH2	5:B:1313:ACT:OXT	2.34	0.59
1:B:492:GLU:HB2	1:B:603:ALA:HB3	1.84	0.59
1:B:551:GLY:N	1:B:733:ARG:HD2	2.19	0.58
1:A:794:THR:OG1	1:A:1038:ARG:NH1	2.37	0.57
1:A:994:ARG:HH11	1:A:1009:GLN:HG2	1.69	0.57
1:A:362:CYS:HB3	1:A:400:ALA:HB2	1.85	0.57
1:A:70:THR:OG1	1:A:263:MET:O	2.20	0.56
1:B:1139:PRO:HB3	1:B:1246:THR:HA	1.87	0.56
1:A:1120:GLU:O	1:A:1124:TRP:HD1	1.89	0.55
1:B:696:VAL:C	1:B:698:LYS:H	2.14	0.55
1:B:167:HIS:HA	1:B:169:TYR:CE1	2.42	0.55
1:A:98:HIS:O	1:A:98:HIS:ND1	2.38	0.55
1:A:431:THR:HG22	1:A:464:ILE:HG23	1.88	0.55
1:B:198:VAL:HG13	1:B:206:ARG:HG3	1.88	0.54
1:B:59:ILE:O	1:B:238:ARG:NH2	2.41	0.54

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:743:PHE:HB2	1:A:814:PHE:HB2	1.89	0.54
1:A:1191:LYS:O	1:A:1198:GLU:HA	2.07	0.54
1:B:1069:ILE:HD11	1:B:1090:VAL:HG13	1.90	0.53
1:B:83:MET:HB2	1:B:118:ILE:HG21	1.90	0.53
1:B:67:THR:HG22	1:B:267:PRO:HD3	1.90	0.53
1:A:103:ASN:OD1	1:A:1113:ASN:ND2	2.42	0.53
1:B:98:HIS:O	1:B:98:HIS:ND1	2.39	0.53
1:B:212:LEU:HG	1:B:263:MET:HE3	1.91	0.52
1:A:74:LEU:HD11	1:A:330:THR:HG22	1.91	0.52
1:B:129:ARG:NH2	1:B:1123:GLU:OE2	2.39	0.52
1:A:167:HIS:HA	1:A:169:TYR:CE1	2.44	0.52
1:B:384:PRO:HA	1:B:395:MET:HB2	1.91	0.52
1:A:98:HIS:CD2	1:A:1116:ASN:HB3	2.45	0.52
1:A:182:VAL:HG11	1:A:191:LEU:HD13	1.92	0.52
1:B:1257:VAL:HA	1:B:1273:THR:HG23	1.92	0.52
1:B:1120:GLU:O	1:B:1124:TRP:HD1	1.93	0.52
1:B:1108:ASP:HB3	1:B:1112:ALA:O	2.10	0.51
1:A:551:GLY:N	1:A:733:ARG:HD2	2.26	0.51
1:B:659:PRO:HA	1:B:671:ILE:O	2.10	0.51
1:A:104:PHE:CE2	1:A:1009:GLN:HG3	2.46	0.51
1:A:1108:ASP:HB3	1:A:1112:ALA:O	2.10	0.51
1:B:722:VAL:HG21	1:B:887:LEU:HD13	1.93	0.51
1:B:64:HIS:NE2	1:B:223:TYR:OH	2.31	0.51
1:B:783:VAL:HB	1:B:851:TYR:HB2	1.92	0.51
1:A:376:GLN:HG3	1:A:381:ARG:HB2	1.93	0.50
1:B:255:ALA:HB1	1:B:262:LEU:HD11	1.93	0.50
1:B:536:ARG:NH2	1:B:606:ASP:OD1	2.39	0.50
1:A:831:LEU:HG	1:A:1073:SER:HB2	1.94	0.50
1:B:994:ARG:NH1	1:B:1009:GLN:HG2	2.26	0.50
1:B:1163:VAL:HG21	1:B:1210:LEU:HD12	1.94	0.50
1:A:239:GLU:HG2	1:A:252:ILE:HG22	1.94	0.50
1:B:377:VAL:HG22	1:B:382:MET:HB2	1.92	0.50
1:A:1182:HIS:HE1	6:A:1403:HOH:O	1.92	0.50
1:B:239:GLU:HG2	1:B:252:ILE:HG22	1.93	0.49
1:A:260:VAL:HA	1:A:263:MET:HE2	1.94	0.49
1:B:365:ARG:NH1	1:B:393:LEU:HD11	2.27	0.49
1:A:145:GLU:O	1:A:149:ARG:HG2	2.13	0.49
1:B:694:GLN:OE1	1:B:698:LYS:HB3	2.12	0.49
1:B:749:VAL:HG23	1:B:764:PRO:HB3	1.94	0.49
1:A:478:HIS:HB3	1:A:481:ILE:HD12	1.94	0.49
1:A:613:ALA:HB3	1:A:652:ILE:HD11	1.94	0.48

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:642:THR:HG23	1:B:660:VAL:HA	1.94	0.48
1:B:664:GLN:HG2	1:B:667:SER:O	2.13	0.48
1:A:1163:VAL:HG21	1:A:1210:LEU:HD12	1.93	0.48
1:B:103:ASN:OD1	1:B:1113:ASN:ND2	2.44	0.48
1:A:994:ARG:NH1	1:A:1009:GLN:HG2	2.29	0.47
1:B:98:HIS:CD2	1:B:1116:ASN:HB3	2.49	0.47
1:A:67:THR:OG1	6:A:1402:HOH:O	2.20	0.47
1:A:538:LYS:HB2	1:A:602:ARG:HB3	1.96	0.47
1:B:545:ALA:HB2	1:B:594:VAL:HG22	1.95	0.47
1:B:106:LEU:HG	1:B:995:MET:HE2	1.97	0.47
1:B:360:PRO:HD2	1:B:363:TYR:CD2	2.50	0.47
1:B:469:GLU:OE2	1:B:694:GLN:NE2	2.47	0.47
1:B:518:GLN:OE1	1:B:521:ARG:NH1	2.47	0.47
1:B:743:PHE:HB2	1:B:814:PHE:HB2	1.97	0.47
1:B:309:ARG:HE	1:B:327:ASP:HA	1.80	0.47
1:B:34:PRO:HG2	1:B:357:VAL:HG12	1.97	0.46
1:B:3:ARG:HD2	1:B:61:GLN:OE1	2.15	0.46
1:B:788:ASP:OD2	1:B:846:ARG:NH1	2.46	0.46
1:B:479:PRO:HA	1:B:482:ILE:HG23	1.98	0.46
1:B:164:CYS:HB3	1:B:207:PHE:CD1	2.52	0.45
1:B:729:SER:HB3	1:B:873:SER:OG	2.16	0.45
1:A:291:ILE:HD12	1:A:457:GLY:HA2	1.98	0.45
1:A:523:ALA:HB1	1:A:601:ALA:HB2	1.98	0.45
1:B:179:GLY:HA2	1:B:191:LEU:HD21	1.98	0.45
1:B:475:VAL:HB	1:B:685:LEU:HB2	1.99	0.45
1:A:354:ALA:O	1:A:358:PRO:HD2	2.17	0.45
1:B:932:GLU:HG2	1:B:954:LYS:HG3	1.98	0.45
1:A:83:MET:HB2	1:A:118:ILE:HG21	1.99	0.45
1:A:659:PRO:HA	1:A:671:ILE:O	2.16	0.45
1:A:1228:ASP:HB3	1:A:1231:LYS:HD3	1.98	0.45
1:A:564:THR:H	1:A:567:TRP:HB3	1.82	0.45
1:A:783:VAL:HB	1:A:851:TYR:HB2	1.99	0.45
1:A:1069:ILE:HD11	1:A:1090:VAL:HG13	1.99	0.45
1:A:436:GLN:HA	1:A:440:ARG:HG3	1.99	0.45
1:B:482:ILE:HA	1:B:485:ILE:HB	1.98	0.45
1:A:807:HIS:HE1	6:A:1401:HOH:O	1.96	0.44
1:B:1191:LYS:O	1:B:1198:GLU:HA	2.17	0.44
1:B:329:ASP:HB2	1:B:437:ASN:OD1	2.18	0.44
1:A:15:LEU:HB3	1:A:48:LEU:HD22	2.00	0.44
1:B:270:GLY:HA2	1:B:483:ALA:HA	1.98	0.44
1:B:652:ILE:HD12	1:B:680:ASP:O	2.18	0.44

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:6:VAL:HG13	1:A:15:LEU:HG	2.00	0.44
1:A:164:CYS:HB3	1:A:207:PHE:CD1	2.52	0.44
1:A:1087:TYR:CZ	1:A:1089:GLU:HB2	2.52	0.44
1:A:1176:TRP:CD1	1:A:1176:TRP:H	2.36	0.44
1:B:831:LEU:HG	1:B:1073:SER:HB2	2.00	0.44
1:A:95:ILE:HG12	1:A:1106:SER:HB2	2.01	0.43
1:A:729:SER:HB3	1:A:873:SER:OG	2.19	0.43
1:B:905:ARG:NH1	1:B:906:ASP:OD1	2.51	0.43
1:B:1068:HIS:CG	1:B:1069:ILE:N	2.87	0.43
1:A:83:MET:HE2	1:A:164:CYS:HB2	2.01	0.43
1:B:24:ILE:HD13	1:B:24:ILE:HA	1.86	0.43
1:A:731:ILE:HG23	1:A:732:ILE:HG13	2.01	0.43
1:A:24:ILE:HD13	1:A:24:ILE:HA	1.87	0.43
1:A:977:TYR:CE1	1:A:1204:LYS:HD3	2.53	0.43
1:B:791:LEU:HD23	1:B:791:LEU:HA	1.86	0.43
1:B:544:ASP:OD1	1:B:598:ARG:NH1	2.52	0.43
1:A:165:LEU:HD11	1:A:178:ILE:HD12	2.01	0.43
1:A:482:ILE:HD12	1:A:485:ILE:HD12	2.00	0.43
1:B:6:VAL:HG13	1:B:15:LEU:HG	2.01	0.43
1:B:1191:LYS:HA	1:B:1216:LEU:HD12	2.01	0.42
1:B:291:ILE:HD12	1:B:457:GLY:HA2	2.01	0.42
1:A:357:VAL:HB	1:A:358:PRO:HD3	2.00	0.42
1:A:106:LEU:HG	1:A:995:MET:HE2	2.00	0.42
1:A:424:GLN:OE1	1:A:632:GLN:HG2	2.18	0.42
1:B:763:MET:N	1:B:764:PRO:HD2	2.35	0.42
1:B:996:MET:HB3	1:B:1057:MET:HE1	2.01	0.42
1:A:385:ASP:OD1	1:A:385:ASP:N	2.53	0.42
1:A:1131:ASP:OD2	1:A:1156:THR:OG1	2.32	0.42
1:B:694:GLN:CD	1:B:698:LYS:HB3	2.44	0.42
1:B:716:ALA:O	1:B:719:MET:HG2	2.19	0.42
1:B:1228:ASP:HB3	1:B:1231:LYS:HD2	2.02	0.42
1:B:98:HIS:HB2	1:B:1107:VAL:HA	2.01	0.42
1:B:261:THR:HA	1:B:323:VAL:HG11	2.01	0.42
1:A:718:GLU:OE2	1:A:891:ARG:NH2	2.50	0.41
1:B:269:GLY:O	1:B:486:GLY:HA3	2.20	0.41
1:B:1087:TYR:CZ	1:B:1089:GLU:HB2	2.55	0.41
1:A:475:VAL:HB	1:A:685:LEU:HB2	2.02	0.41
1:A:1238:LEU:HD22	1:A:1268:VAL:HG23	2.02	0.41
1:B:96:ALA:HA	1:B:204:TYR:CD1	2.55	0.41
1:A:642:THR:HG23	1:A:660:VAL:HA	2.02	0.41
1:A:920:ARG:HH12	1:A:961:GLU:CD	2.28	0.41

*Continued on next page...*

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:190:TYR:CE2	1:B:217:GLY:HA3	2.56	0.41
1:B:697:GLU:HA	1:B:700:ALA:HB3	2.02	0.41
1:B:15:LEU:HB3	1:B:48:LEU:HD22	2.03	0.41
1:A:722:VAL:HG21	1:A:887:LEU:HD13	2.01	0.41
1:B:67:THR:OG1	6:B:1402:HOH:O	2.22	0.41
1:B:984:THR:HG22	1:B:1042:VAL:HG11	2.03	0.41
1:A:1071:PHE:HB3	1:A:1166:GLU:HB3	2.03	0.41
1:B:74:LEU:HD11	1:B:330:THR:HG22	2.02	0.41
1:B:145:GLU:O	1:B:149:ARG:HG2	2.21	0.41
1:B:1121:GLU:HG3	6:B:1443:HOH:O	2.21	0.41
1:A:26:VAL:HG11	1:A:51:LYS:HB3	2.02	0.41
1:A:270:GLY:HA2	1:A:483:ALA:HA	2.02	0.40
1:B:203:GLU:HG2	1:B:204:TYR:N	2.36	0.40
1:B:331:ILE:HD11	1:B:430:MET:HG2	2.04	0.40
1:A:481:ILE:HG22	1:A:481:ILE:O	2.21	0.40
1:B:165:LEU:HD11	1:B:178:ILE:HD12	2.03	0.40
1:B:696:VAL:C	1:B:698:LYS:N	2.78	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

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	1285/1288 (100%)	1253 (98%)	32 (2%)	0	100	100
1	B	1278/1288 (99%)	1243 (97%)	35 (3%)	0	100	100
All	All	2563/2576 (100%)	2496 (97%)	67 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains ⓘ

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	1038/1039 (100%)	1016 (98%)	22 (2%)	47	71
1	B	1031/1039 (99%)	1011 (98%)	20 (2%)	50	73
All	All	2069/2078 (100%)	2027 (98%)	42 (2%)	48	72

All (42) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	27	VAL
1	A	148	GLN
1	A	188	GLU
1	A	198	VAL
1	A	201	TYR
1	A	223	TYR
1	A	242	LEU
1	A	315	LYS
1	A	323	VAL
1	A	357	VAL
1	A	376	GLN
1	A	378	LEU
1	A	395	MET
1	A	474	LEU
1	A	482	ILE
1	A	520	GLU
1	A	531	GLU
1	A	763	MET
1	A	1038	ARG
1	A	1068	HIS
1	A	1098	ARG
1	A	1285	SER
1	B	27	VAL
1	B	188	GLU
1	B	198	VAL
1	B	201	TYR
1	B	223	TYR

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	B	226	ARG
1	B	242	LEU
1	B	315	LYS
1	B	323	VAL
1	B	357	VAL
1	B	376	GLN
1	B	378	LEU
1	B	395	MET
1	B	474	LEU
1	B	520	GLU
1	B	531	GLU
1	B	633	GLN
1	B	763	MET
1	B	1038	ARG
1	B	1068	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	107	GLN
1	A	230	GLN
1	A	493	GLN
1	A	615	GLN
1	A	632	GLN
1	A	694	GLN
1	A	921	GLN
1	A	1043	GLN
1	B	225	HIS
1	B	1043	GLN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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 28 ligands modelled in this entry, 23 are monoatomic and 1 is modelled with single atom - leaving 4 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
2	ANP	B	1301	3	33,33,33	2.41	5 (15%)	45,52,52	1.27	4 (8%)
5	ACT	B	1313	3	3,3,3	1.14	0	3,3,3	1.01	0
5	ACT	A	1315	3	3,3,3	1.33	0	3,3,3	0.22	0
2	ANP	A	1301	3	33,33,33	2.38	5 (15%)	45,52,52	1.32	4 (8%)

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
2	ANP	B	1301	3	-	3/18/38/38	0/3/3/3
2	ANP	A	1301	3	-	1/18/38/38	0/3/3/3

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1301	ANP	PB-O3A	9.25	1.70	1.59
2	A	1301	ANP	PB-O3A	9.12	1.70	1.59
2	B	1301	ANP	PG-N3B	6.51	1.80	1.63
2	A	1301	ANP	PG-N3B	6.36	1.80	1.63
2	A	1301	ANP	PG-O1G	5.01	1.53	1.46
2	B	1301	ANP	PG-O1G	4.91	1.53	1.46
2	B	1301	ANP	PB-O1B	3.33	1.51	1.46
2	A	1301	ANP	PB-O1B	3.25	1.51	1.46

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1301	ANP	PA-O3A	2.30	1.62	1.59
2	A	1301	ANP	PA-O3A	2.12	1.61	1.59

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1301	ANP	O2B-PB-O1B	4.59	119.70	109.87
2	B	1301	ANP	O2B-PB-O1B	4.41	119.32	109.87
2	A	1301	ANP	O1G-PG-N3B	-4.37	105.34	111.77
2	B	1301	ANP	O1G-PG-N3B	-4.20	105.59	111.77
2	A	1301	ANP	O2G-PG-O3G	3.08	115.88	107.59
2	B	1301	ANP	O2G-PG-O3G	2.95	115.53	107.59
2	A	1301	ANP	O3A-PB-N3B	-2.94	98.45	106.59
2	B	1301	ANP	O3A-PB-N3B	-2.93	98.47	106.59

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1301	ANP	PB-N3B-PG-O1G
2	B	1301	ANP	PB-N3B-PG-O1G
2	B	1301	ANP	PG-N3B-PB-O3A
2	B	1301	ANP	O4'-C1'-N9-C8

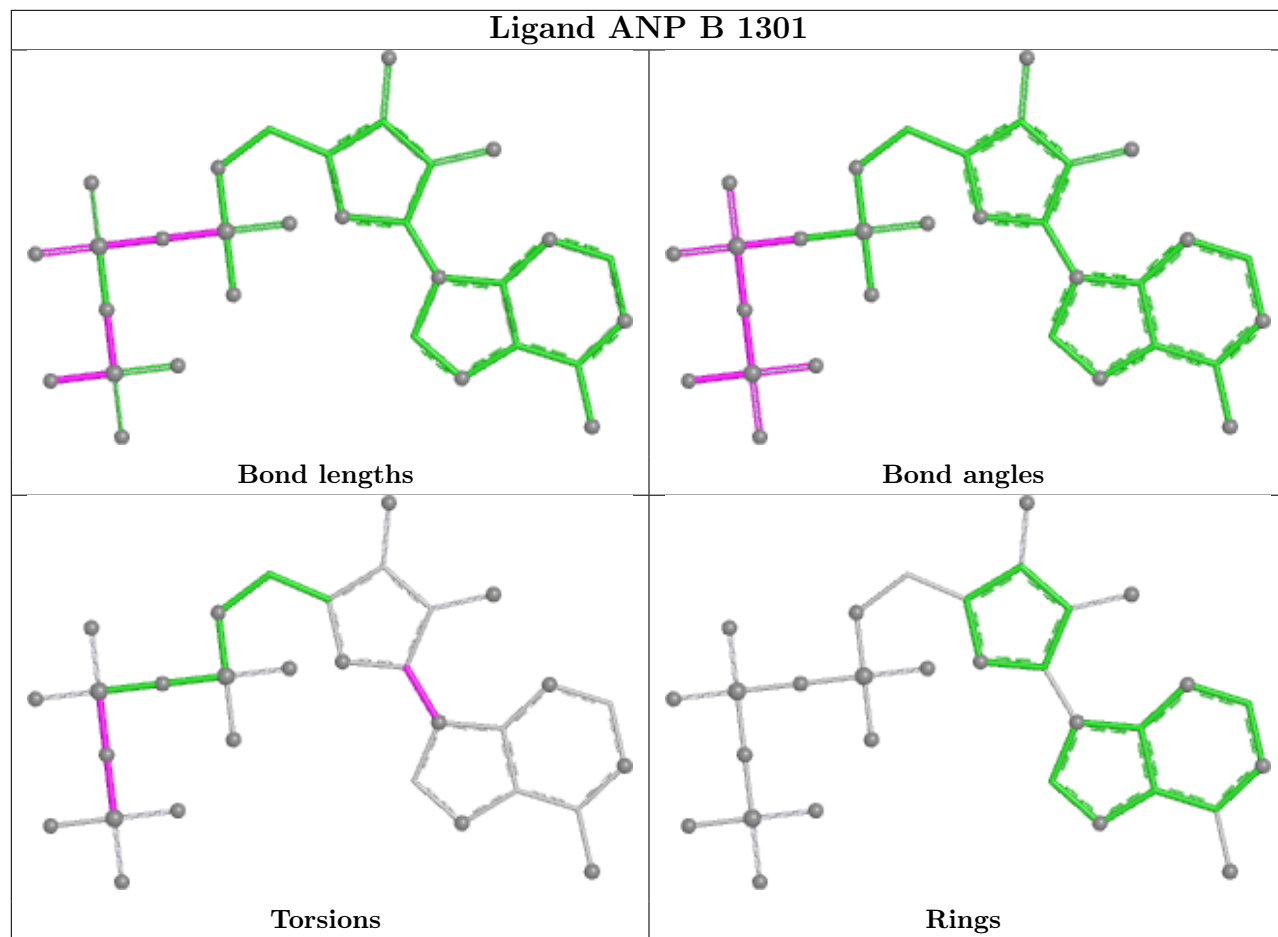
There are no ring outliers.

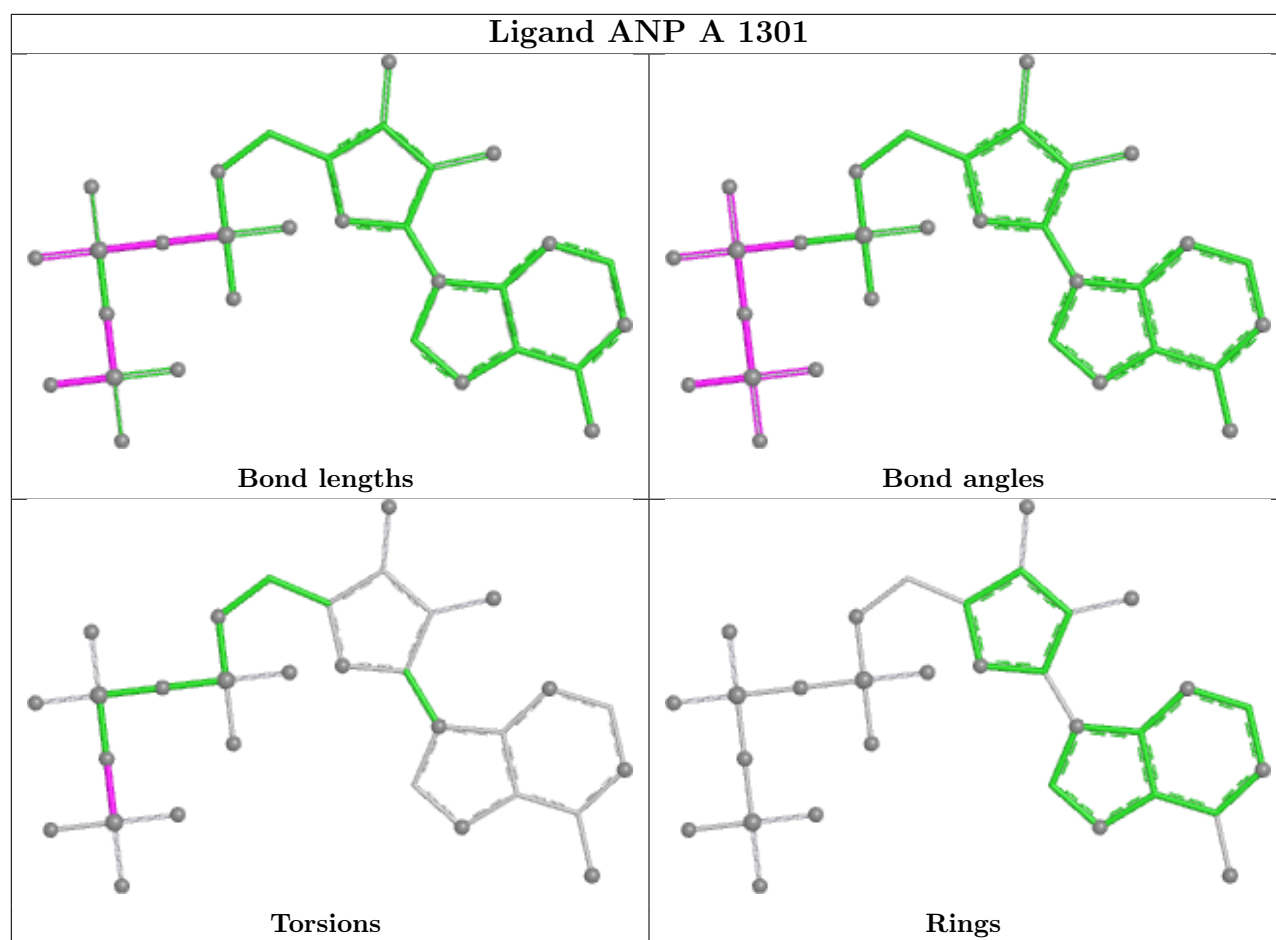
1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	1313	ACT	1	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	1287/1288 (99%)	-0.11	19 (1%) 72 69	30, 51, 87, 123	0
1	B	1280/1288 (99%)	0.84	161 (12%) 8 6	44, 87, 139, 187	0
All	All	2567/2576 (99%)	0.37	180 (7%) 22 19	30, 68, 129, 187	0

All (180) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	357	VAL	6.8
1	B	1280	ALA	5.6
1	A	357	VAL	4.9
1	B	393	LEU	4.3
1	B	699	LEU	4.2
1	B	472	HIS	4.1
1	A	393	LEU	4.0
1	B	452	ALA	3.9
1	B	658	GLY	3.9
1	B	388	LEU	3.9
1	B	464	ILE	3.7
1	B	691	ALA	3.7
1	B	685	LEU	3.7
1	B	457	GLY	3.5
1	B	1264	GLY	3.4
1	A	501	ARG	3.4
1	B	365	ARG	3.3
1	A	591	THR	3.3
1	B	283	PHE	3.2
1	B	754	ASP	3.2
1	B	415	ILE	3.2
1	A	394	ASP	3.2
1	B	455	GLY	3.2
1	B	451	VAL	3.2

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	B	466	ALA	3.2
1	B	675	PHE	3.1
1	B	488	LEU	3.1
1	B	395	MET	3.1
1	B	690	PRO	3.1
1	B	282	GLY	3.1
1	B	682	ALA	3.1
1	B	670	VAL	3.1
1	B	363	TYR	3.1
1	A	590	GLY	3.1
1	B	696	VAL	3.1
1	B	614	THR	3.0
1	B	613	ALA	3.0
1	B	611	PRO	3.0
1	B	43	ASN	3.0
1	B	700	ALA	3.0
1	B	392	GLY	3.0
1	B	1261	THR	3.0
1	B	297	ASP	3.0
1	B	290	ASP	2.9
1	B	656	PHE	2.9
1	B	615	GLN	2.9
1	B	616	SER	2.9
1	B	449	THR	2.9
1	A	392	GLY	2.9
1	B	406	GLY	2.9
1	B	268	VAL	2.9
1	B	589	GLY	2.9
1	B	1262	VAL	2.8
1	B	637	PRO	2.8
1	B	693	THR	2.8
1	B	660	VAL	2.8
1	B	48	LEU	2.8
1	B	287	VAL	2.8
1	B	1110	LEU	2.8
1	B	394	ASP	2.8
1	B	1271	ALA	2.8
1	B	428	PHE	2.8
1	B	418	ALA	2.7
1	B	494	TYR	2.7
1	B	343	ALA	2.7
1	B	453	ALA	2.7

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	B	650	MET	2.7
1	B	692	VAL	2.7
1	B	634	ALA	2.7
1	B	460	PHE	2.7
1	B	275	MET	2.7
1	B	382	MET	2.7
1	B	411	LEU	2.7
1	B	590	GLY	2.6
1	B	1235	LEU	2.6
1	B	373	THR	2.6
1	B	24	ILE	2.6
1	B	387	ILE	2.6
1	B	1270	LEU	2.6
1	B	448	PHE	2.6
1	B	397	LEU	2.6
1	A	307	ARG	2.6
1	B	665	TYR	2.6
1	B	661	VAL	2.5
1	A	588	LYS	2.5
1	B	368	THR	2.5
1	B	610	THR	2.5
1	B	652	ILE	2.5
1	B	1005	VAL	2.5
1	B	391	SER	2.5
1	B	1147	GLY	2.5
1	B	74	LEU	2.5
1	B	1266	LEU	2.5
1	B	585	HIS	2.5
1	B	687	ILE	2.5
1	B	306	LEU	2.5
1	B	378	LEU	2.5
1	B	280	GLN	2.5
1	B	277	ALA	2.5
1	B	356	ALA	2.5
1	B	468	LEU	2.4
1	B	619	LEU	2.4
1	A	585	HIS	2.4
1	B	624	VAL	2.4
1	B	16	TYR	2.4
1	B	608	LEU	2.4
1	B	669	THR	2.4
1	B	305	GLU	2.4

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	B	407	LEU	2.4
1	B	57	SER	2.4
1	A	589	GLY	2.4
1	B	1006	PHE	2.4
1	B	26	VAL	2.4
1	B	360	PRO	2.3
1	B	1259	LEU	2.3
1	B	17	PHE	2.3
1	A	634	ALA	2.3
1	A	499	THR	2.3
1	B	683	GLY	2.3
1	B	389	ALA	2.3
1	B	651	GLY	2.3
1	B	161	ILE	2.3
1	B	485	ILE	2.3
1	A	505	ALA	2.3
1	B	609	PRO	2.3
1	B	298	ILE	2.3
1	B	425	ILE	2.3
1	B	679	VAL	2.3
1	B	706	ARG	2.3
1	B	1004	PRO	2.2
1	B	450	LEU	2.2
1	B	229	GLU	2.2
1	B	473	VAL	2.2
1	B	688	ALA	2.2
1	B	236	TYR	2.2
1	B	474	LEU	2.2
1	B	381	ARG	2.2
1	B	384	PRO	2.2
1	B	1268	VAL	2.2
1	A	230	GLN	2.2
1	B	458	ALA	2.1
1	B	1250	ALA	2.1
1	B	299	GLY	2.1
1	B	484	GLY	2.1
1	B	591	THR	2.1
1	B	626	THR	2.1
1	B	1255	TYR	2.1
1	B	50	GLU	2.1
1	B	697	GLU	2.1
1	B	1263	ASN	2.1

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	B	703	ILE	2.1
1	B	27	VAL	2.1
1	B	456	ALA	2.1
1	B	617	GLY	2.1
1	A	23	ARG	2.1
1	B	501	ARG	2.1
1	B	281	SER	2.1
1	B	618	SER	2.1
1	B	370	PRO	2.1
1	B	622	ALA	2.1
1	B	648	ALA	2.1
1	B	276	TRP	2.1
1	B	273	GLY	2.1
1	B	668	THR	2.1
1	A	395	MET	2.1
1	A	633	GLN	2.0
1	B	422	ALA	2.0
1	B	1002	ALA	2.0
1	A	306	LEU	2.0
1	B	676	THR	2.0
1	B	7	ASP	2.0
1	B	462	CYS	2.0
1	B	532	VAL	2.0
1	B	156	ALA	2.0
1	B	403	ALA	2.0
1	B	529	ALA	2.0
1	B	657	ALA	2.0
1	B	364	GLY	2.0
1	B	390	GLY	2.0
1	B	302	TYR	2.0

## 6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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

## 6.3 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

## 6.4 Ligands ⓘ

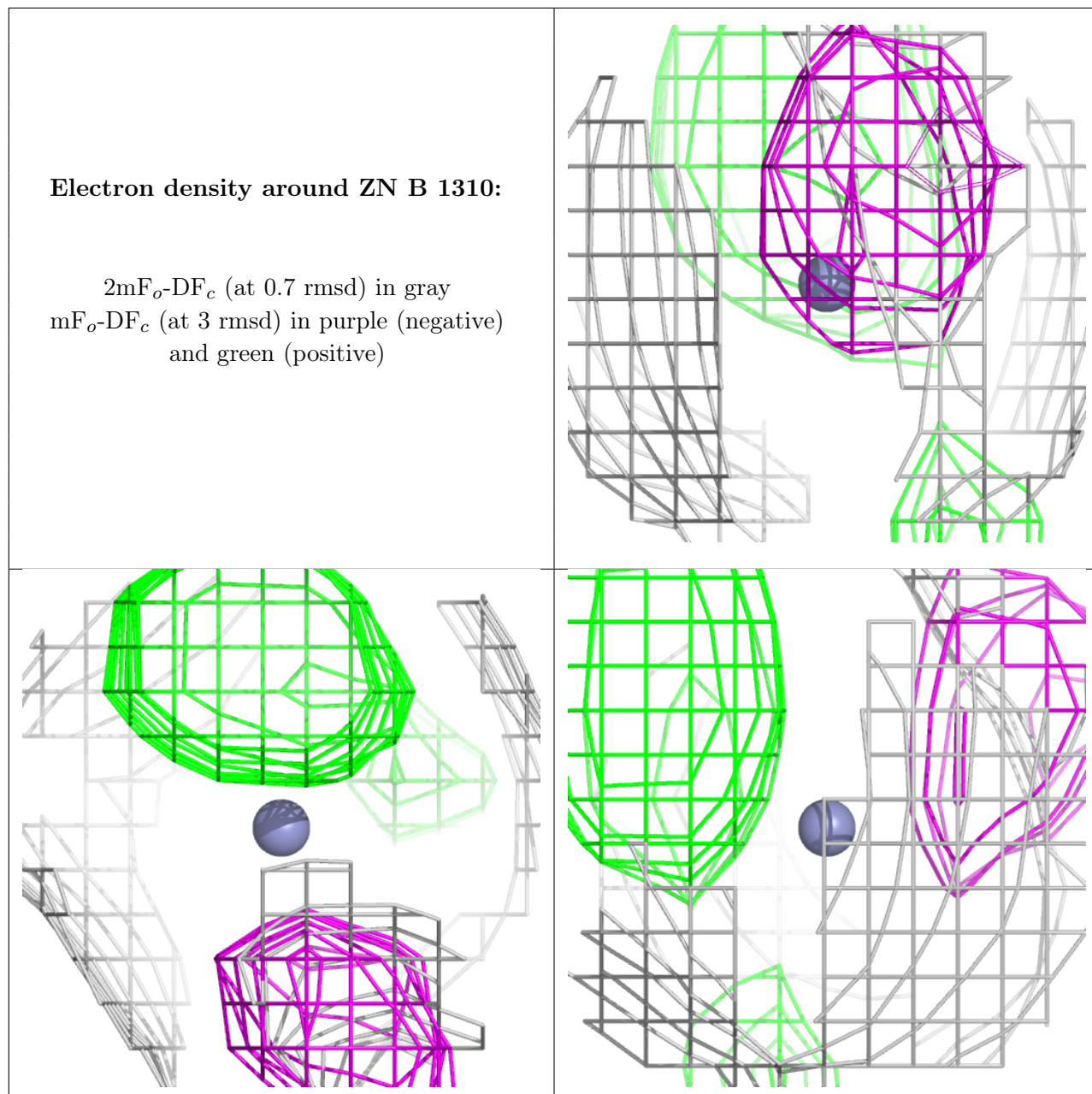
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 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
4	NH4	A	1314	1/1	0.78	0.22	44,44,44,44	0
3	ZN	B	1310	1/1	0.83	0.12	156,156,156,156	0
2	ANP	B	1301	31/31	0.84	0.16	76,96,107,114	0
3	ZN	B	1312	1/1	0.89	0.13	220,220,220,220	0
3	ZN	B	1302	1/1	0.91	0.10	139,139,139,139	0
3	ZN	A	1302	1/1	0.91	0.10	91,91,91,91	0
3	ZN	B	1304	1/1	0.95	0.05	67,67,67,67	0
5	ACT	A	1315	4/4	0.95	0.14	40,46,47,56	0
3	ZN	A	1307	1/1	0.96	0.06	60,60,60,60	0
3	ZN	B	1303	1/1	0.96	0.08	89,89,89,89	0
3	ZN	B	1311	1/1	0.96	0.07	137,137,137,137	0
5	ACT	B	1313	4/4	0.96	0.13	58,72,75,81	0
3	ZN	A	1313	1/1	0.97	0.05	129,129,129,129	0
2	ANP	A	1301	31/31	0.97	0.08	34,52,69,72	0
3	ZN	B	1305	1/1	0.97	0.05	81,81,81,81	0
3	ZN	B	1307	1/1	0.97	0.06	117,117,117,117	0
3	ZN	B	1308	1/1	0.97	0.08	43,43,43,43	1
3	ZN	B	1309	1/1	0.97	0.05	133,133,133,133	0
3	ZN	A	1306	1/1	0.98	0.04	104,104,104,104	0
3	ZN	A	1304	1/1	0.98	0.04	37,37,37,37	0
3	ZN	B	1306	1/1	0.98	0.07	111,111,111,111	0
3	ZN	A	1312	1/1	0.98	0.04	118,118,118,118	0
3	ZN	A	1308	1/1	0.99	0.08	82,82,82,82	0
3	ZN	A	1309	1/1	0.99	0.04	70,70,70,70	0
3	ZN	A	1310	1/1	0.99	0.07	65,65,65,65	0
3	ZN	A	1311	1/1	0.99	0.04	96,96,96,96	0
3	ZN	A	1305	1/1	0.99	0.03	69,69,69,69	0
3	ZN	A	1303	1/1	1.00	0.04	75,75,75,75	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.

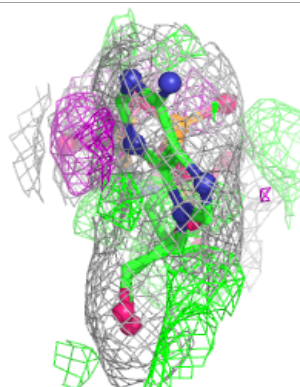
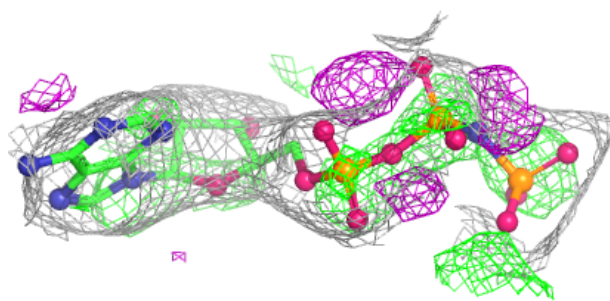
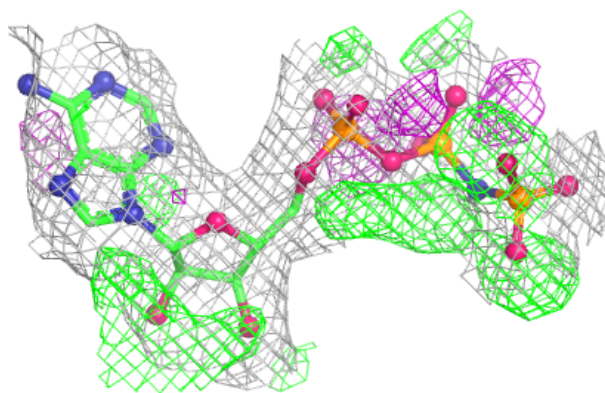
**Electron density around ZN B 1310:**

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



**Electron density around ANP B 1301:**

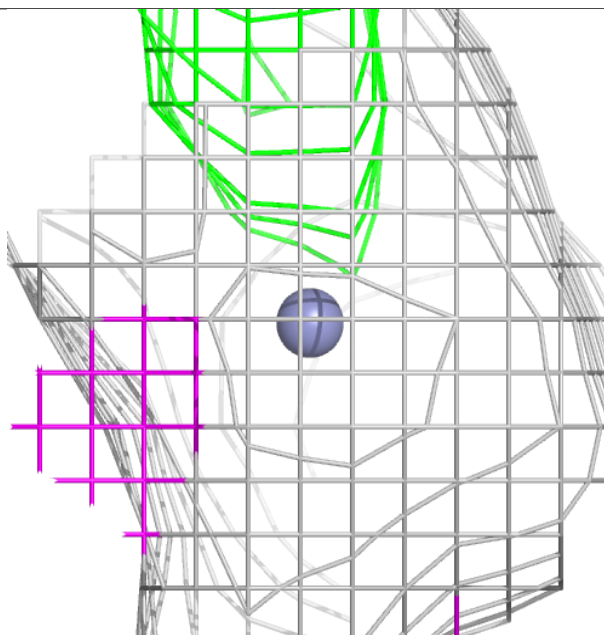
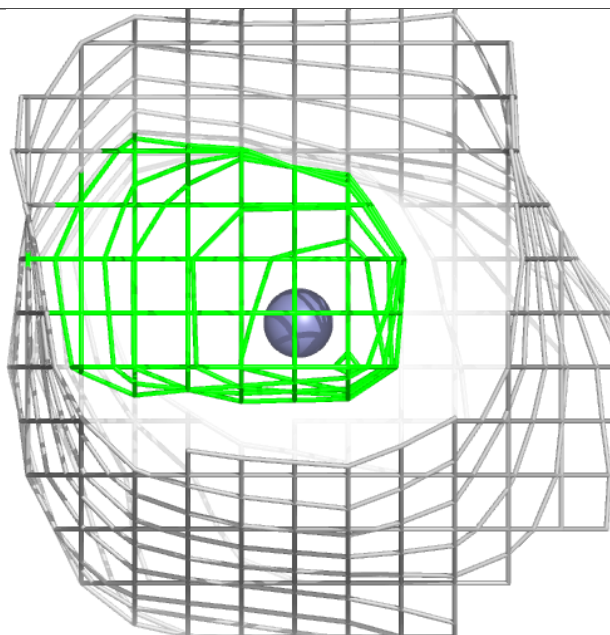
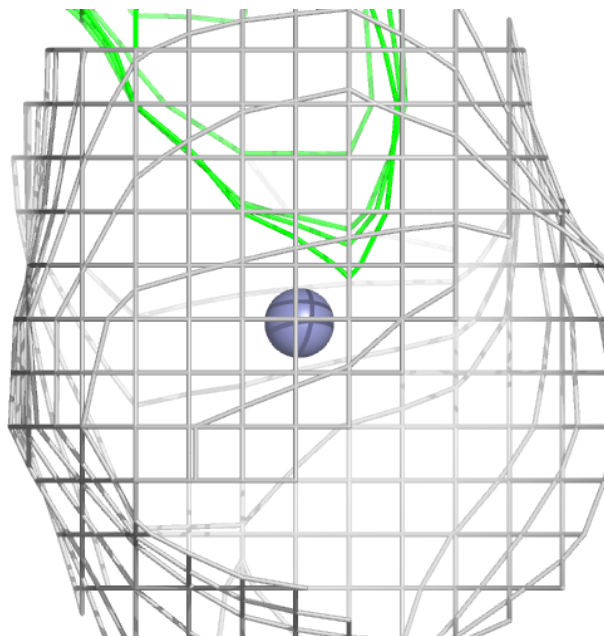
$2mF_o - DF_c$  (at 0.7 rmsd) in gray  
 $mF_o - DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





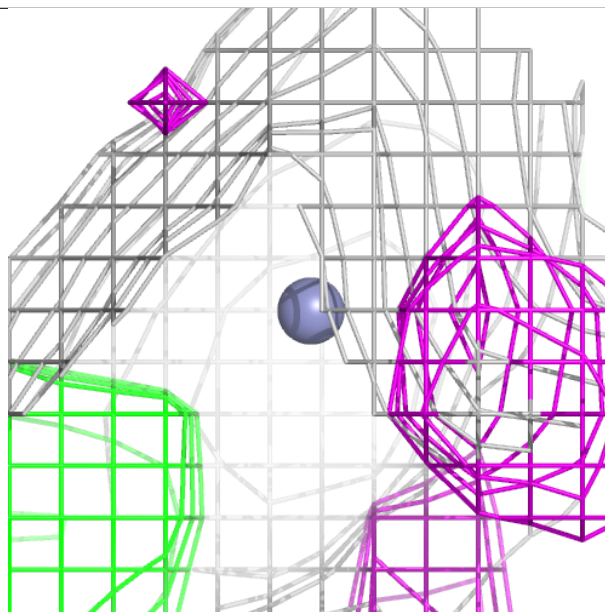
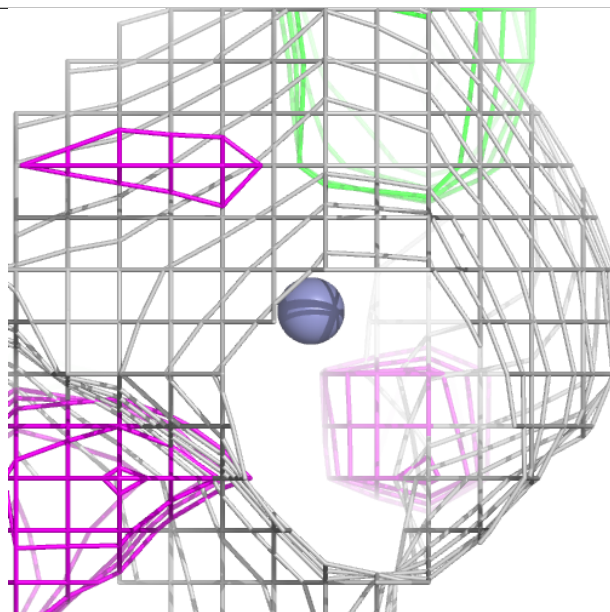
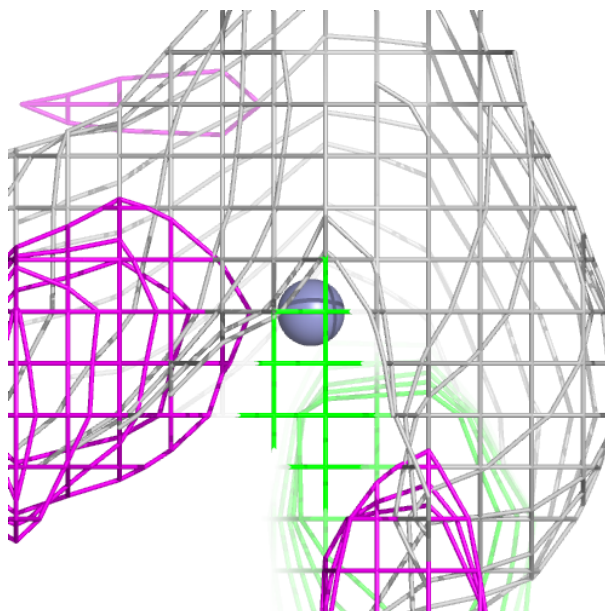
**Electron density around ZN B 1312:**

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



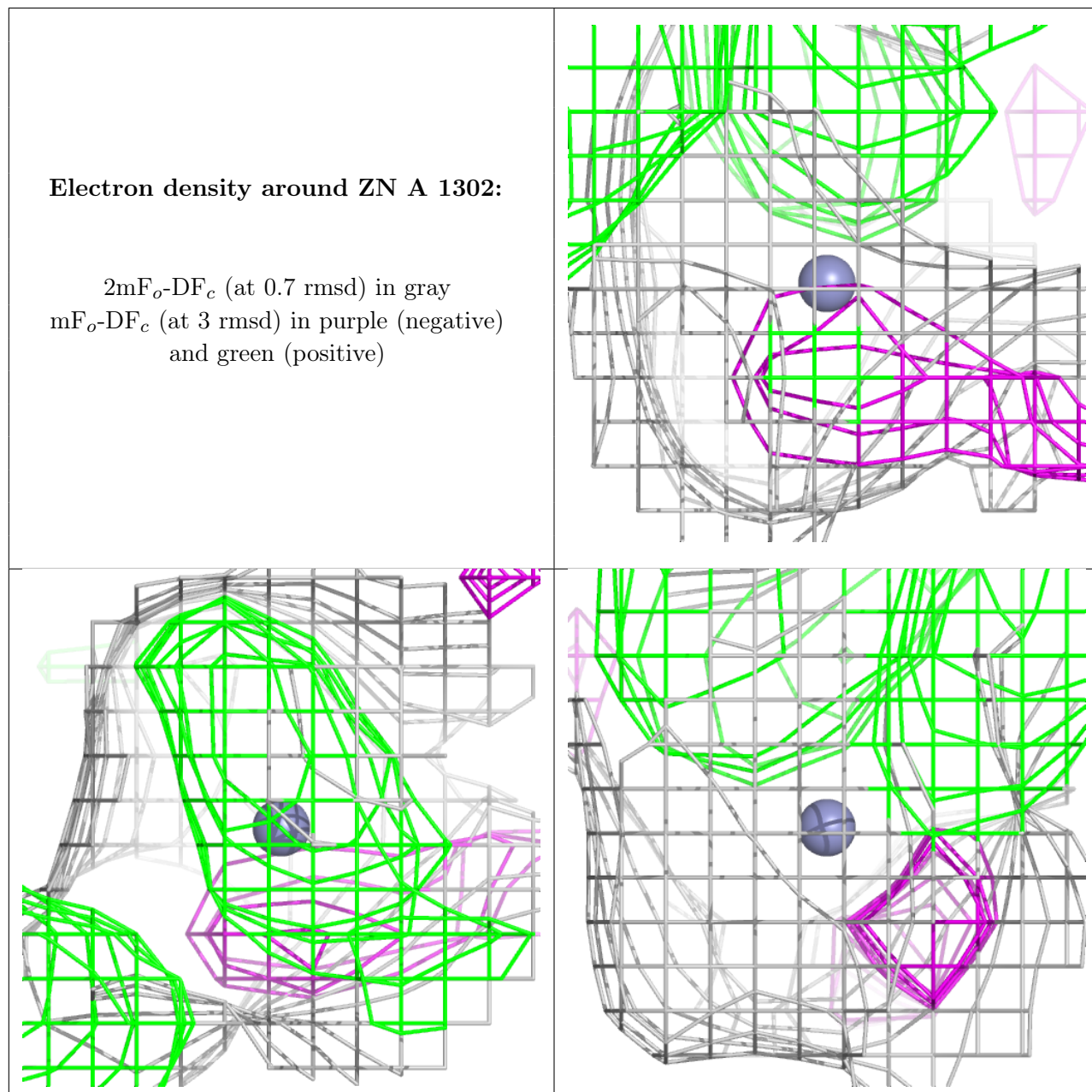
**Electron density around ZN B 1302:**

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



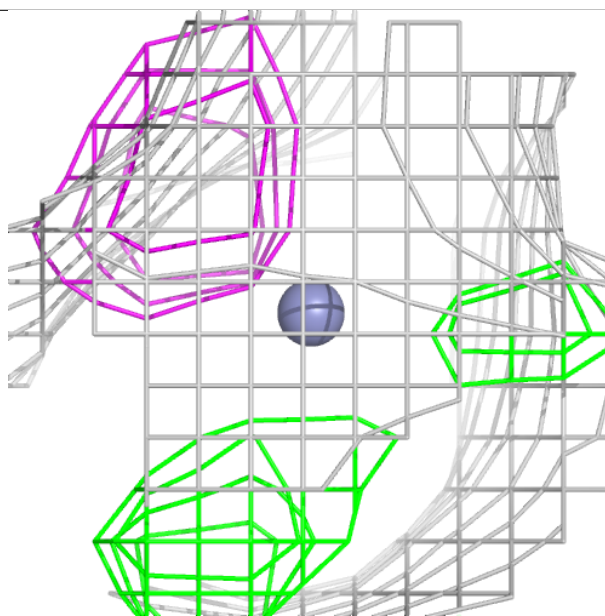
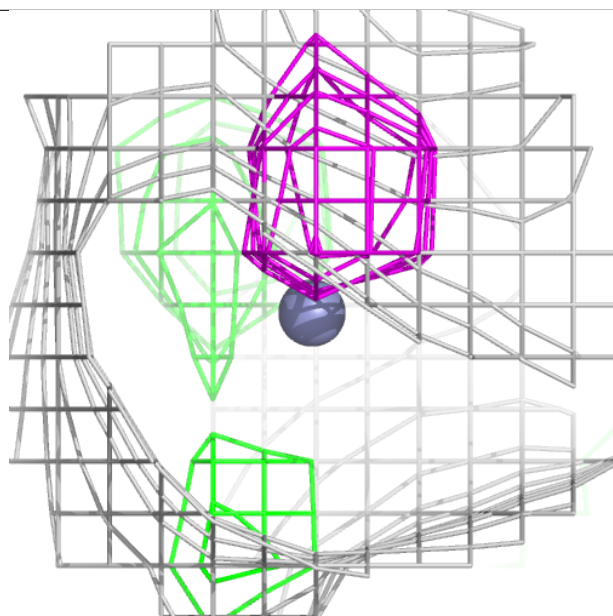
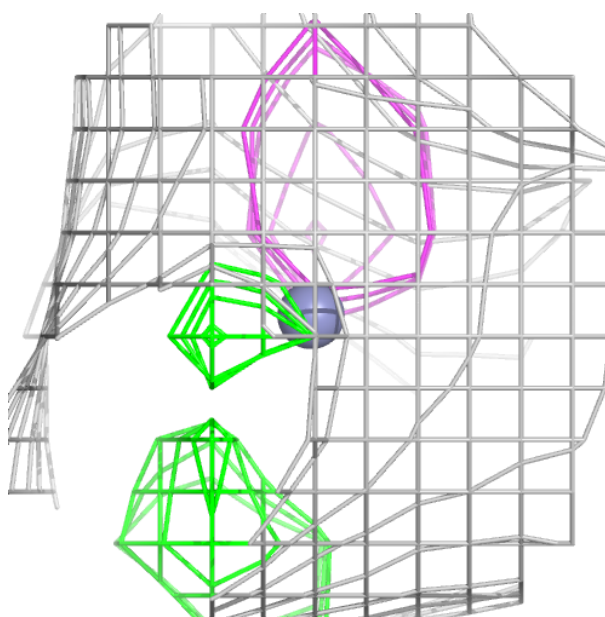
**Electron density around ZN A 1302:**

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



**Electron density around ZN B 1304:**

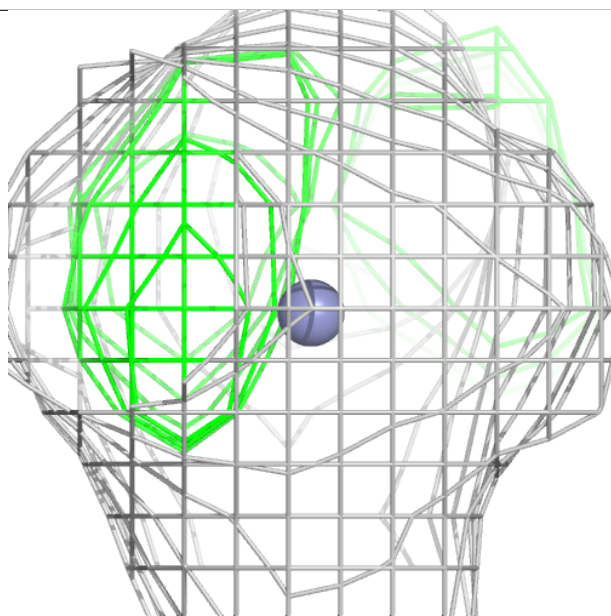
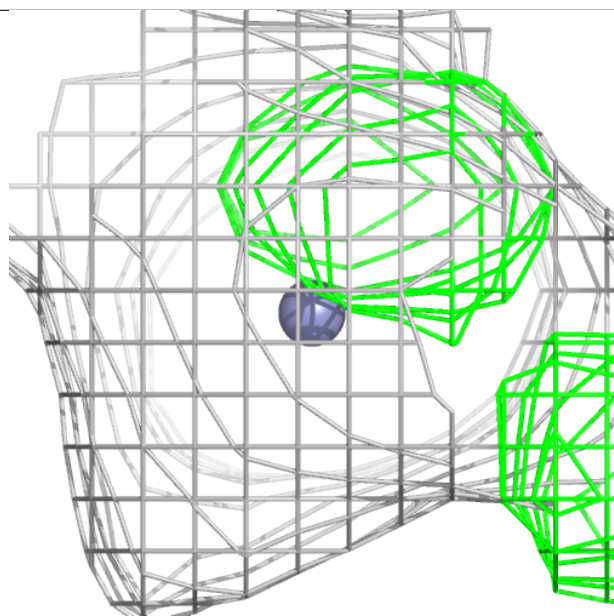
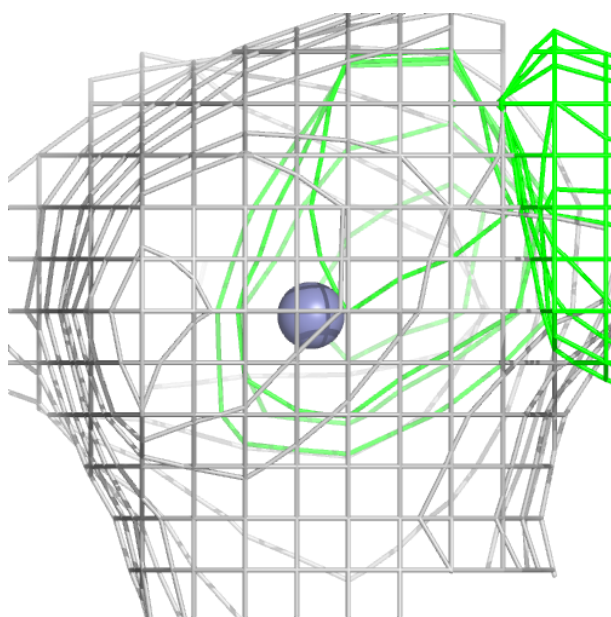
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





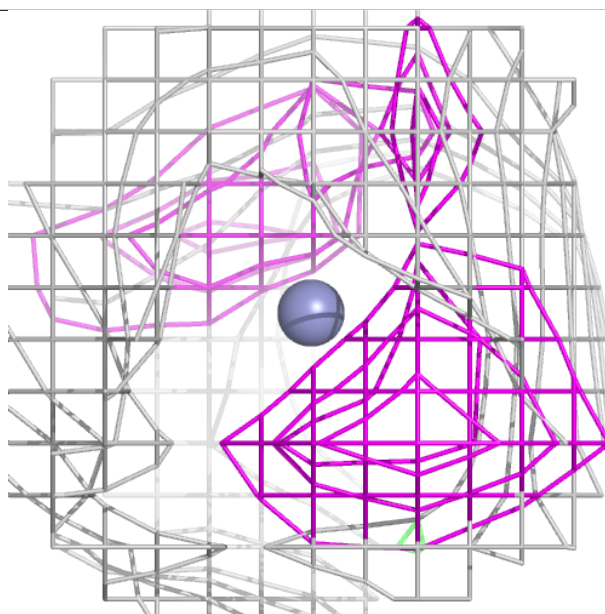
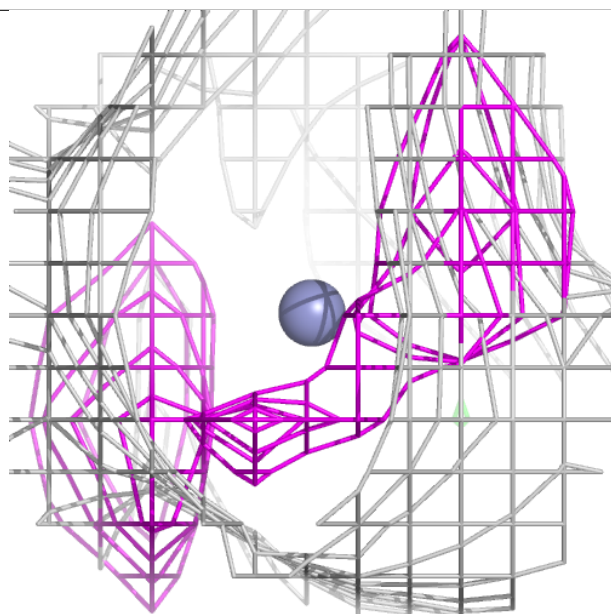
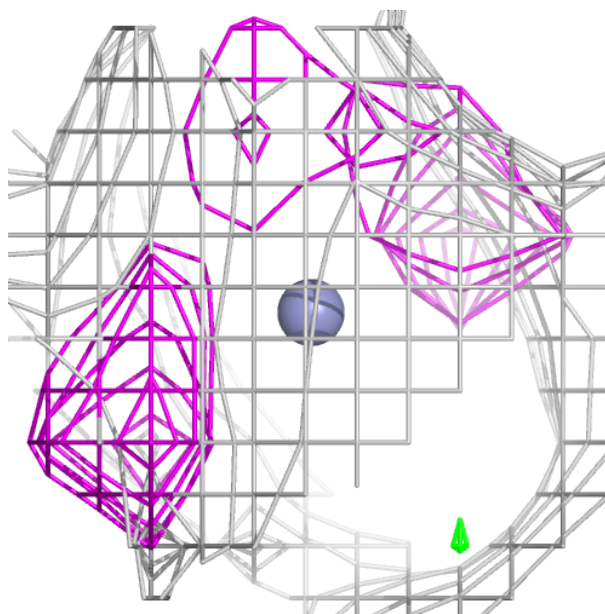
**Electron density around ZN A 1307:**

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



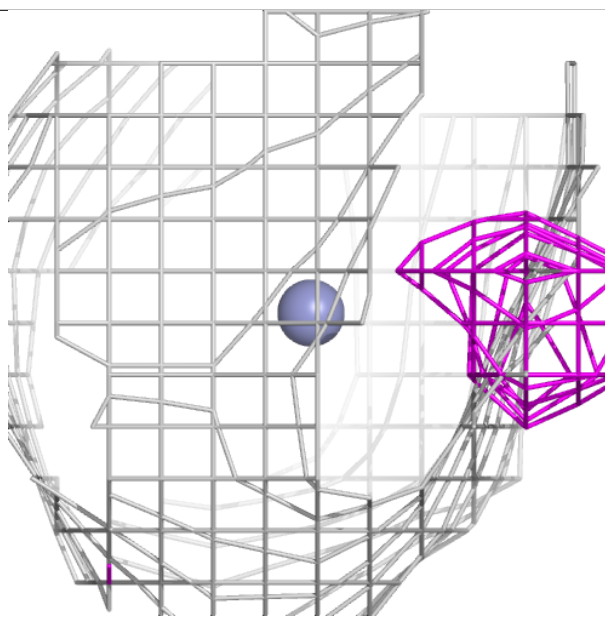
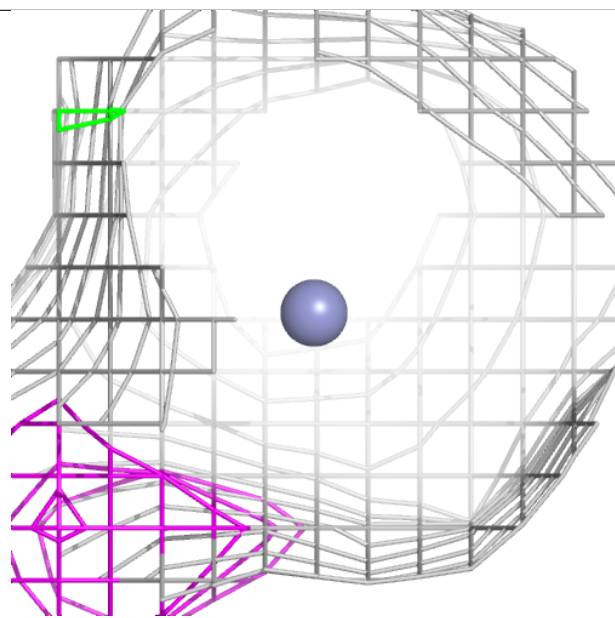
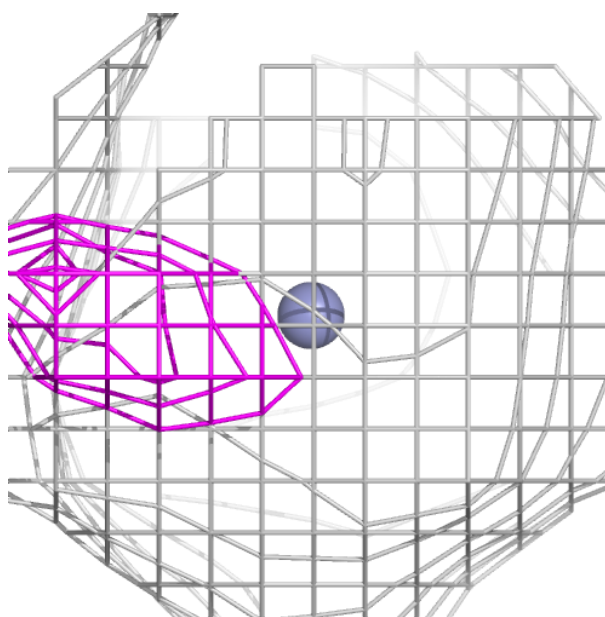
**Electron density around ZN B 1303:**

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



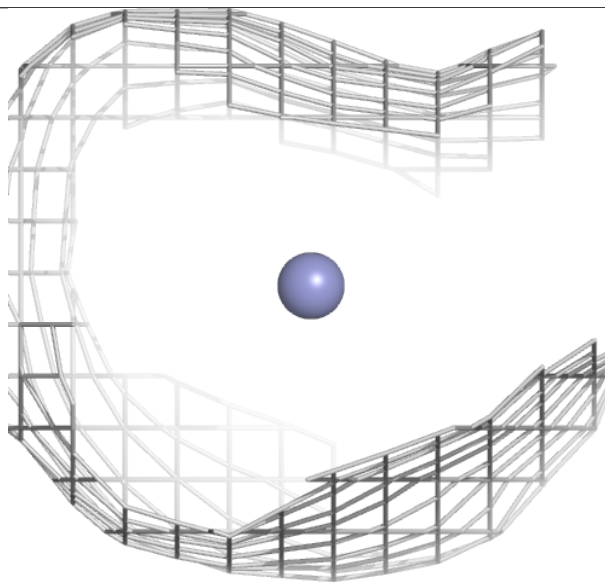
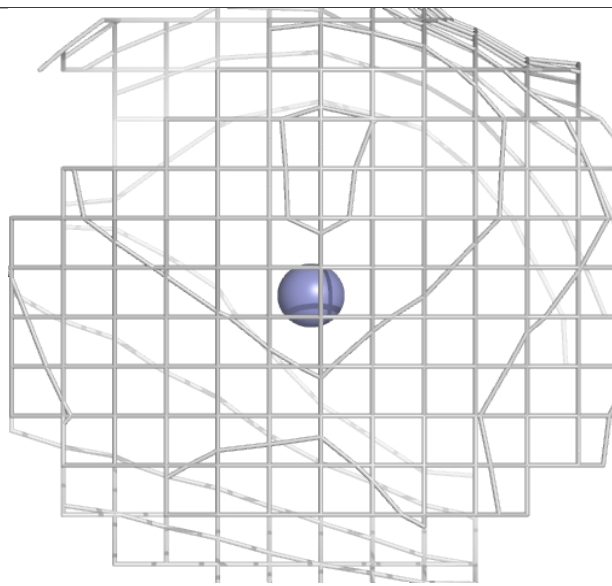
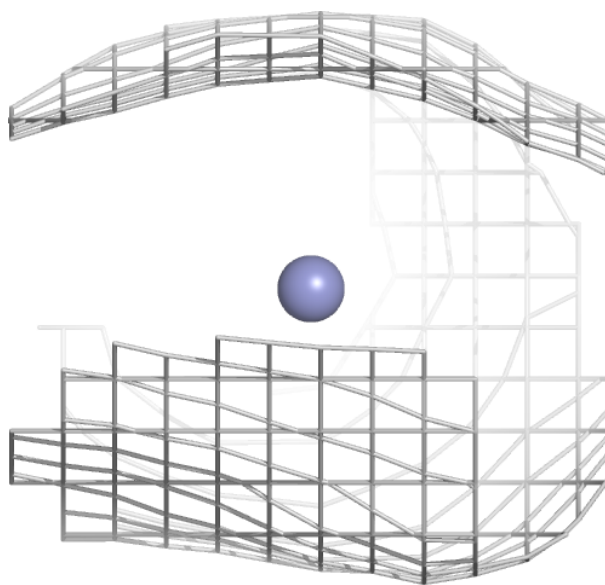
**Electron density around ZN B 1311:**

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



**Electron density around ZN A 1313:**

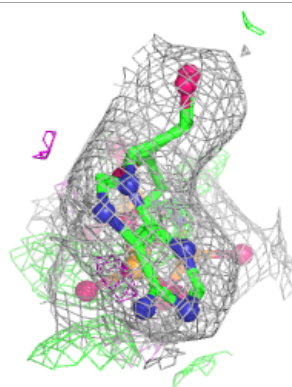
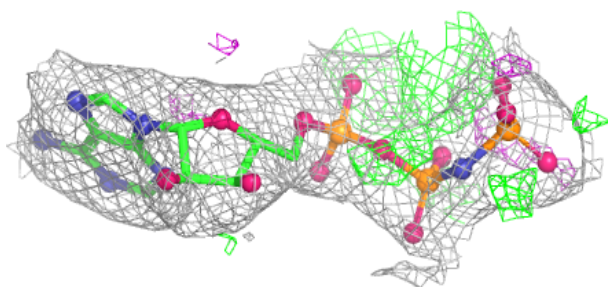
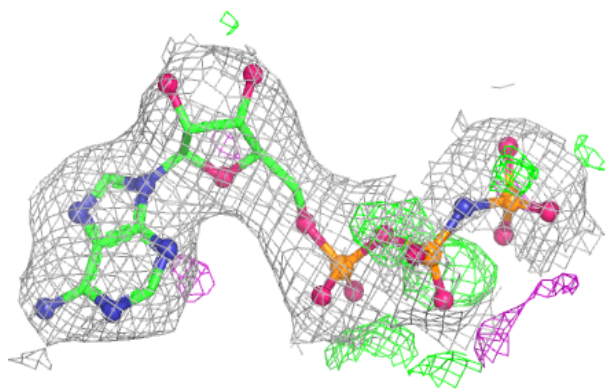
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





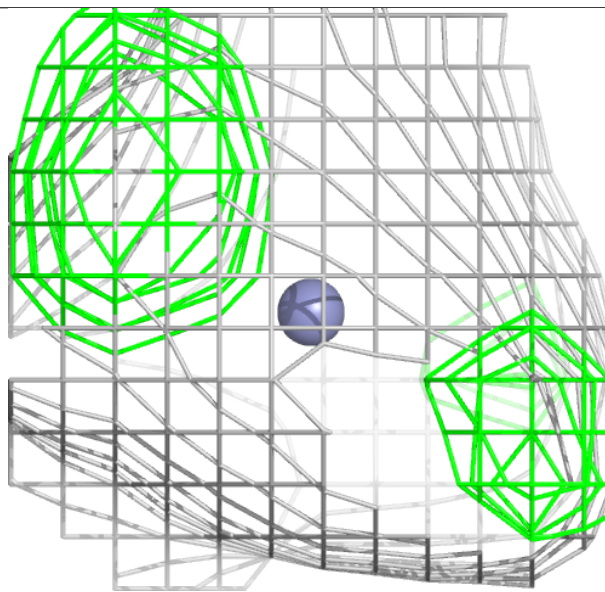
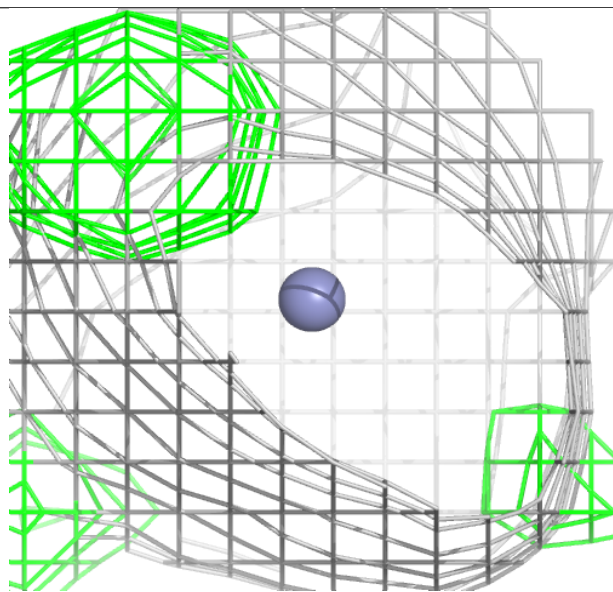
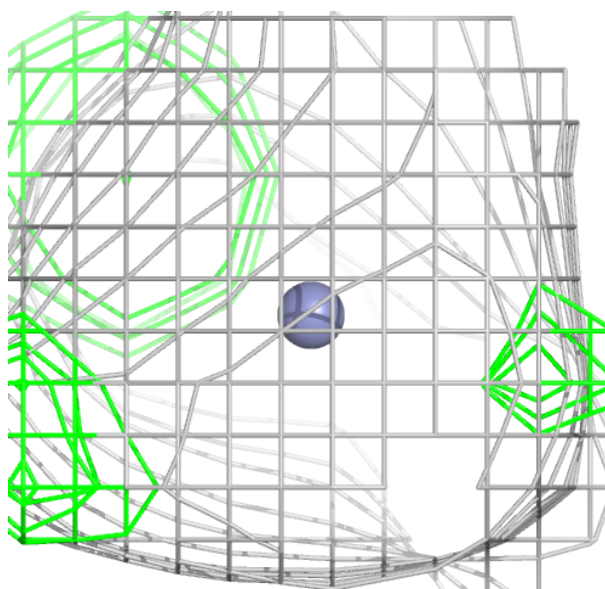
**Electron density around ANP A 1301:**

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



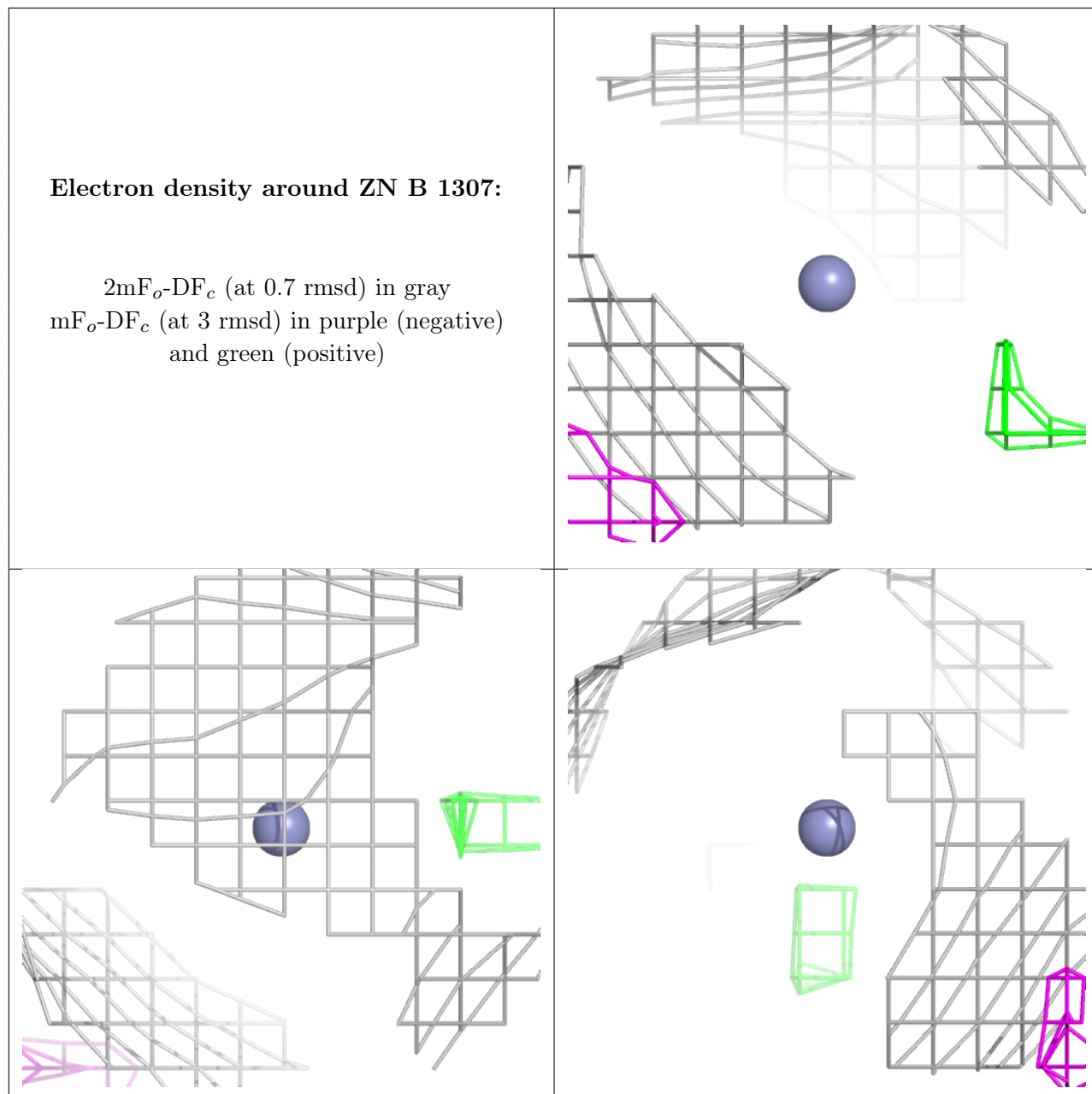
**Electron density around ZN B 1305:**

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



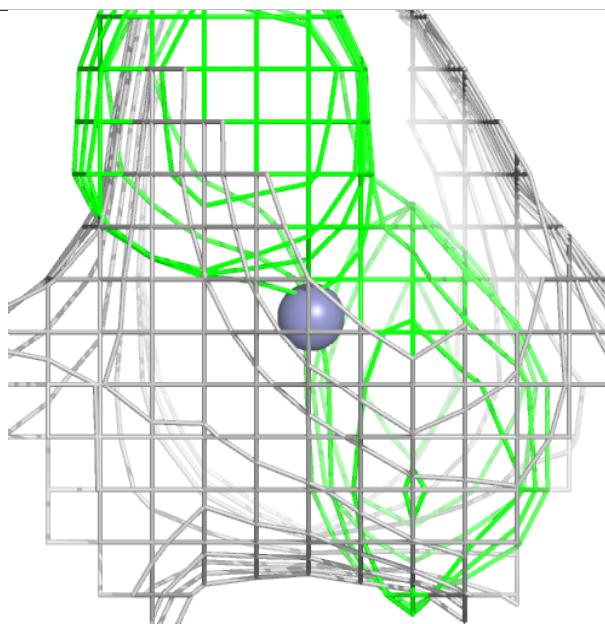
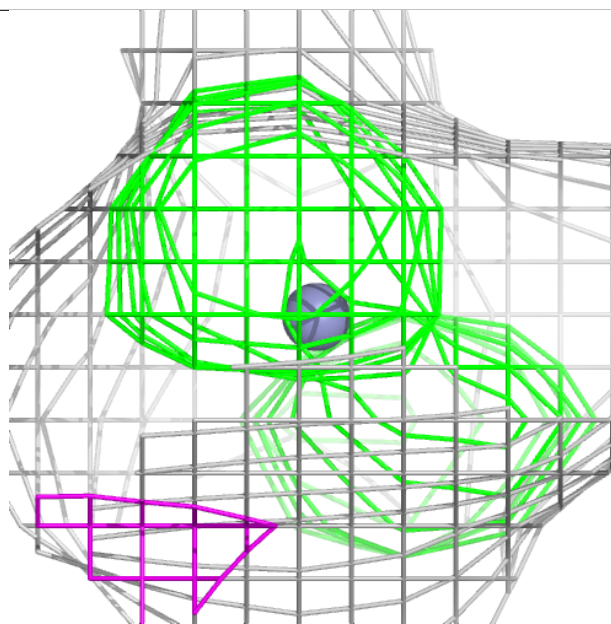
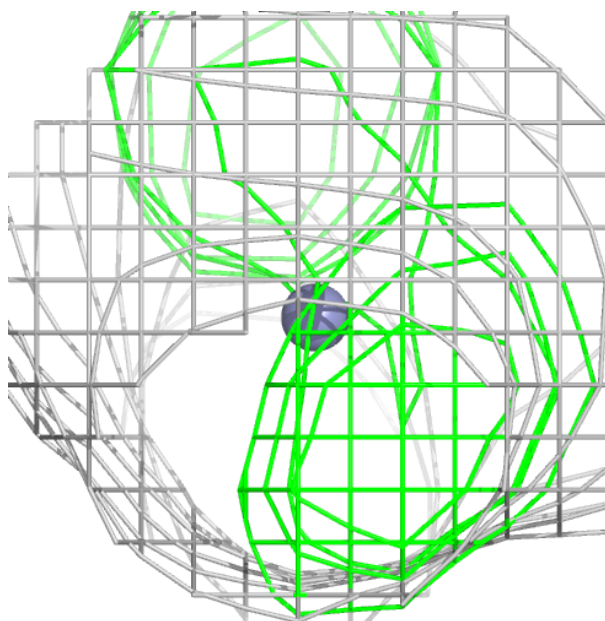
**Electron density around ZN B 1307:**

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



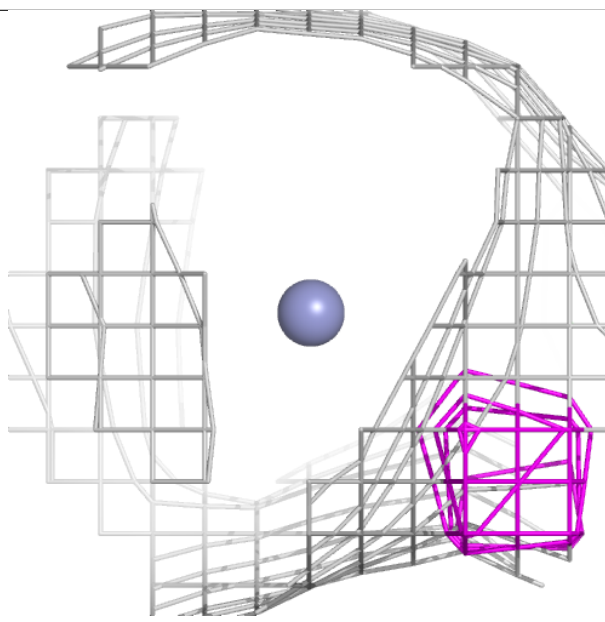
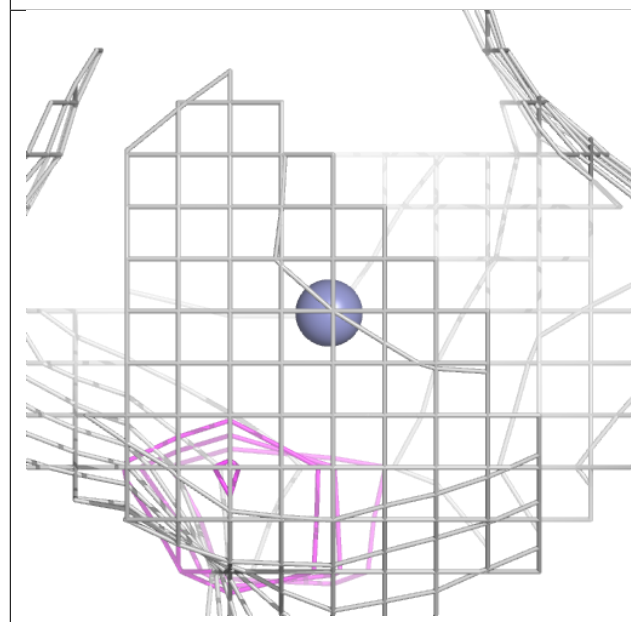
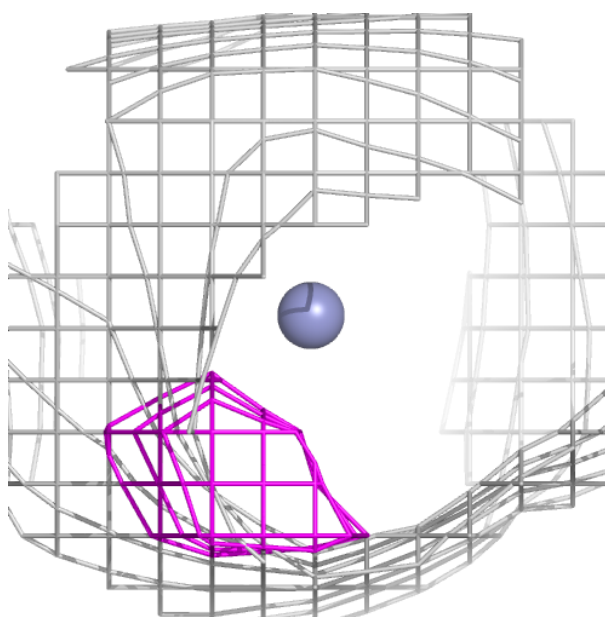
**Electron density around ZN B 1308:**

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



**Electron density around ZN B 1309:**

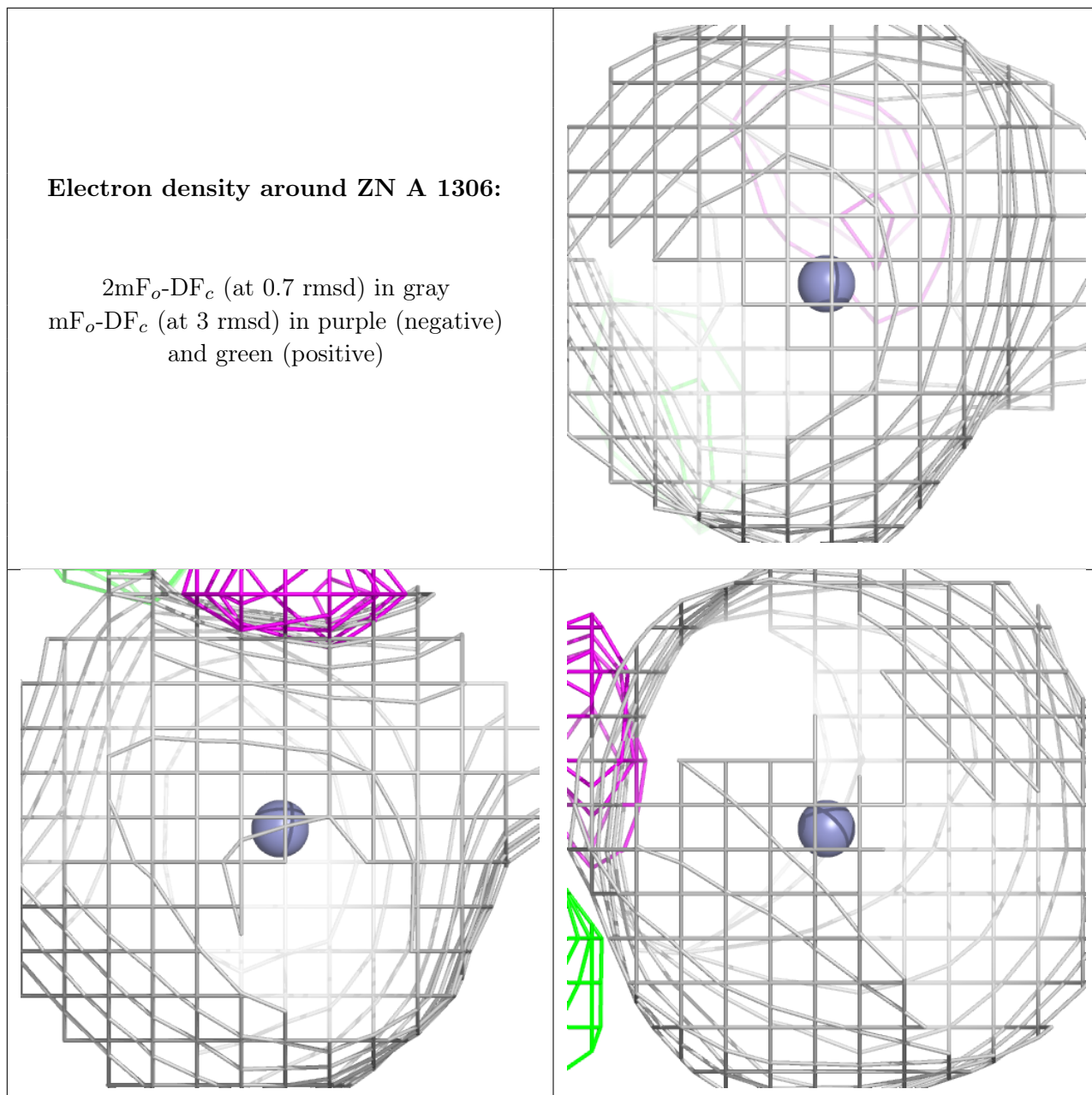
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





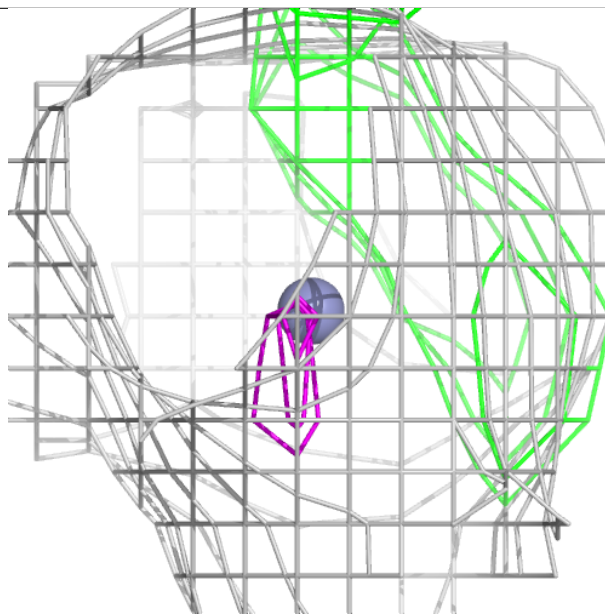
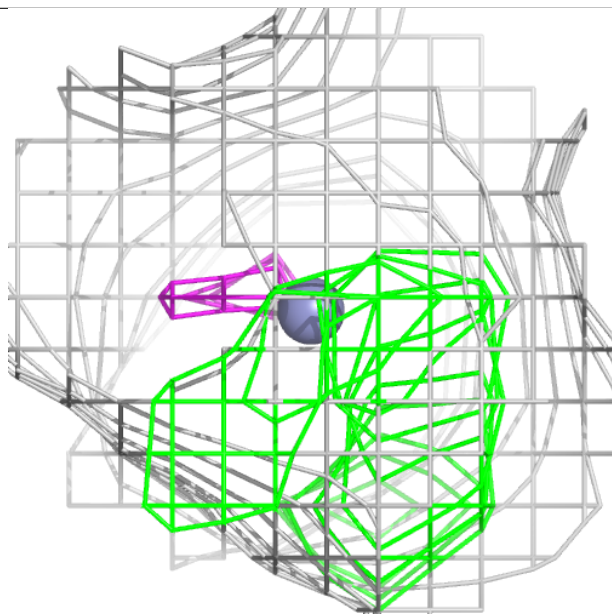
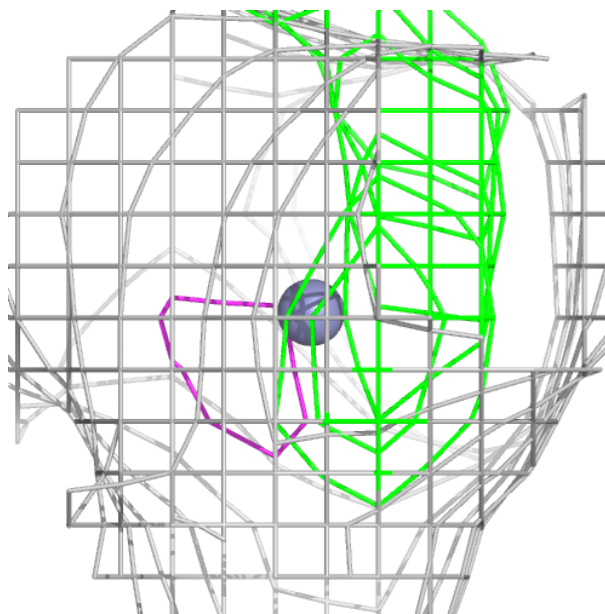
**Electron density around ZN A 1306:**

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



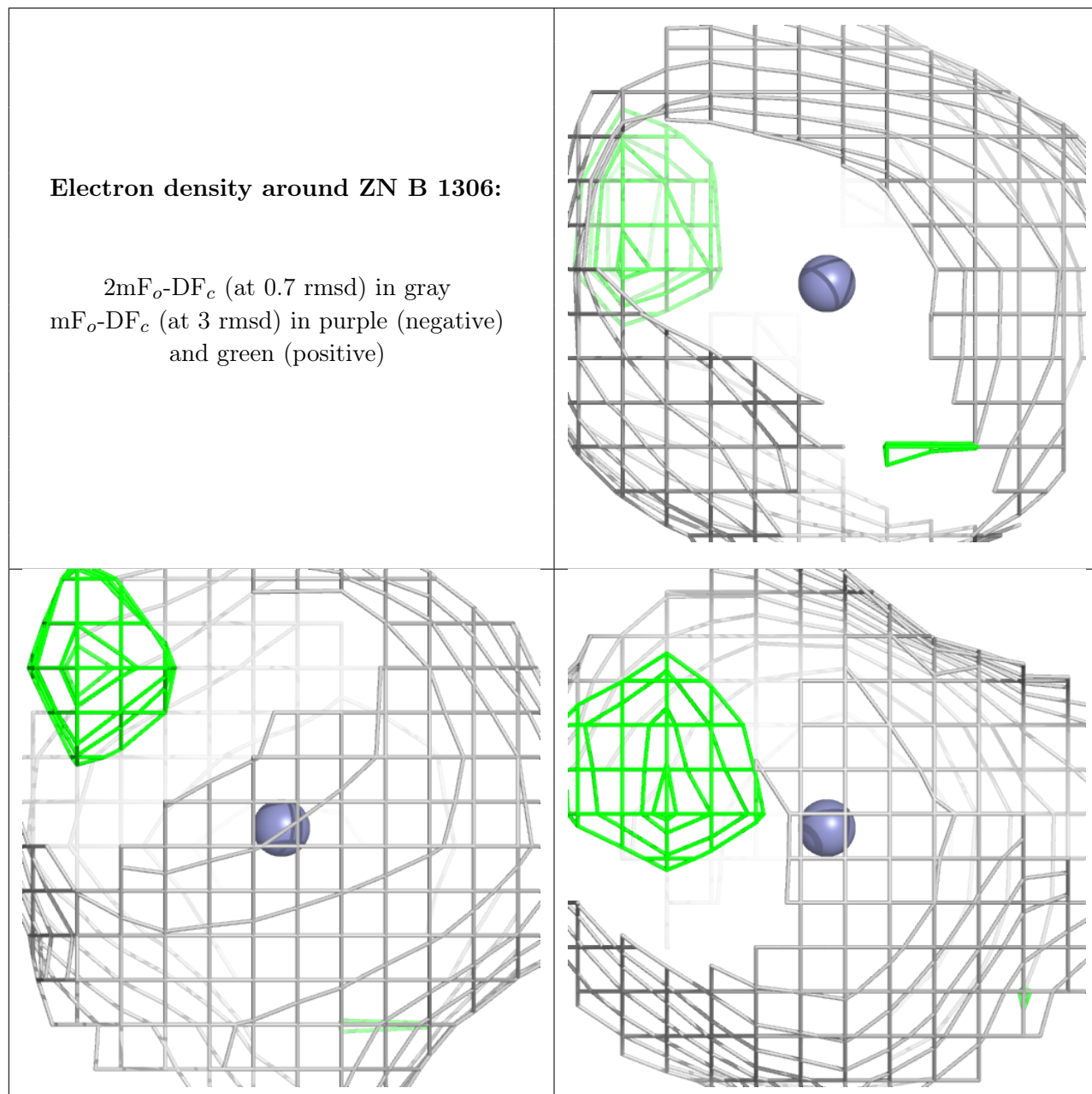
**Electron density around ZN A 1304:**

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



**Electron density around ZN B 1306:**

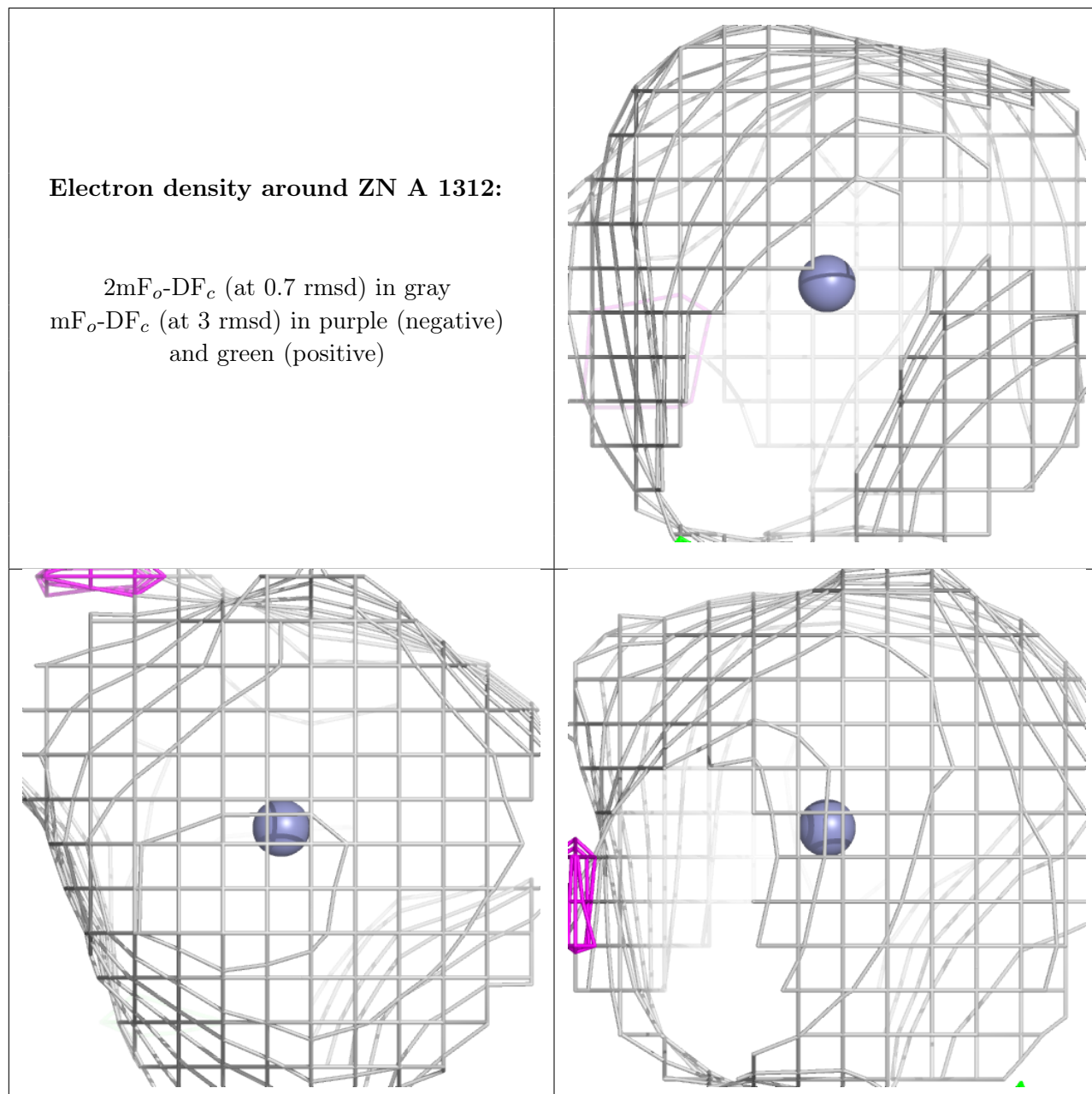
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





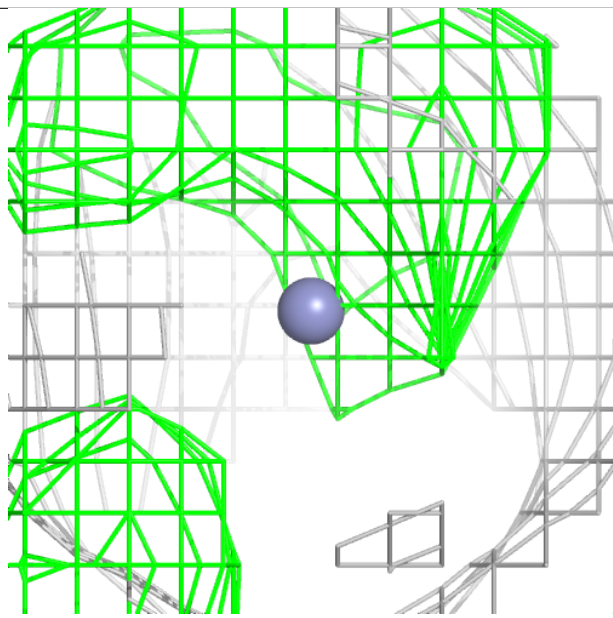
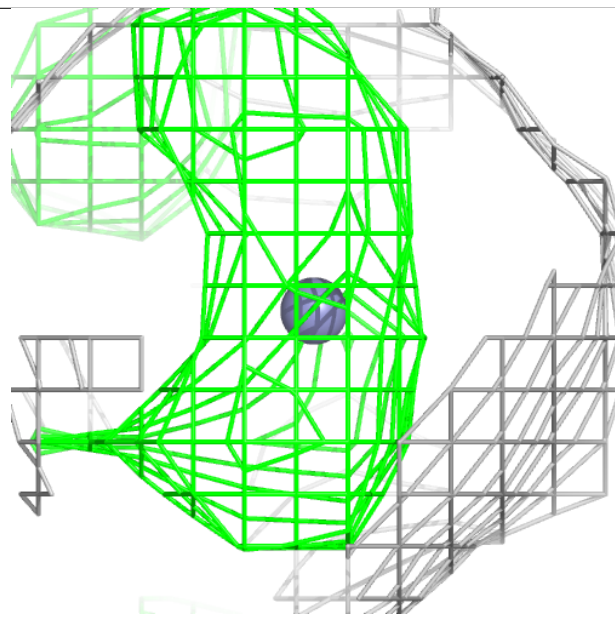
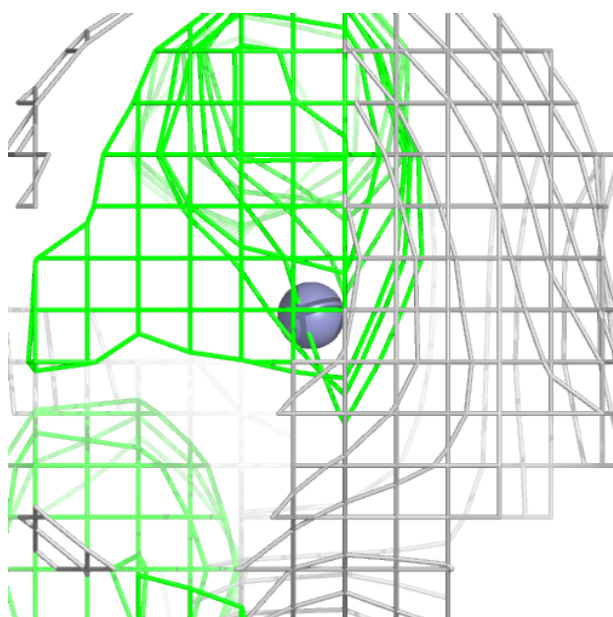
**Electron density around ZN A 1312:**

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



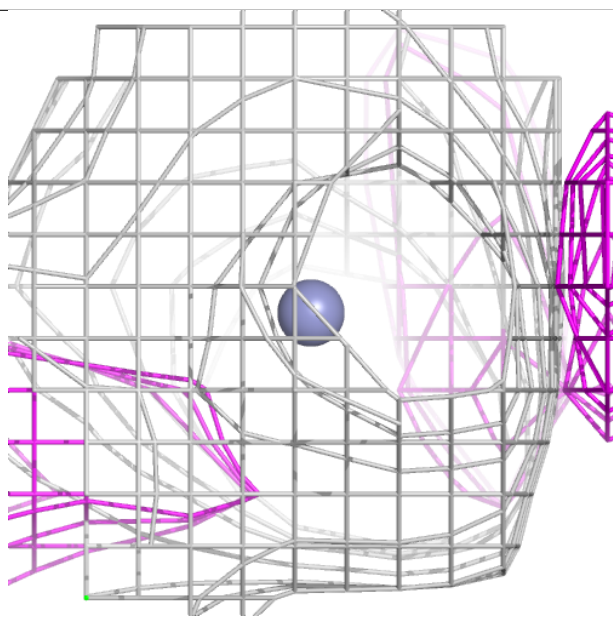
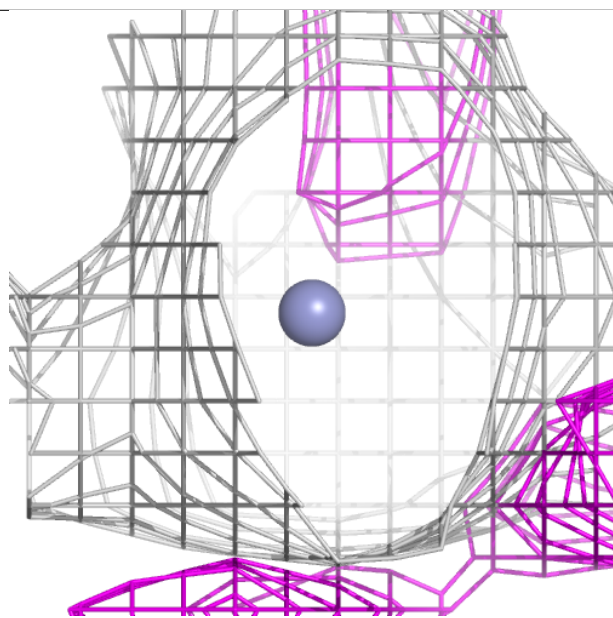
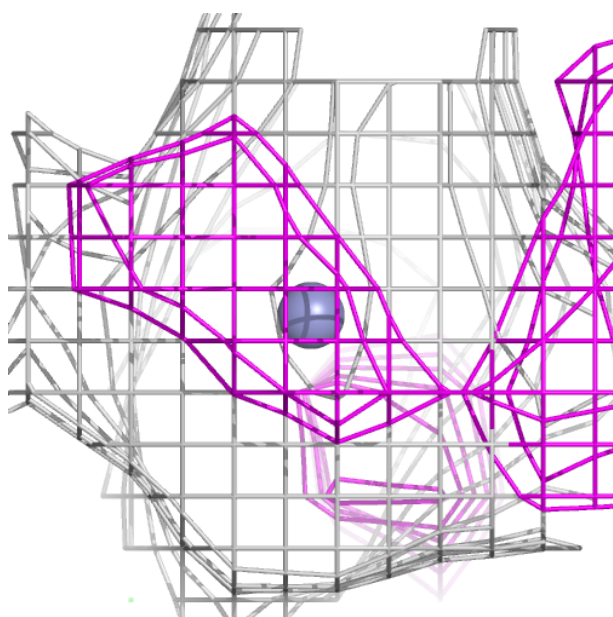
**Electron density around ZN A 1308:**

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



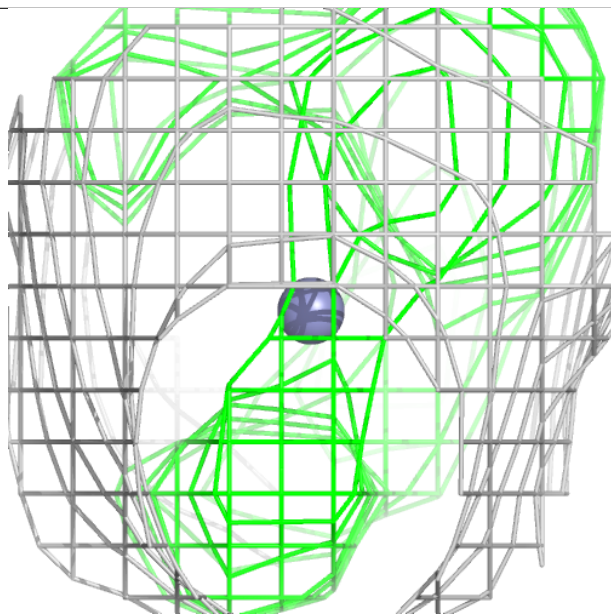
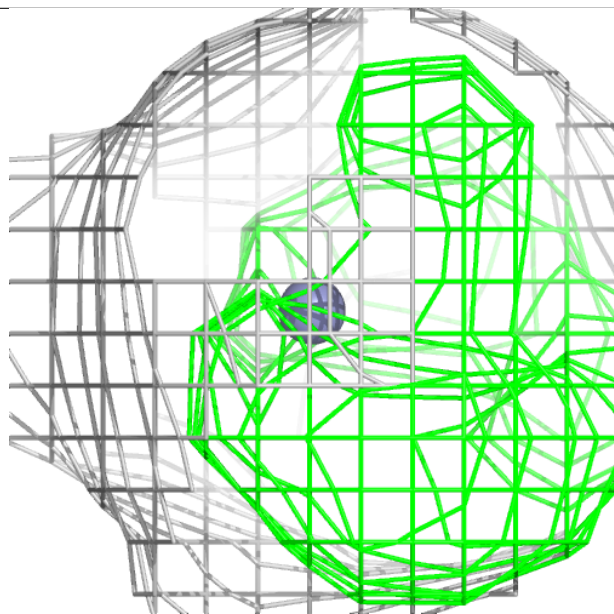
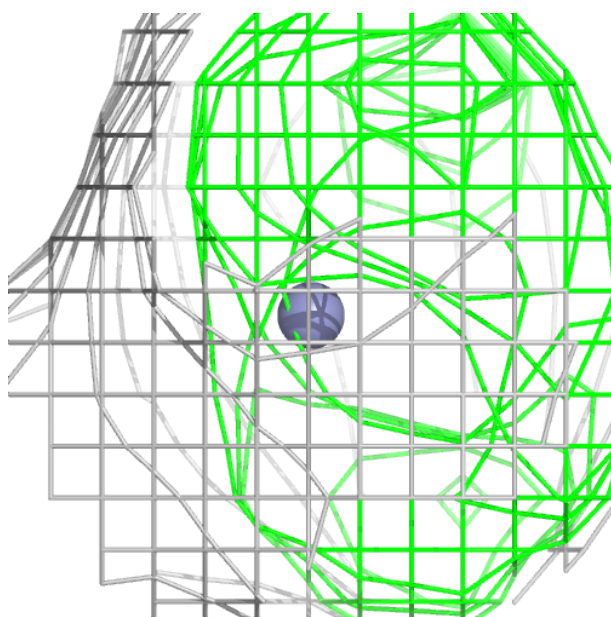
**Electron density around ZN A 1309:**

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



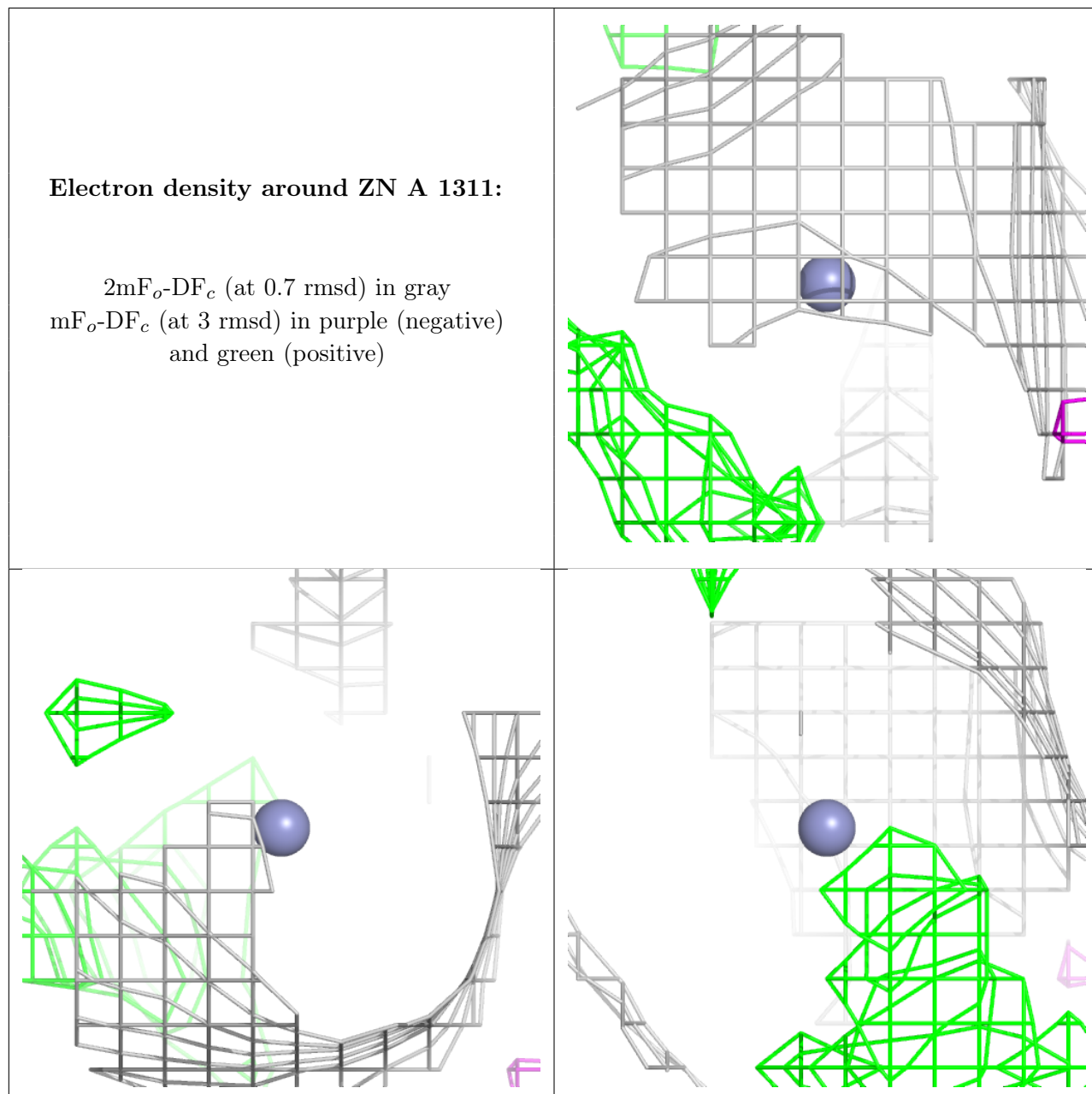
**Electron density around ZN A 1310:**

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



**Electron density around ZN A 1311:**

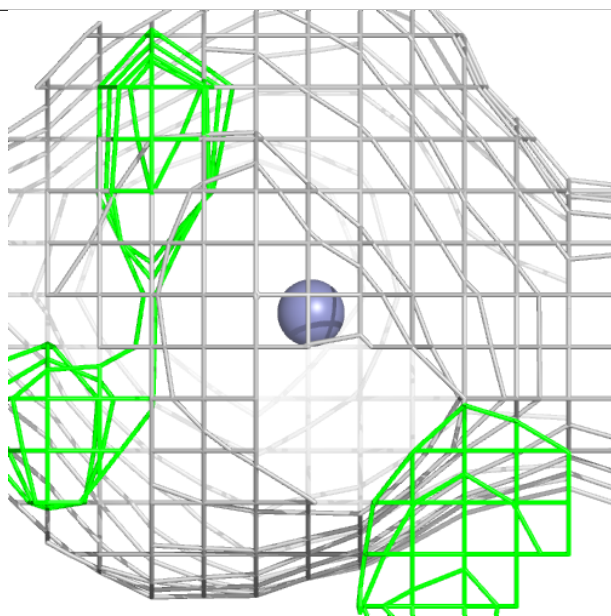
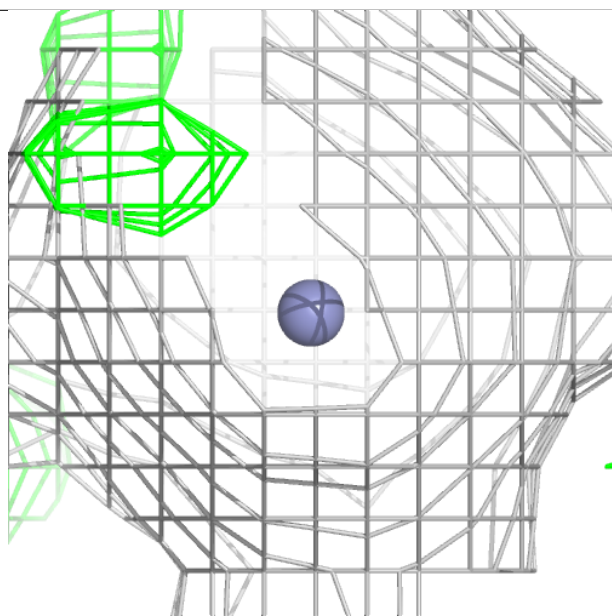
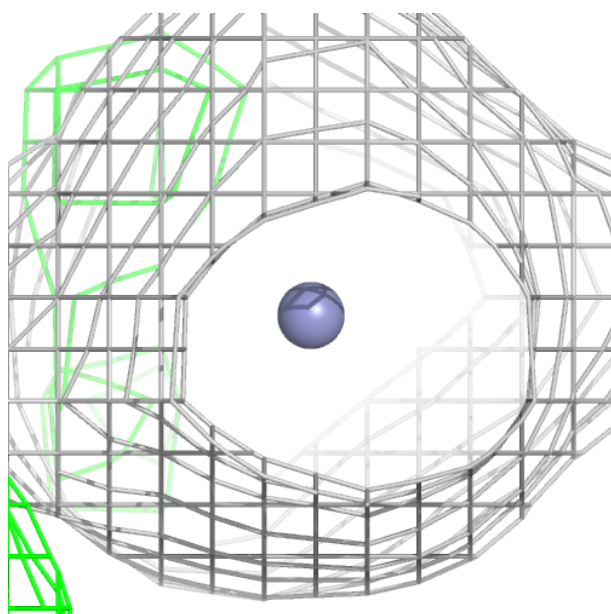
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





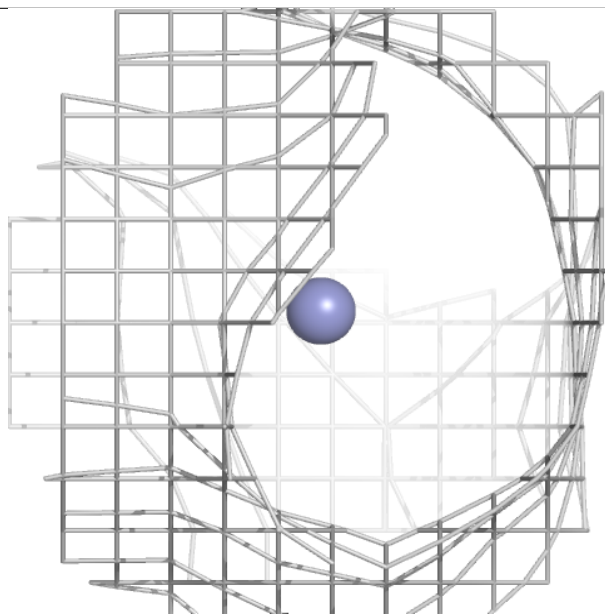
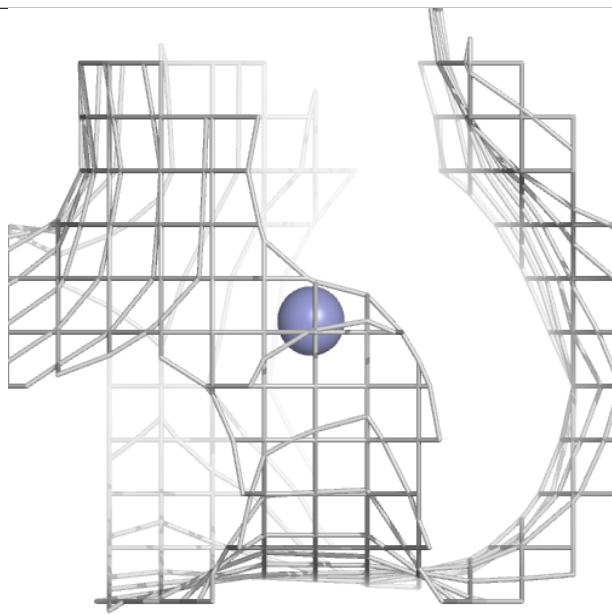
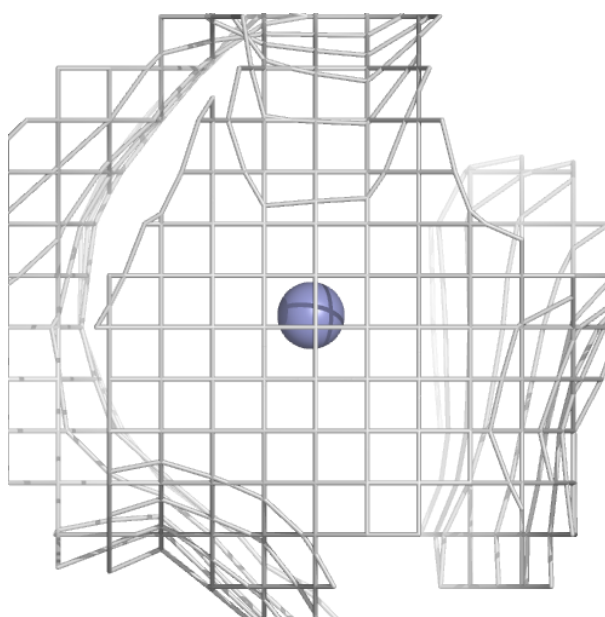
**Electron density around ZN A 1305:**

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



**Electron density around ZN A 1303:**

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



## 6.5 Other polymers ⓘ

There are no such residues in this entry.