



Full wwPDB X-ray Structure Validation Report ⓘ

May 7, 2026 – 10:15 AM JST

PDB ID : 9UYA / pdb_00009uya
Title : Crystal structure of phospholipase D form Streptomyces avermitilis
Authors : Sakuraba, H.; Yasutake, Y.; Sakasegawa, S.
Deposited on : 2025-05-15
Resolution : 2.20 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

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 : 1.8.5 (274361), CSD as541be (2020)
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

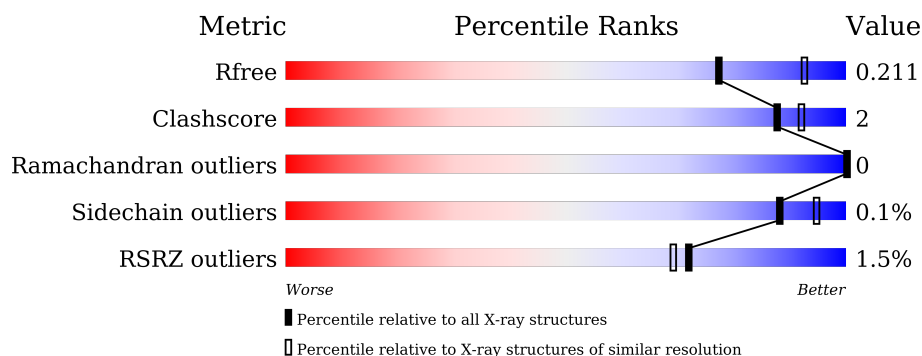
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.20 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	6164 (2.20-2.20)
Clashscore	190562	6851 (2.20-2.20)
Ramachandran outliers	187476	6768 (2.20-2.20)
Sidechain outliers	187428	6769 (2.20-2.20)
RSRZ outliers	180081	6166 (2.20-2.20)

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 ≥ 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	524	<div> <div>%</div> <div> <div></div> <div>93%</div> <div>5%</div> <div>.</div> </div> </div>
1	B	524	<div> <div>2%</div> <div> <div></div> <div>94%</div> <div>.</div> <div>.</div> </div> </div>
1	C	524	<div> <div>2%</div> <div> <div></div> <div>91%</div> <div>6%</div> <div>.</div> </div> </div>
1	D	524	<div> <div>%</div> <div> <div></div> <div>90%</div> <div>7%</div> <div>.</div> </div> </div>

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 16553 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 Alkaline phosphatase, secreted.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	510	Total	C	N	O	S	0	0	0
			3934	2473	703	753	5			
1	B	510	Total	C	N	O	S	0	0	0
			3934	2473	703	753	5			
1	C	513	Total	C	N	O	S	0	0	0
			3952	2485	706	756	5			
1	D	508	Total	C	N	O	S	0	0	0
			3919	2466	701	747	5			

There are 56 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	MET	-	initiating methionine	UNP Q82AC0
A	511	LYS	-	expression tag	UNP Q82AC0
A	512	LEU	-	expression tag	UNP Q82AC0
A	513	ALA	-	expression tag	UNP Q82AC0
A	514	ALA	-	expression tag	UNP Q82AC0
A	515	ALA	-	expression tag	UNP Q82AC0
A	516	LEU	-	expression tag	UNP Q82AC0
A	517	GLU	-	expression tag	UNP Q82AC0
A	518	HIS	-	expression tag	UNP Q82AC0
A	519	HIS	-	expression tag	UNP Q82AC0
A	520	HIS	-	expression tag	UNP Q82AC0
A	521	HIS	-	expression tag	UNP Q82AC0
A	522	HIS	-	expression tag	UNP Q82AC0
A	523	HIS	-	expression tag	UNP Q82AC0
B	0	MET	-	initiating methionine	UNP Q82AC0
B	511	LYS	-	expression tag	UNP Q82AC0
B	512	LEU	-	expression tag	UNP Q82AC0
B	513	ALA	-	expression tag	UNP Q82AC0
B	514	ALA	-	expression tag	UNP Q82AC0
B	515	ALA	-	expression tag	UNP Q82AC0
B	516	LEU	-	expression tag	UNP Q82AC0

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Chain	Residue	Modelled	Actual	Comment	Reference
B	517	GLU	-	expression tag	UNP Q82AC0
B	518	HIS	-	expression tag	UNP Q82AC0
B	519	HIS	-	expression tag	UNP Q82AC0
B	520	HIS	-	expression tag	UNP Q82AC0
B	521	HIS	-	expression tag	UNP Q82AC0
B	522	HIS	-	expression tag	UNP Q82AC0
B	523	HIS	-	expression tag	UNP Q82AC0
C	0	MET	-	initiating methionine	UNP Q82AC0
C	511	LYS	-	expression tag	UNP Q82AC0
C	512	LEU	-	expression tag	UNP Q82AC0
C	513	ALA	-	expression tag	UNP Q82AC0
C	514	ALA	-	expression tag	UNP Q82AC0
C	515	ALA	-	expression tag	UNP Q82AC0
C	516	LEU	-	expression tag	UNP Q82AC0
C	517	GLU	-	expression tag	UNP Q82AC0
C	518	HIS	-	expression tag	UNP Q82AC0
C	519	HIS	-	expression tag	UNP Q82AC0
C	520	HIS	-	expression tag	UNP Q82AC0
C	521	HIS	-	expression tag	UNP Q82AC0
C	522	HIS	-	expression tag	UNP Q82AC0
C	523	HIS	-	expression tag	UNP Q82AC0
D	0	MET	-	initiating methionine	UNP Q82AC0
D	511	LYS	-	expression tag	UNP Q82AC0
D	512	LEU	-	expression tag	UNP Q82AC0
D	513	ALA	-	expression tag	UNP Q82AC0
D	514	ALA	-	expression tag	UNP Q82AC0
D	515	ALA	-	expression tag	UNP Q82AC0
D	516	LEU	-	expression tag	UNP Q82AC0
D	517	GLU	-	expression tag	UNP Q82AC0
D	518	HIS	-	expression tag	UNP Q82AC0
D	519	HIS	-	expression tag	UNP Q82AC0
D	520	HIS	-	expression tag	UNP Q82AC0
D	521	HIS	-	expression tag	UNP Q82AC0
D	522	HIS	-	expression tag	UNP Q82AC0
D	523	HIS	-	expression tag	UNP Q82AC0

- Molecule 2 is FE (III) ION (CCD ID: FE) (formula: Fe) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Fe 1 1	0	0

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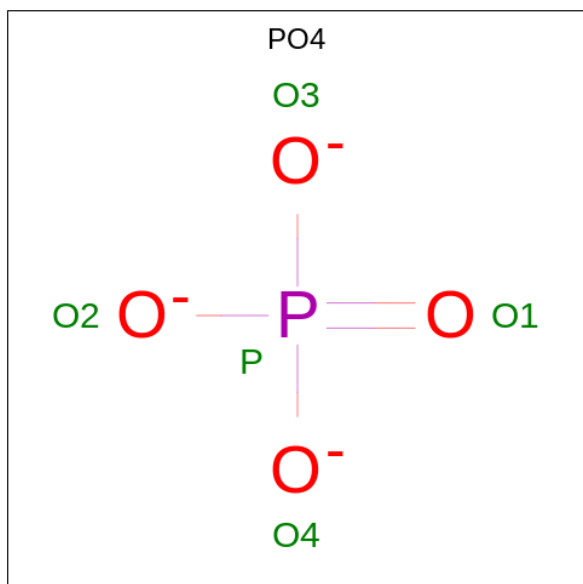
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	B	1	Total	Fe	0	0
			1	1		
2	C	1	Total	Fe	0	0
			1	1		
2	D	1	Total	Fe	0	0
			1	1		

- Molecule 3 is CALCIUM ION (CCD ID: CA) (formula: Ca) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	5	Total	Ca	0	0
			5	5		
3	B	5	Total	Ca	0	0
			5	5		
3	C	5	Total	Ca	0	0
			5	5		
3	D	5	Total	Ca	0	0
			5	5		

- Molecule 4 is PHOSPHATE ION (CCD ID: PO4) (formula: O₄P) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	O	P	0	0
			5	4	1		

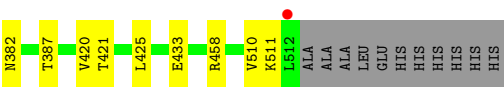
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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	B	1	Total	O	P	0	0
			5	4	1		
4	C	1	Total	O	P	0	0
			5	4	1		
4	D	1	Total	O	P	0	0
			5	4	1		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	164	Total	O	0	0
			164	164		
5	B	213	Total	O	0	0
			213	213		
5	C	239	Total	O	0	0
			239	239		
5	D	154	Total	O	0	0
			154	154		



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	90.94Å 156.81Å 163.76Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.80 – 2.20 46.80 – 2.20	Depositor EDS
% Data completeness (in resolution range)	99.6 (46.80-2.20) 99.7 (46.80-2.20)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.14 (at 2.20Å)	Xtriage
Refinement program	PHENIX 1.21.2_5419	Depositor
R, R_{free}	0.177 , 0.211 0.178 , 0.211	Depositor DCC
R_{free} test set	6159 reflections (5.16%)	wwPDB-VP
Wilson B-factor (Å ²)	32.8	Xtriage
Anisotropy	0.507	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 38.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	0.018 for -h,l,k	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	16553	wwPDB-VP
Average B, all atoms (Å ²)	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.96% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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: CA, PO4, FE

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	0.17	0/4036	0.37	0/5511
1	B	0.17	0/4036	0.39	0/5511
1	C	0.18	0/4054	0.40	0/5536
1	D	0.15	0/4021	0.36	0/5489
All	All	0.17	0/16147	0.38	0/22047

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 [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	3934	0	3791	13	0
1	B	3934	0	3791	11	0
1	C	3952	0	3812	18	0
1	D	3919	0	3783	21	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
3	A	5	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	5	0	0	0	0
3	C	5	0	0	0	0
3	D	5	0	0	0	0
4	A	5	0	0	0	0
4	B	5	0	0	0	0
4	C	5	0	0	0	0
4	D	5	0	0	0	0
5	A	164	0	0	0	0
5	B	213	0	0	0	0
5	C	239	0	0	1	0
5	D	154	0	0	0	0
All	All	16553	0	15177	62	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 2.

All (62) 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:382:ASN:H	1:B:501:GLN:HE21	1.33	0.75
1:D:67:THR:HG22	1:D:69:ALA:H	1.57	0.70
1:A:233:THR:HG23	1:A:236:ALA:H	1.57	0.68
1:A:29:PRO:HG3	1:A:72:HIS:CE1	2.42	0.54
1:C:376:ARG:HB2	1:C:400:PHE:CE2	2.42	0.54
1:C:420:VAL:HG12	1:C:421:THR:HG23	1.90	0.51
1:A:337:ALA:O	1:A:341:LYS:HG2	2.10	0.51
1:C:326:MET:HA	1:C:387:THR:HG21	1.93	0.50
1:B:420:VAL:HG12	1:B:421:THR:HG23	1.95	0.49
1:A:354:ILE:HD12	1:A:358:THR:HG21	1.95	0.49
1:B:323:ASN:O	1:B:387:THR:HA	2.13	0.48
1:C:323:ASN:O	1:C:387:THR:HA	2.12	0.48
1:C:485:ASN:HB3	1:D:337:ALA:HB3	1.94	0.48
1:D:420:VAL:HG12	1:D:421:THR:HG23	1.95	0.48
1:D:323:ASN:O	1:D:387:THR:HA	2.15	0.47
1:A:326:MET:HA	1:A:387:THR:HG21	1.97	0.47
1:A:323:ASN:O	1:A:387:THR:HA	2.15	0.47
1:D:326:MET:HA	1:D:387:THR:HG21	1.96	0.47
1:B:382:ASN:H	1:B:501:GLN:NE2	2.08	0.46
1:C:211:ASP:HB3	1:C:277:ARG:CZ	2.44	0.46
1:A:347:LEU:HD13	1:A:357:ASN:HB2	1.96	0.46
1:D:276:LEU:O	1:D:280:ARG:HD2	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:326:MET:HE3	1:D:360:GLN:HE22	1.81	0.46
1:C:332:ILE:HG23	1:C:335:LEU:HD12	1.96	0.45
1:D:126:TRP:HB3	1:D:171:HIS:CE1	2.52	0.45
1:C:337:ALA:O	1:C:341:LYS:HD3	2.17	0.45
1:C:349:LEU:HD11	1:C:357:ASN:HA	1.98	0.45
1:D:38:GLY:HA2	1:D:68:ALA:HB1	1.98	0.44
1:C:75:LYS:HE2	1:C:246:PHE:O	2.18	0.44
1:D:126:TRP:CZ2	1:D:189:ARG:HD2	2.53	0.43
1:A:25:THR:HG22	1:A:74:VAL:HB	2.01	0.43
1:D:34:ILE:H	1:D:34:ILE:HG13	1.60	0.43
1:D:108:ALA:HB3	1:D:111:ALA:HB2	1.99	0.43
1:D:433:GLU:CD	1:D:458:ARG:HG2	2.43	0.43
1:D:138:ALA:HB1	1:D:202:LYS:HD2	2.01	0.43
1:B:376:ARG:HB2	1:B:400:PHE:CE1	2.54	0.43
1:A:276:LEU:O	1:A:280:ARG:HD2	2.19	0.43
1:A:211:ASP:HB3	1:A:277:ARG:CZ	2.48	0.42
1:C:126:TRP:HB3	1:C:171:HIS:CE1	2.54	0.42
1:C:208:ILE:CG2	1:C:273:LEU:HB3	2.49	0.42
1:D:318:TRP:CE3	1:D:382:ASN:HB3	2.55	0.42
1:D:77:ASP:CG	1:D:79:ARG:HH12	2.27	0.42
1:B:341:LYS:HG2	1:B:351:GLN:OE1	2.20	0.42
1:B:327:ILE:HA	1:B:361:TRP:HB2	2.02	0.42
1:D:510:VAL:O	1:D:511:LYS:HE3	2.20	0.42
1:B:9:HIS:HB3	1:B:191:LYS:HB3	2.01	0.42
1:A:376:ARG:HB2	1:A:400:PHE:CE1	2.55	0.42
1:D:44:GLU:OE1	1:D:65:THR:HG22	2.19	0.42
1:C:187:HIS:HE1	5:C:1214:HOH:O	2.03	0.41
1:D:425:LEU:HD12	1:D:425:LEU:HA	1.90	0.41
1:A:173:PRO:HD3	1:A:185:THR:HB	2.02	0.41
1:D:5:PRO:HA	1:D:29:PRO:HA	2.01	0.41
1:A:2:THR:HB	1:A:3:GLU:H	1.66	0.41
1:B:332:ILE:HG22	1:B:340:PHE:CE1	2.56	0.41
1:D:9:HIS:HB3	1:D:191:LYS:HB3	2.01	0.41
1:C:77:ASP:CG	1:C:79:ARG:HH12	2.27	0.41
1:B:29:PRO:HB3	1:B:43:THR:OG1	2.21	0.41
1:C:48:THR:O	1:C:89:PHE:HA	2.21	0.41
1:C:49:VAL:HB	1:C:60:ALA:HB3	2.02	0.41
1:B:211:ASP:HB3	1:B:277:ARG:CZ	2.50	0.41
1:C:147:LEU:HD22	1:C:206:VAL:HB	2.03	0.41
1:C:318:TRP:CE3	1:C:382:ASN:HB3	2.57	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	508/524 (97%)	486 (96%)	22 (4%)	0	100	100
1	B	508/524 (97%)	489 (96%)	19 (4%)	0	100	100
1	C	511/524 (98%)	486 (95%)	25 (5%)	0	100	100
1	D	506/524 (97%)	485 (96%)	21 (4%)	0	100	100
All	All	2033/2096 (97%)	1946 (96%)	87 (4%)	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	402/412 (98%)	402 (100%)	0	100	100
1	B	402/412 (98%)	402 (100%)	0	100	100
1	C	403/412 (98%)	402 (100%)	1 (0%)	87	94
1	D	400/412 (97%)	400 (100%)	0	100	100
All	All	1607/1648 (98%)	1606 (100%)	1 (0%)	88	95

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	488	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15)

such sidechains are listed below:

Mol	Chain	Res	Type
1	A	72	HIS
1	A	175	ASN
1	A	351	GLN
1	B	9	HIS
1	B	171	HIS
1	B	175	ASN
1	B	501	GLN
1	C	175	ASN
1	C	187	HIS
1	C	282	GLN
1	D	171	HIS
1	D	197	GLN
1	D	351	GLN
1	D	360	GLN
1	D	485	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 28 ligands modelled in this entry, 24 are monoatomic - 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
4	PO4	D	1004	3,2	4,4,4	1.47	1 (25%)	6,6,6	0.67	0
4	PO4	A	1004	3,2	4,4,4	1.48	1 (25%)	6,6,6	0.53	0
4	PO4	C	1004	3,2	4,4,4	1.57	1 (25%)	6,6,6	0.88	0
4	PO4	B	1004	3,2	4,4,4	1.54	1 (25%)	6,6,6	0.53	0

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	C	1004	PO4	P-O1	2.76	1.57	1.50
4	B	1004	PO4	P-O1	2.71	1.57	1.50
4	A	1004	PO4	P-O1	2.43	1.56	1.50
4	D	1004	PO4	P-O1	2.43	1.56	1.50

There are no bond angle outliers.

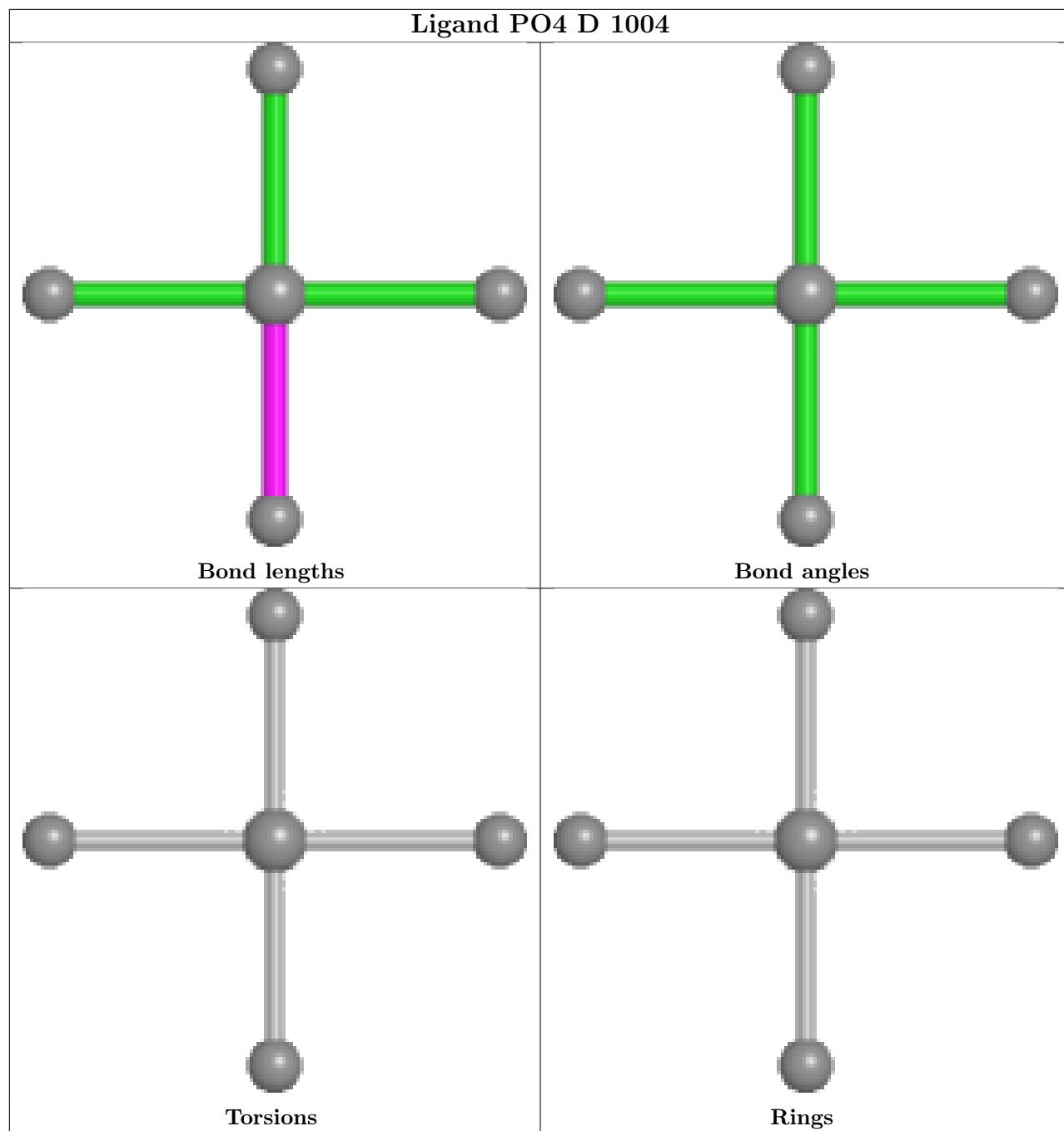
There are no chirality outliers.

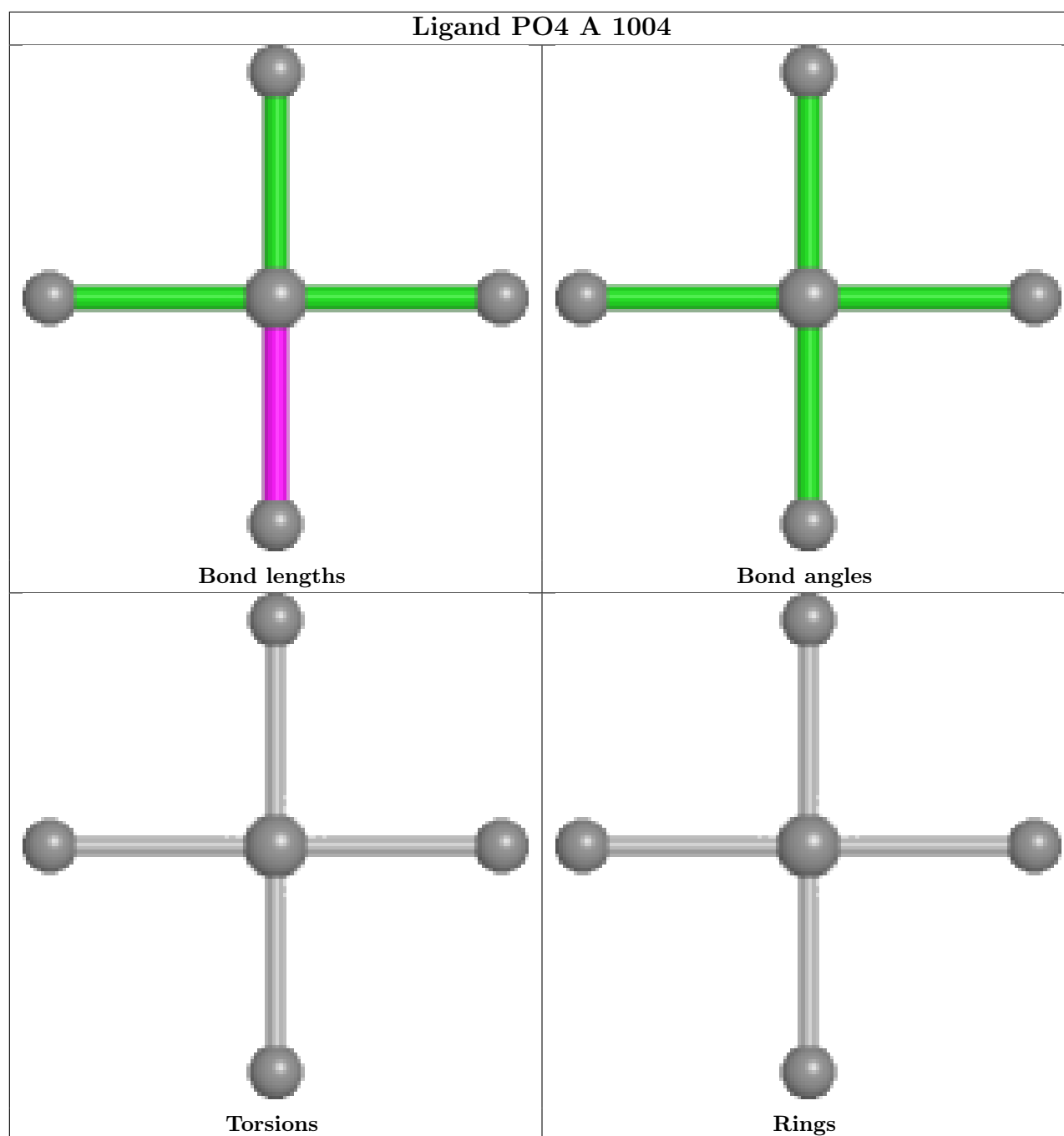
There are no torsion outliers.

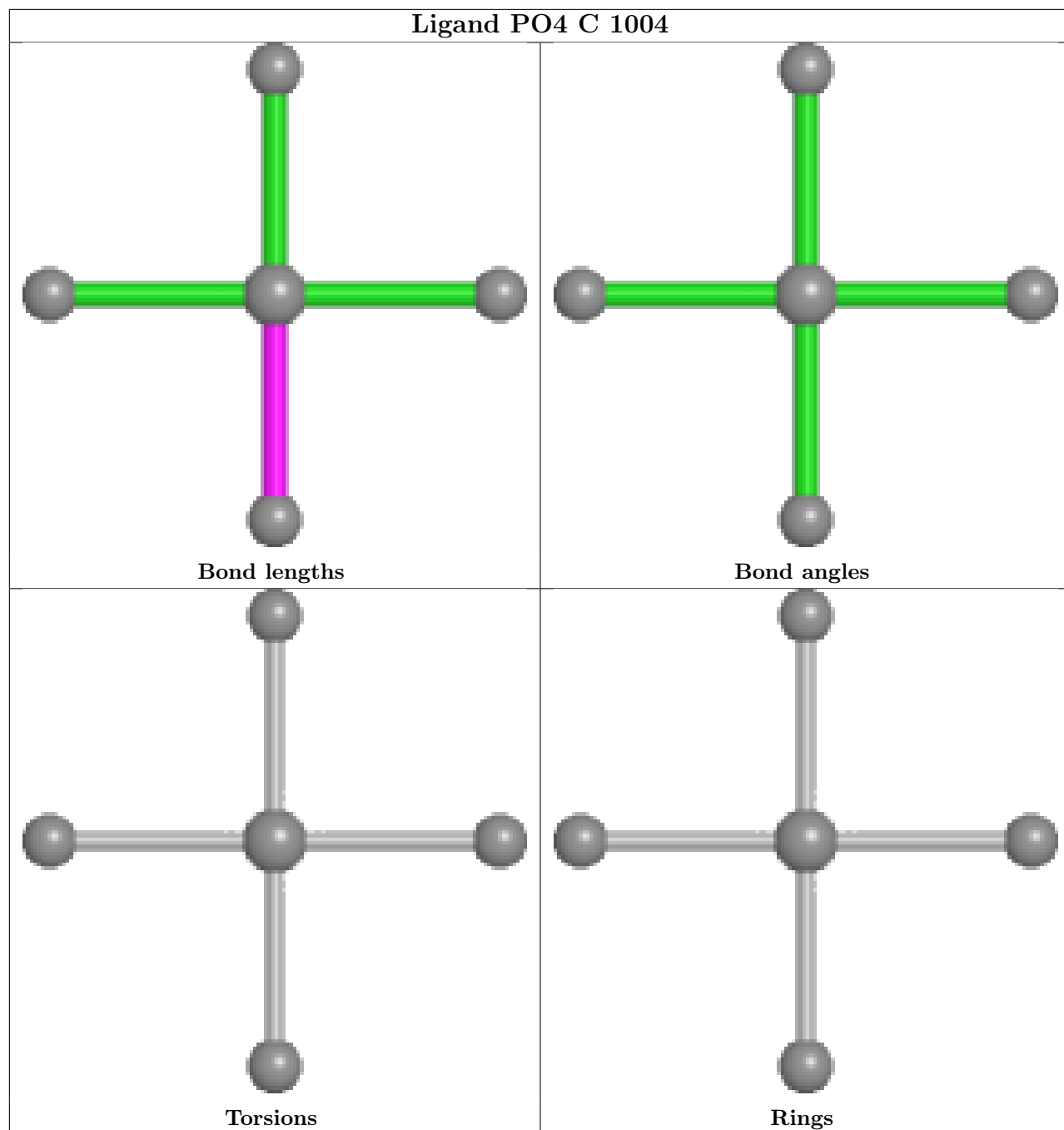
There are no ring outliers.

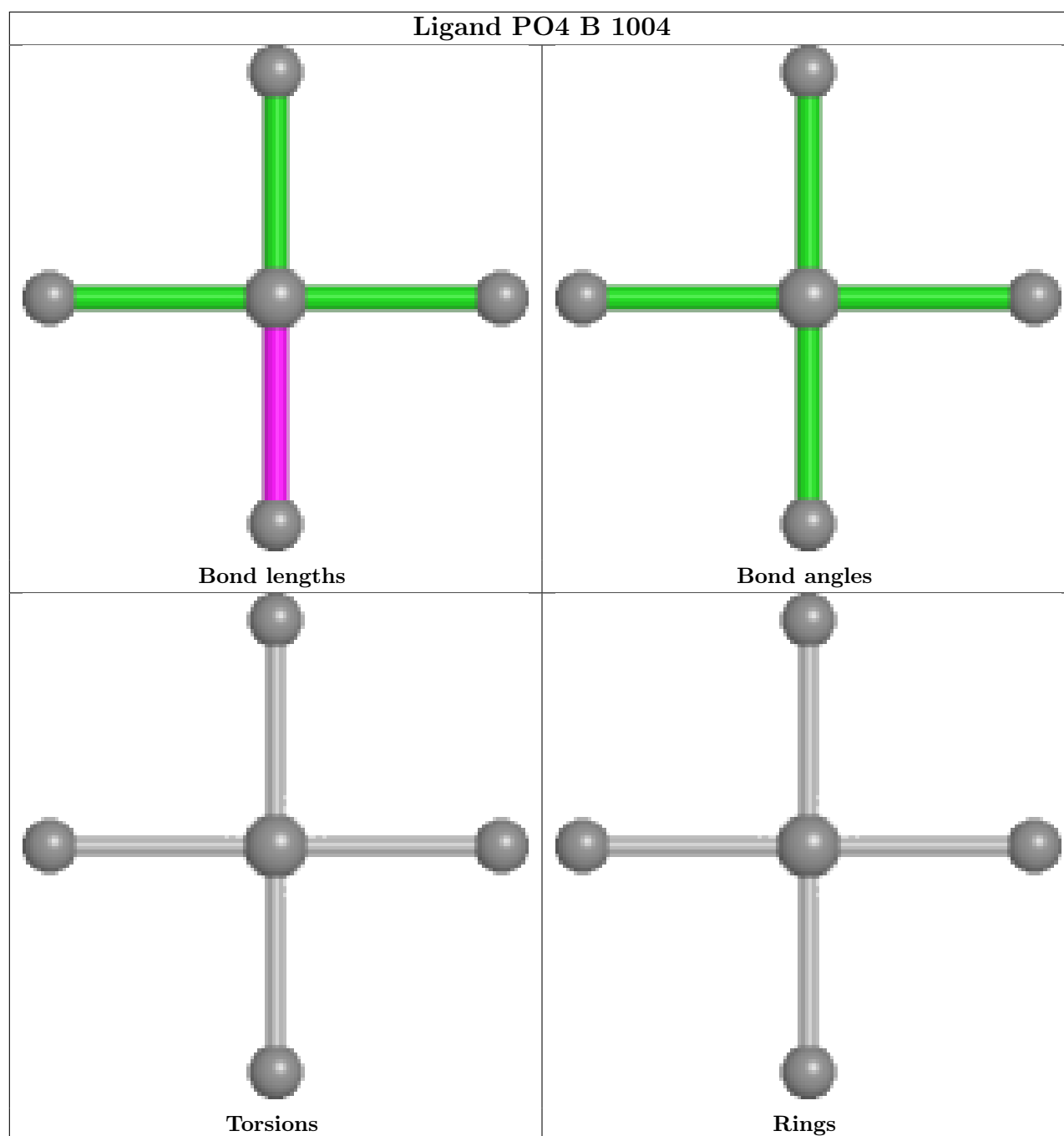
No monomer is involved in short contacts.

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, 95th 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 ²)	Q<0.9
1	A	510/524 (97%)	-0.17	7 (1%) 73 71	24, 42, 68, 114	0
1	B	510/524 (97%)	-0.35	9 (1%) 67 64	23, 38, 62, 115	0
1	C	513/524 (97%)	-0.42	10 (1%) 66 63	23, 35, 60, 107	0
1	D	508/524 (96%)	-0.01	5 (0%) 79 77	27, 49, 90, 110	0
All	All	2041/2096 (97%)	-0.24	31 (1%) 72 69	23, 40, 73, 115	0

All (31) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	354	ILE	4.3
1	A	354	ILE	4.2
1	C	354	ILE	3.6
1	C	514	ALA	3.5
1	D	512	LEU	3.5
1	B	285	SER	3.4
1	A	2	THR	3.3
1	B	286	THR	3.2
1	B	355	ALA	3.2
1	B	350	PRO	3.0
1	C	353	GLY	2.8
1	B	288	SER	2.8
1	C	288	SER	2.8
1	B	2	THR	2.6
1	C	350	PRO	2.6
1	C	287	GLY	2.6
1	D	65	THR	2.6
1	A	351	GLN	2.6
1	C	2	THR	2.5
1	B	112	GLY	2.4
1	A	355	ALA	2.3

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Mol	Chain	Res	Type	RSRZ
1	D	5	PRO	2.3
1	C	355	ALA	2.3
1	A	39	LEU	2.3
1	C	513	ALA	2.2
1	D	354	ILE	2.1
1	A	44	GLU	2.1
1	B	287	GLY	2.1
1	C	349	LEU	2.1
1	A	350	PRO	2.0
1	D	39	LEU	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 oligosaccharides 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, 95th 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(\AA^2)	Q<0.9
3	CA	A	1007	1/1	0.96	0.06	53,53,53,53	0
3	CA	D	1006	1/1	0.96	0.04	44,44,44,44	0
3	CA	A	1006	1/1	0.97	0.04	47,47,47,47	0
4	PO4	A	1004	5/5	0.97	0.06	28,31,33,34	0
4	PO4	D	1004	5/5	0.97	0.05	33,33,37,38	0
3	CA	D	1005	1/1	0.98	0.05	38,38,38,38	0
3	CA	B	1005	1/1	0.98	0.08	39,39,39,39	0
3	CA	D	1007	1/1	0.98	0.03	37,37,37,37	0
3	CA	B	1007	1/1	0.98	0.04	40,40,40,40	0
4	PO4	B	1004	5/5	0.98	0.04	30,31,34,34	0
4	PO4	C	1004	5/5	0.98	0.06	24,26,30,32	0
3	CA	C	1007	1/1	0.98	0.04	41,41,41,41	0
3	CA	D	1002	1/1	0.99	0.03	33,33,33,33	0

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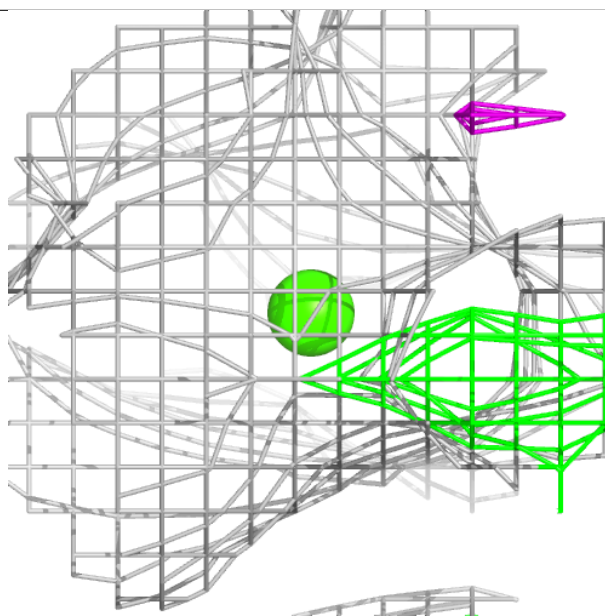
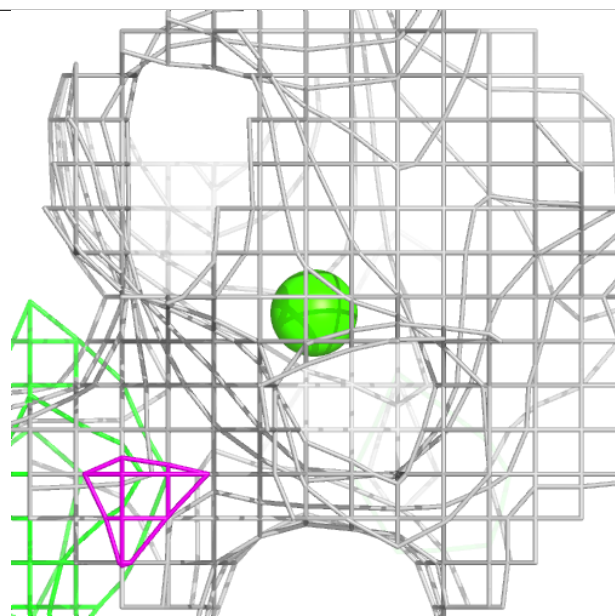
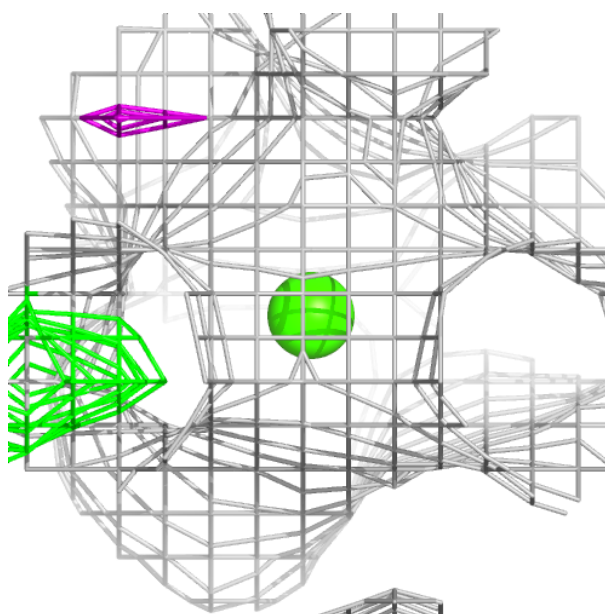
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	CA	A	1002	1/1	0.99	0.02	30,30,30,30	0
3	CA	B	1003	1/1	0.99	0.03	30,30,30,30	0
3	CA	A	1003	1/1	0.99	0.03	30,30,30,30	0
3	CA	B	1006	1/1	0.99	0.03	38,38,38,38	0
3	CA	A	1005	1/1	0.99	0.04	30,30,30,30	0
3	CA	C	1006	1/1	0.99	0.03	31,31,31,31	0
2	FE	D	1001	1/1	0.99	0.02	34,34,34,34	0
3	CA	D	1003	1/1	1.00	0.01	34,34,34,34	0
3	CA	B	1002	1/1	1.00	0.02	28,28,28,28	0
3	CA	C	1002	1/1	1.00	0.01	26,26,26,26	0
3	CA	C	1003	1/1	1.00	0.04	26,26,26,26	0
3	CA	C	1005	1/1	1.00	0.03	24,24,24,24	0
2	FE	A	1001	1/1	1.00	0.03	29,29,29,29	0
2	FE	B	1001	1/1	1.00	0.03	29,29,29,29	0
2	FE	C	1001	1/1	1.00	0.03	27,27,27,27	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.

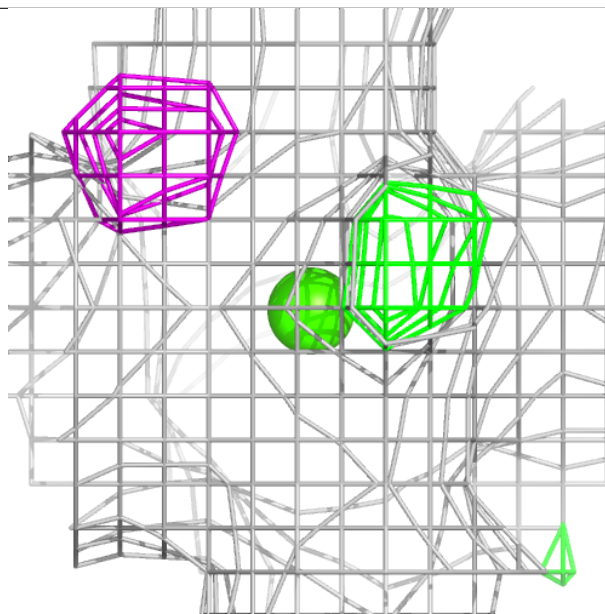
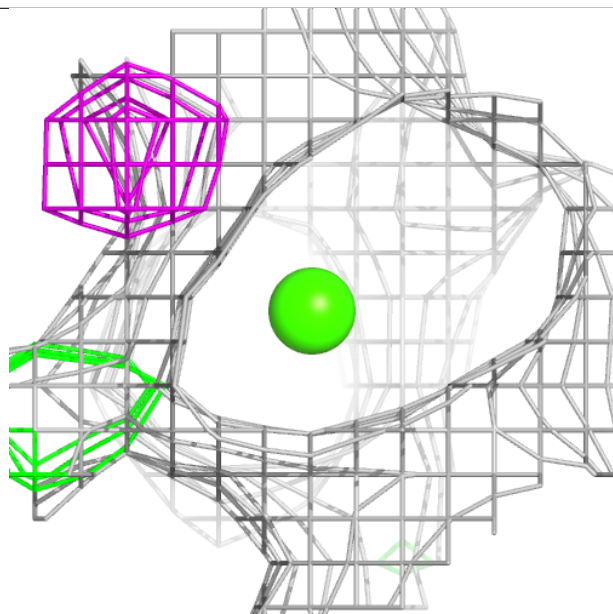
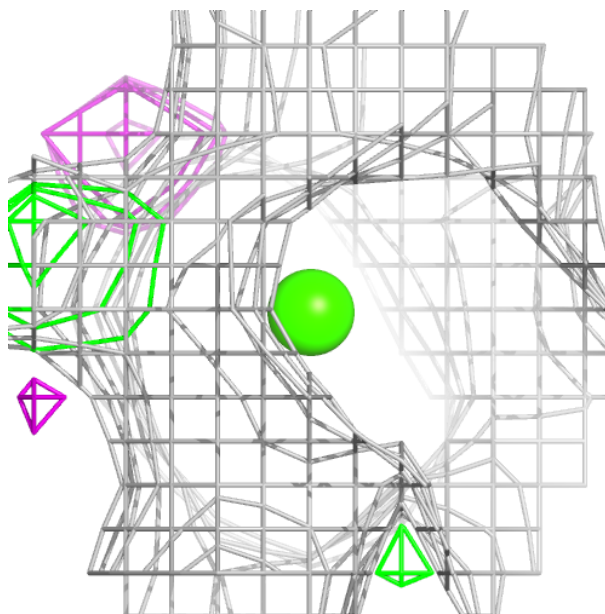
Electron density around CA A 1007:

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



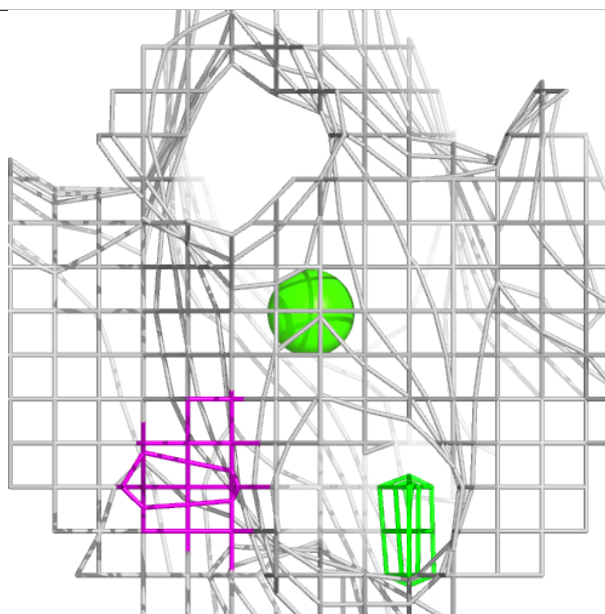
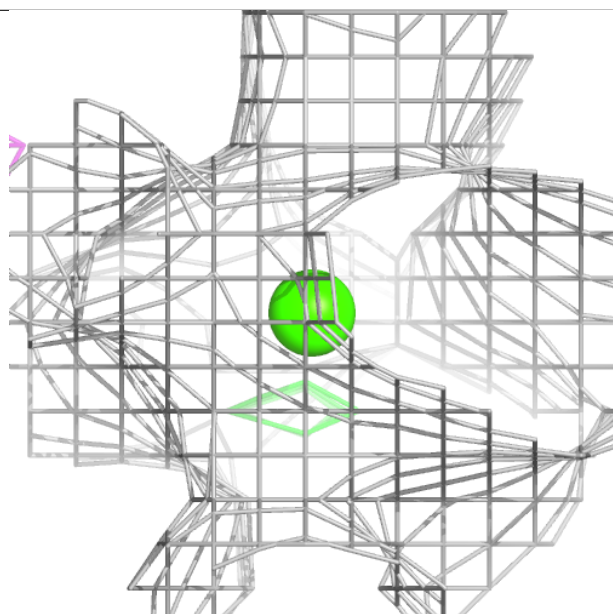
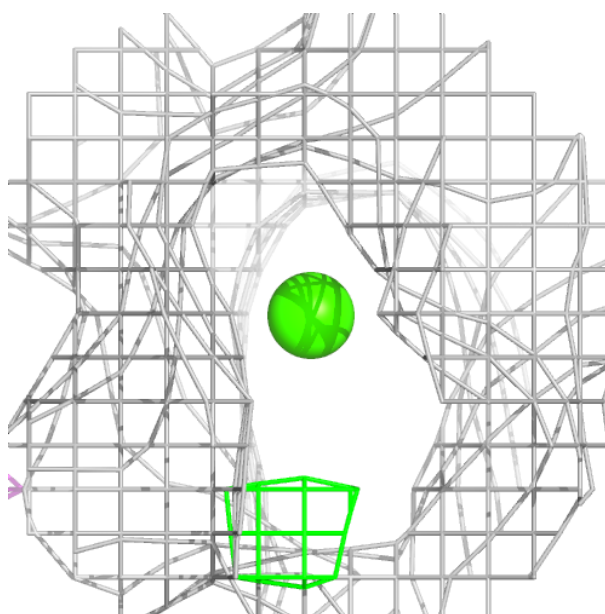
Electron density around CA D 1006:

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and green (positive)



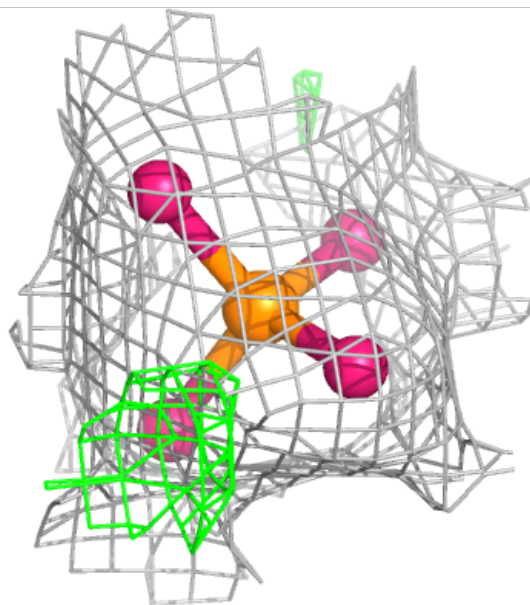
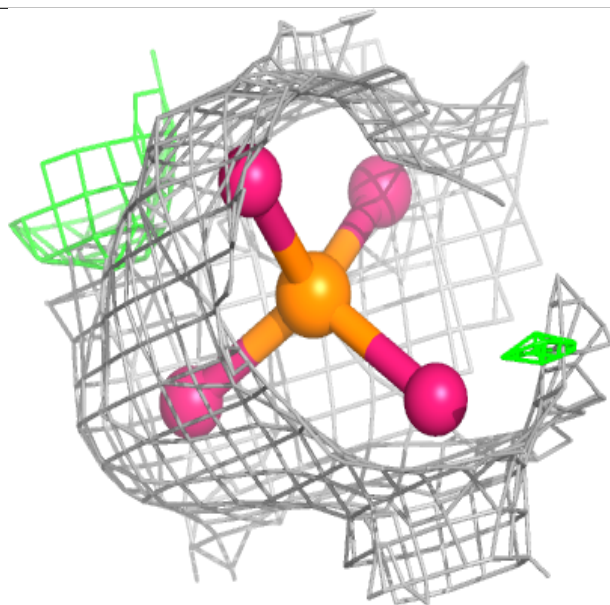
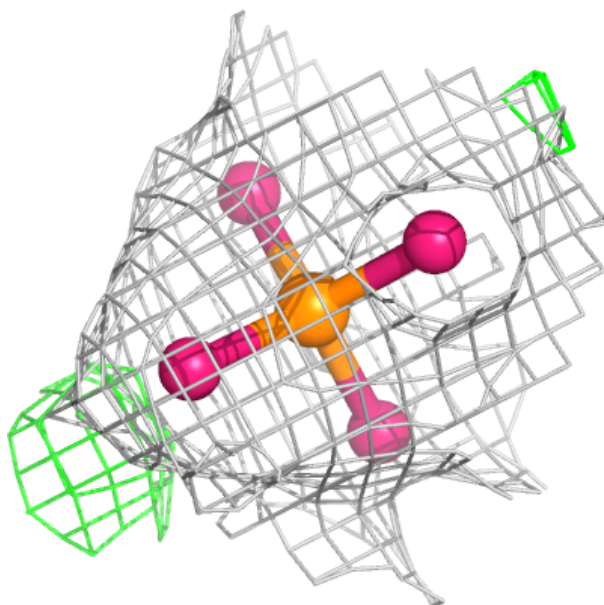
Electron density around CA A 1006:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



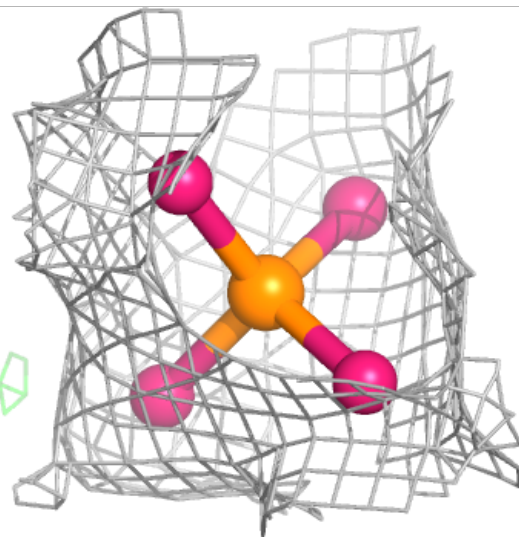
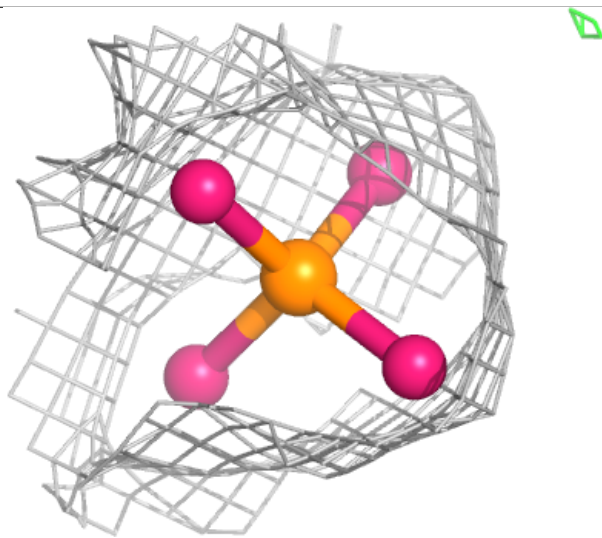
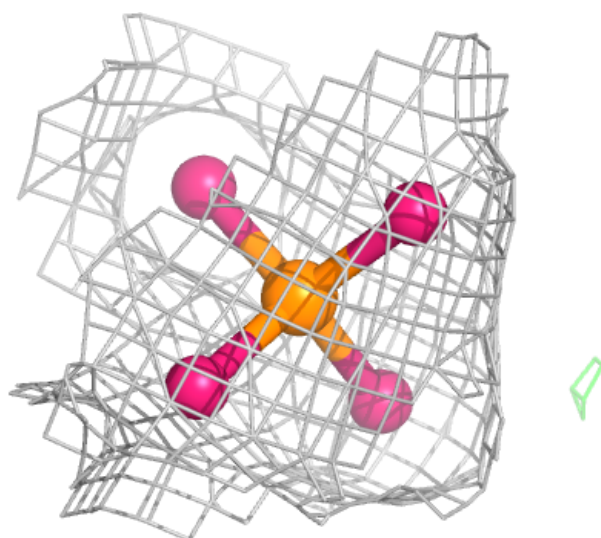
Electron density around PO4 A 1004:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



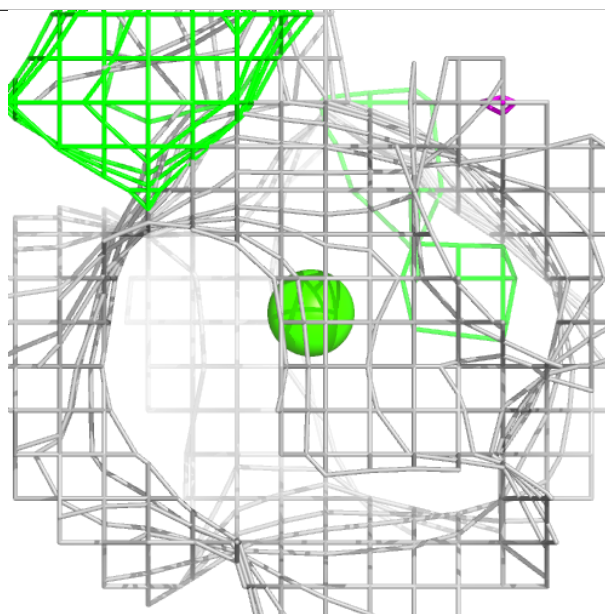
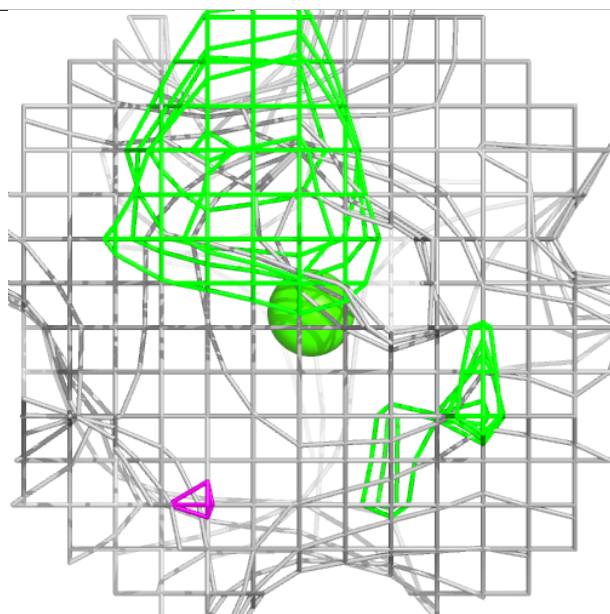
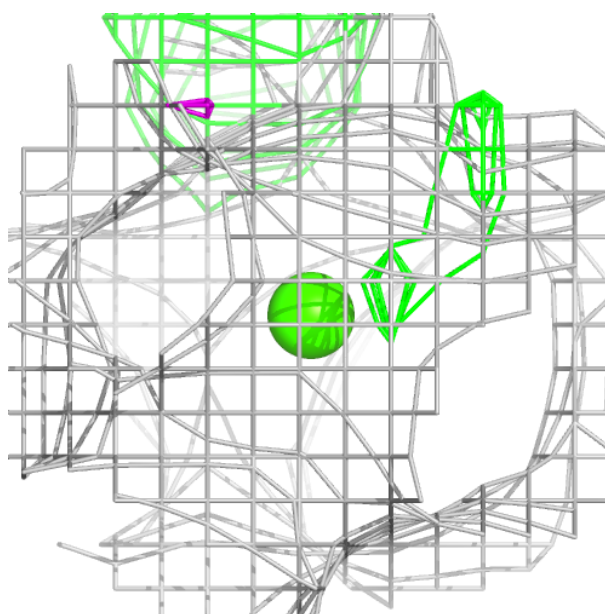
Electron density around PO4 D 1004:

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



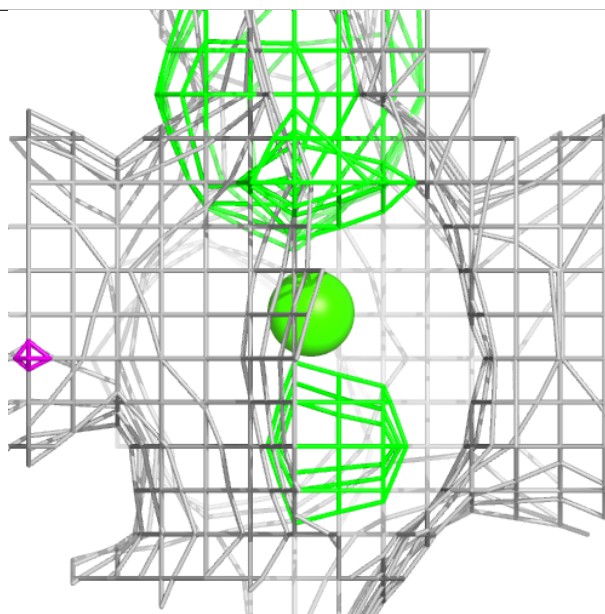
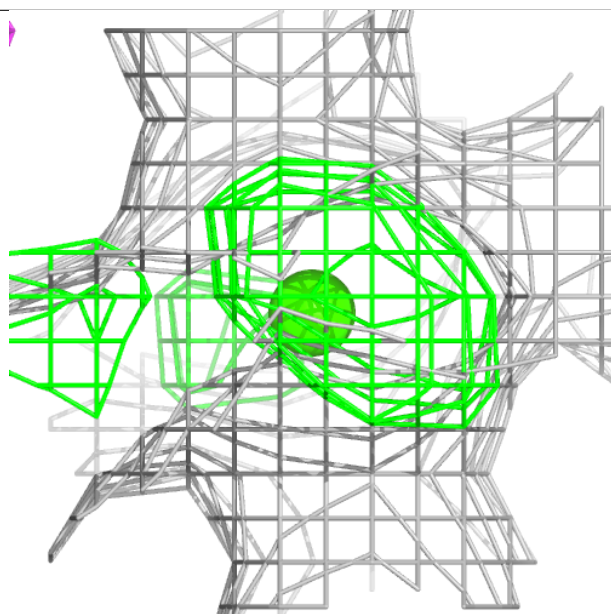
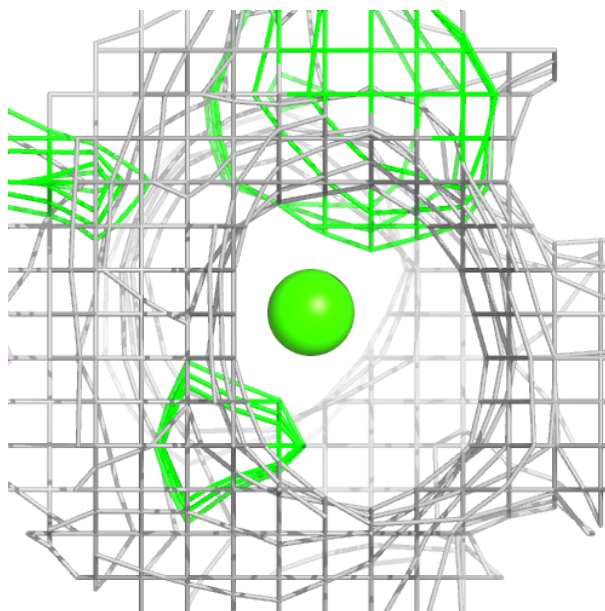
Electron density around CA D 1005:

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



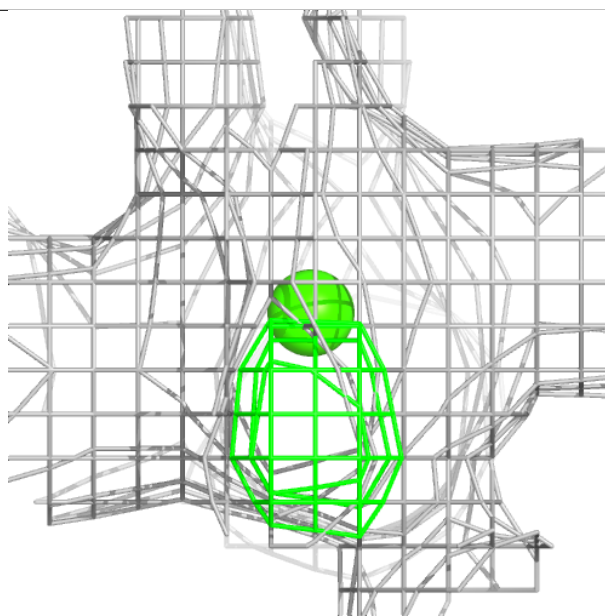
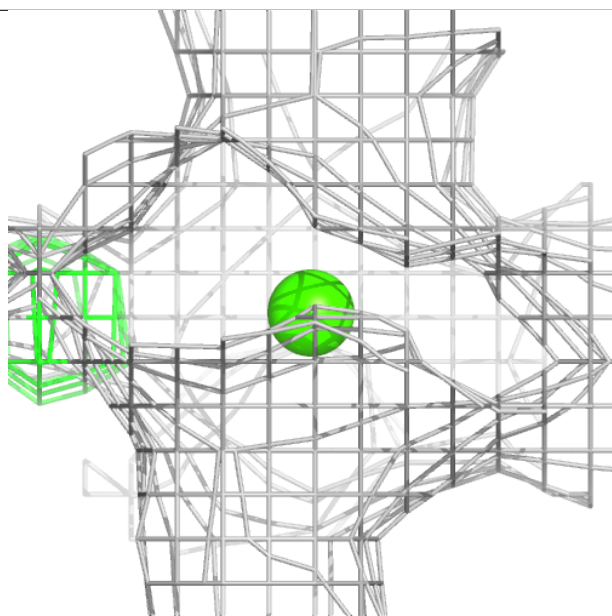
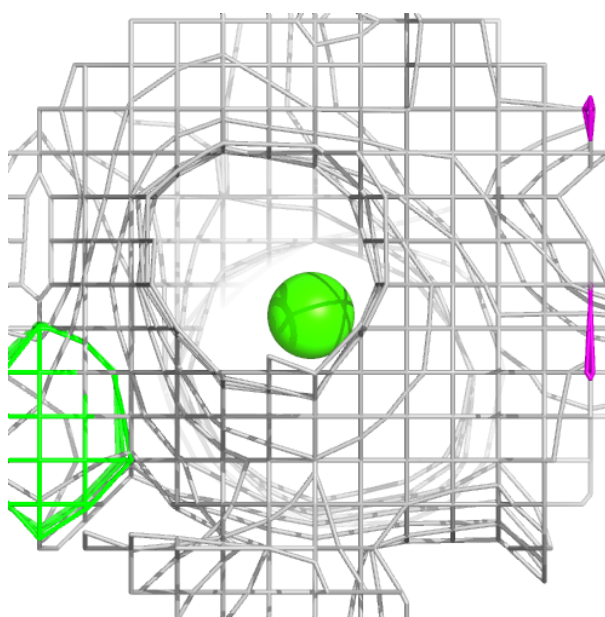
Electron density around CA B 1005:

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



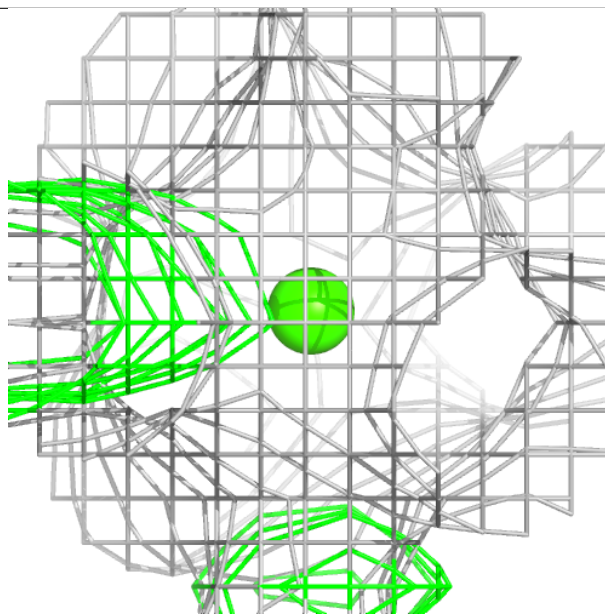
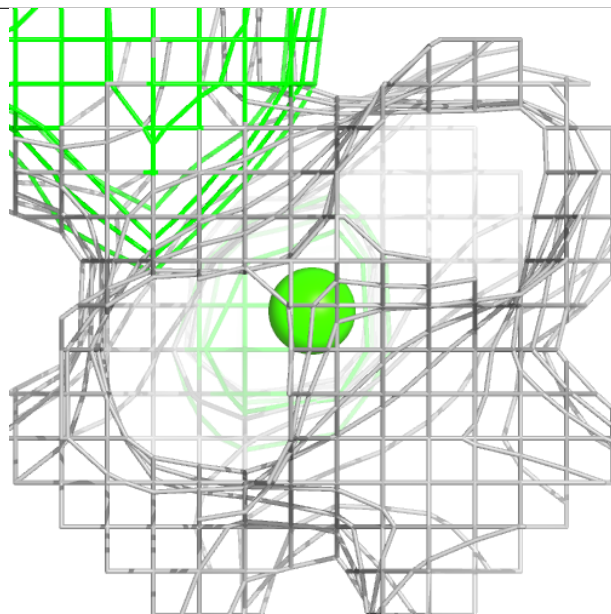
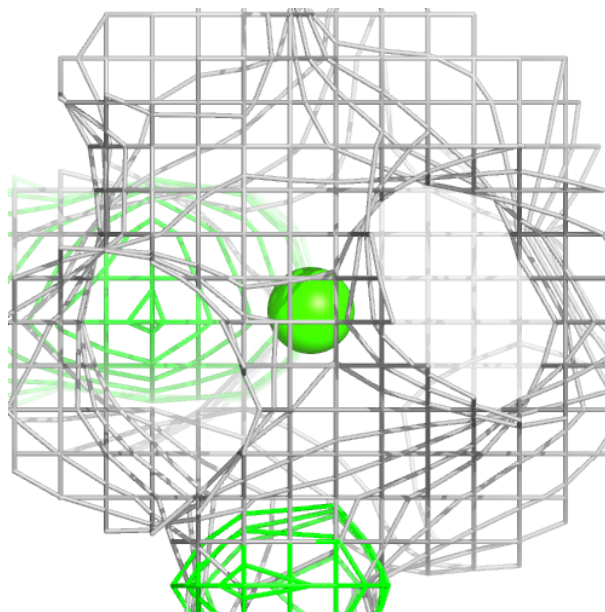
Electron density around CA D 1007:

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and green (positive)



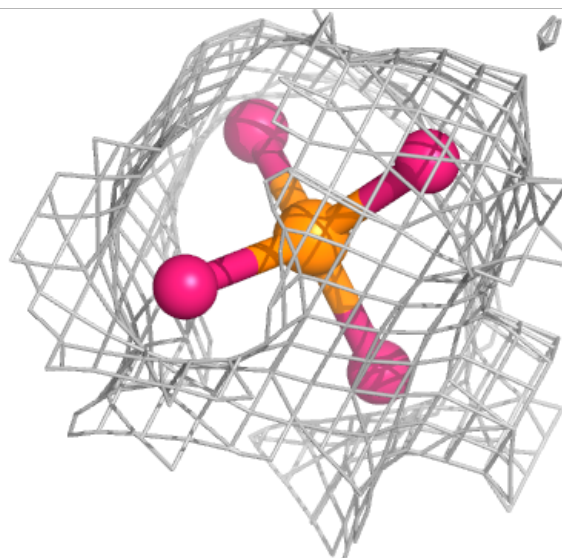
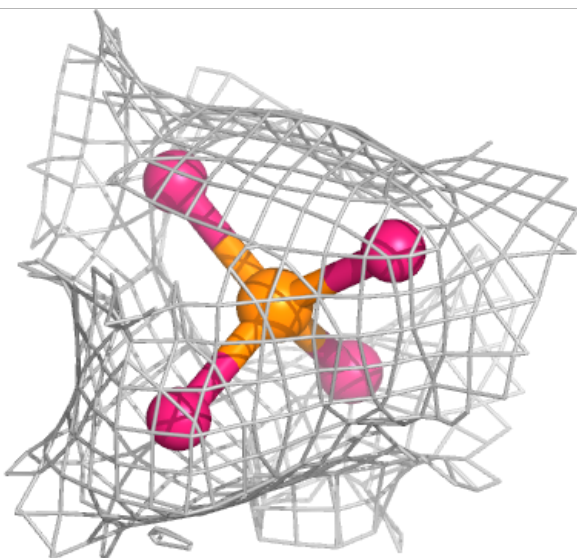
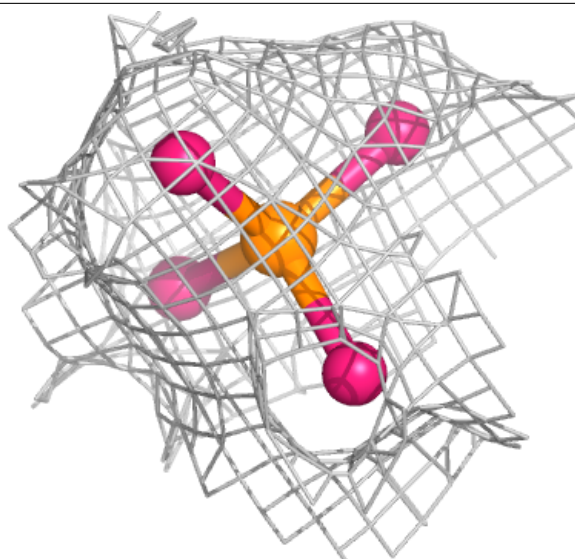
Electron density around CA B 1007:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



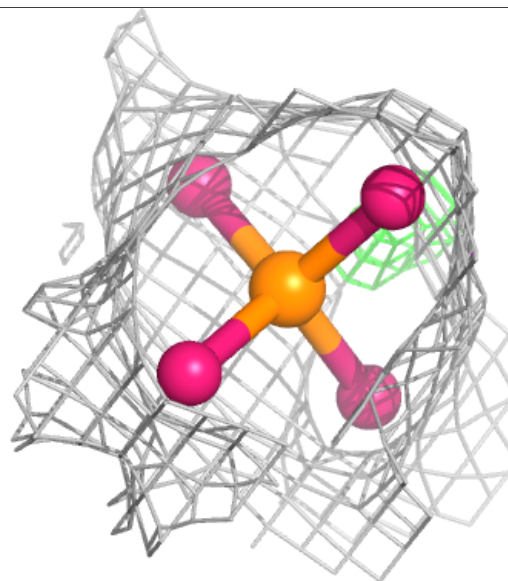
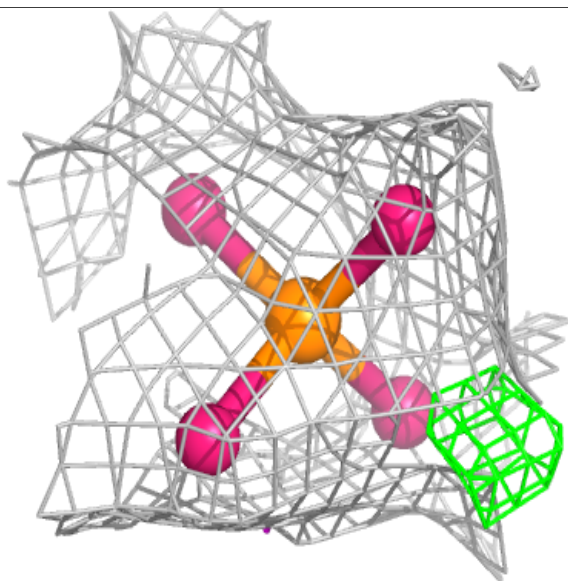
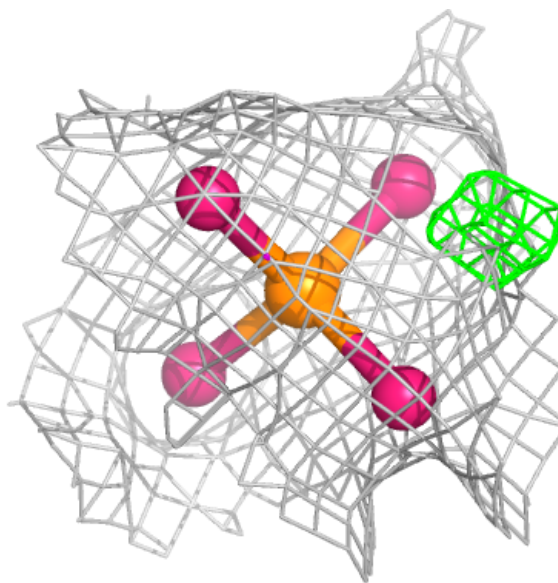
Electron density around PO4 B 1004:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



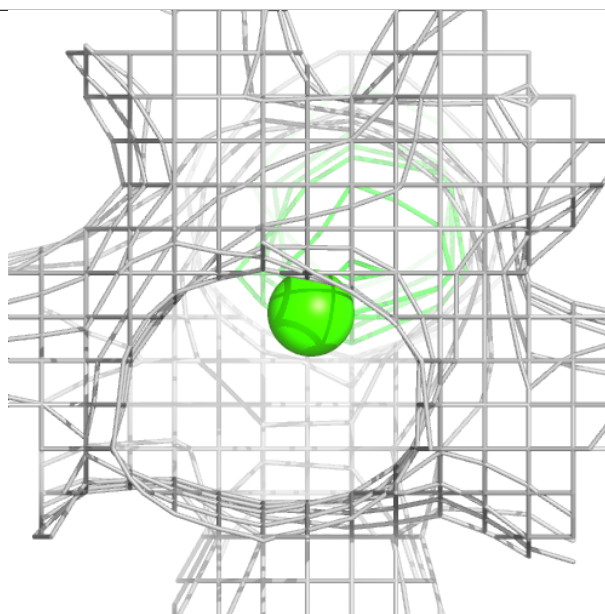
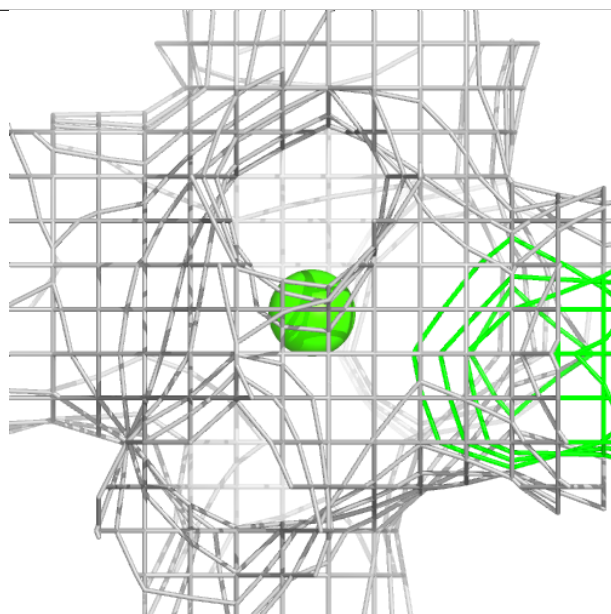
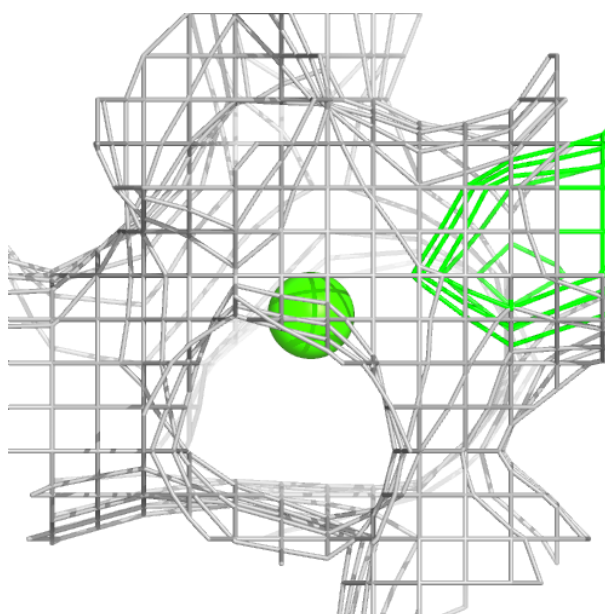
Electron density around PO4 C 1004:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



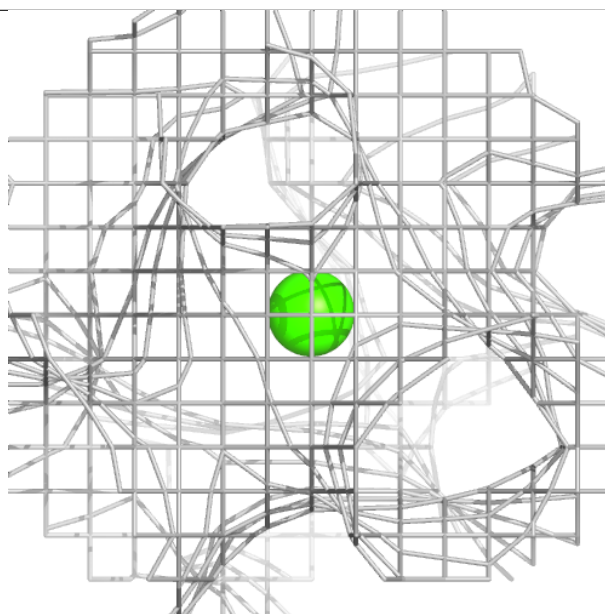
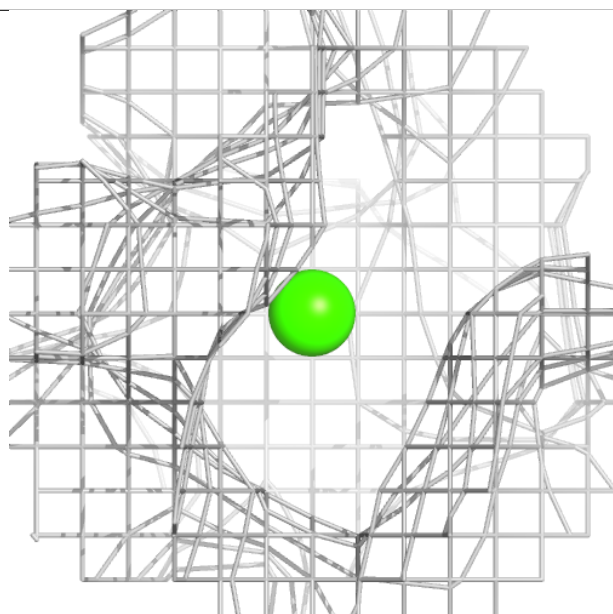
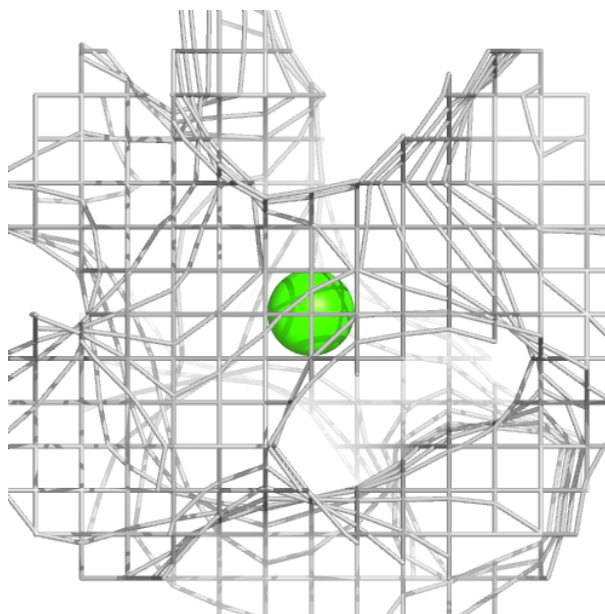
Electron density around CA C 1007:

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and green (positive)



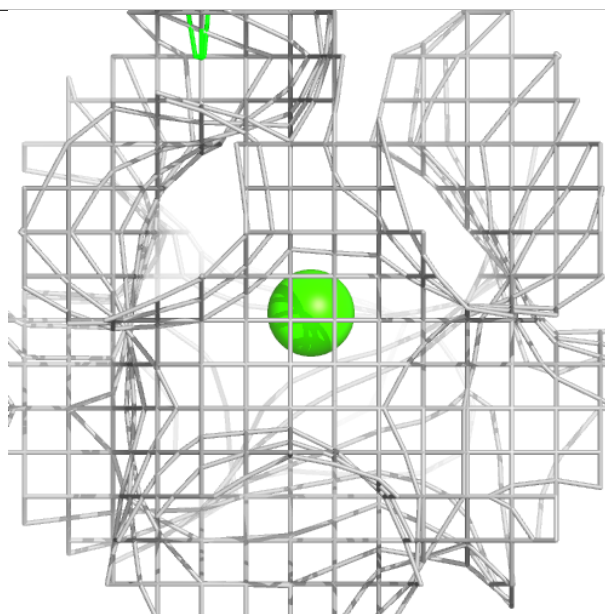
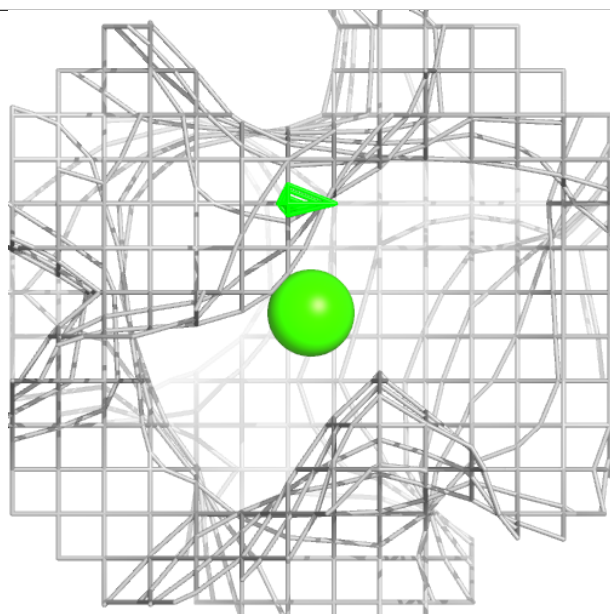
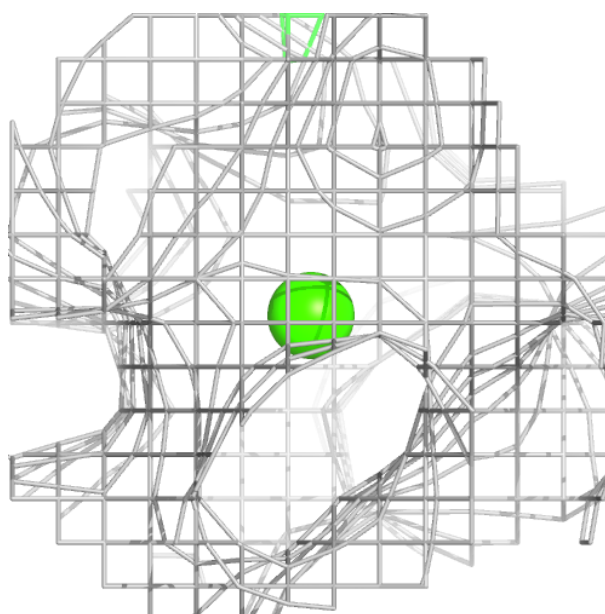
Electron density around CA D 1002:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



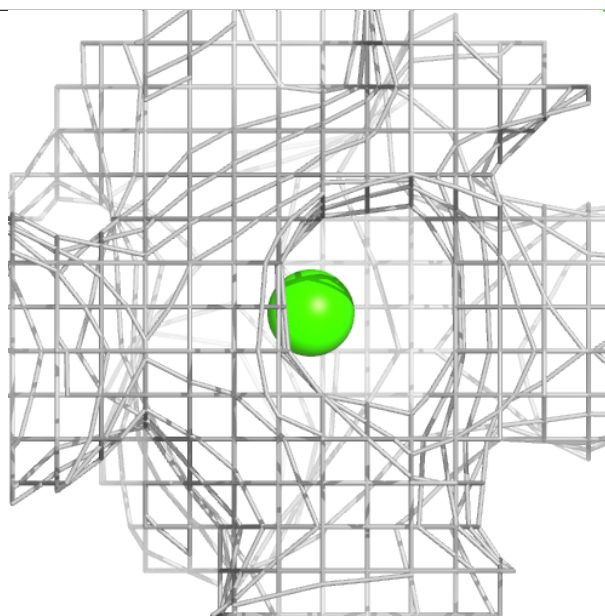
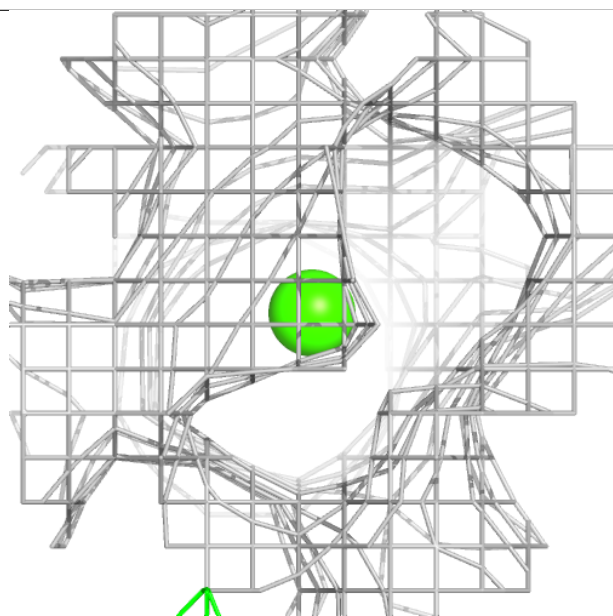
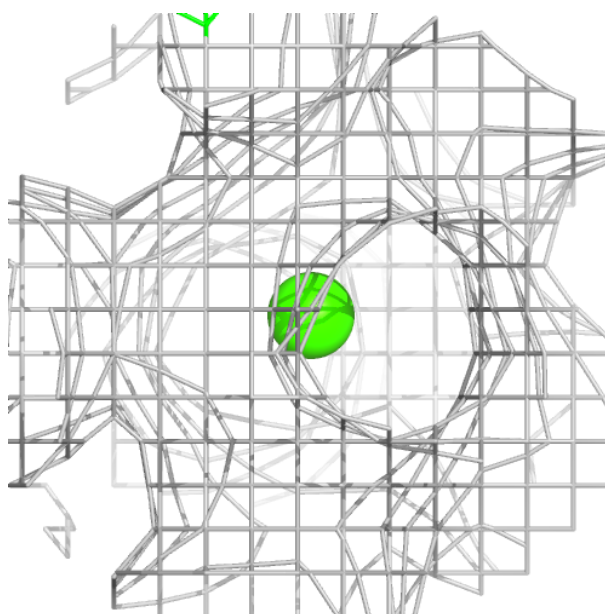
Electron density around CA A 1002:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



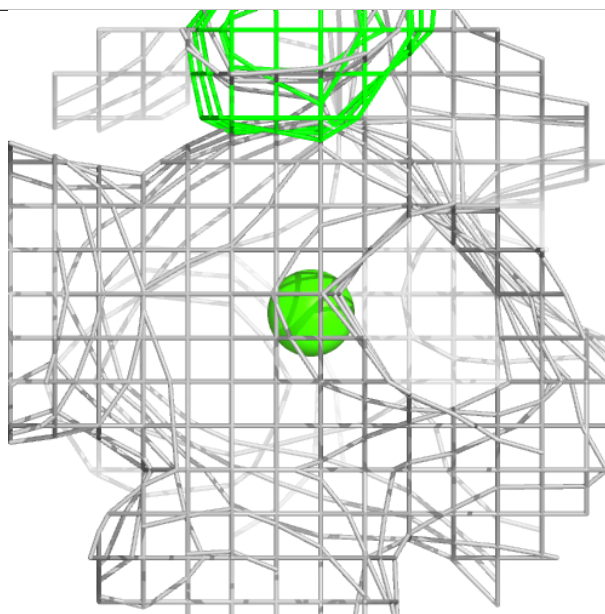
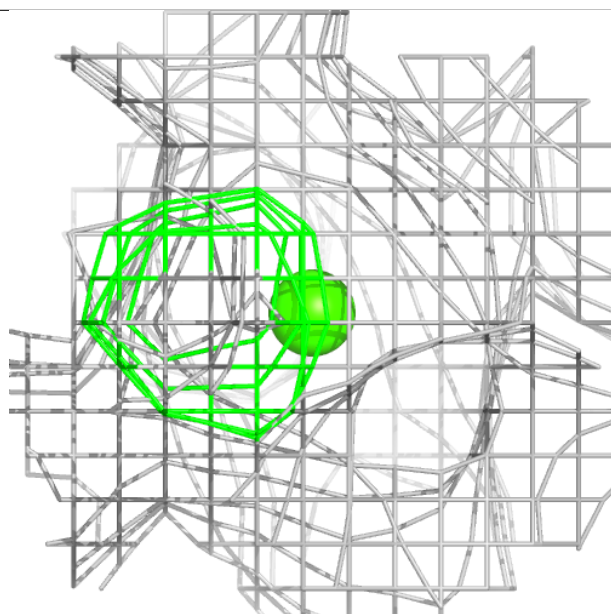
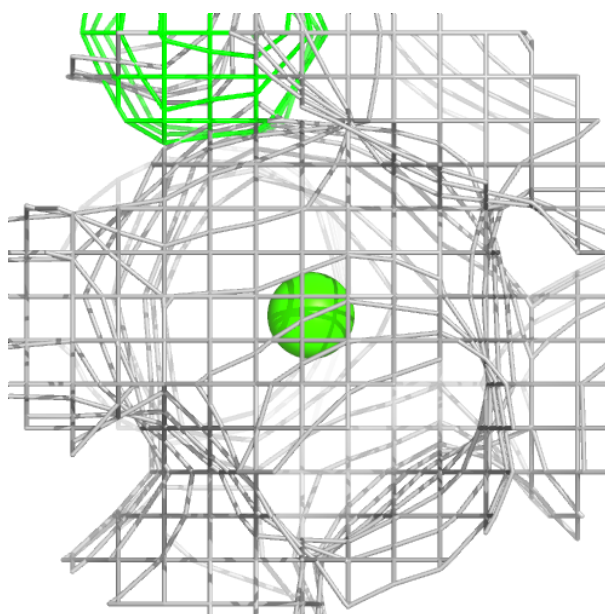
Electron density around CA B 1003:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



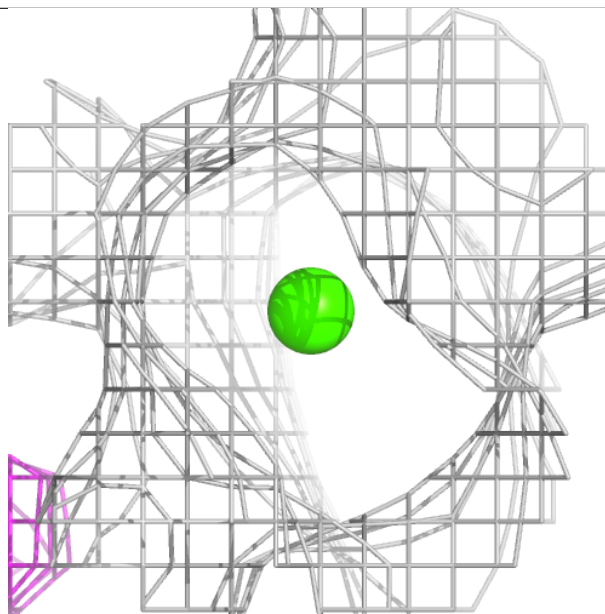
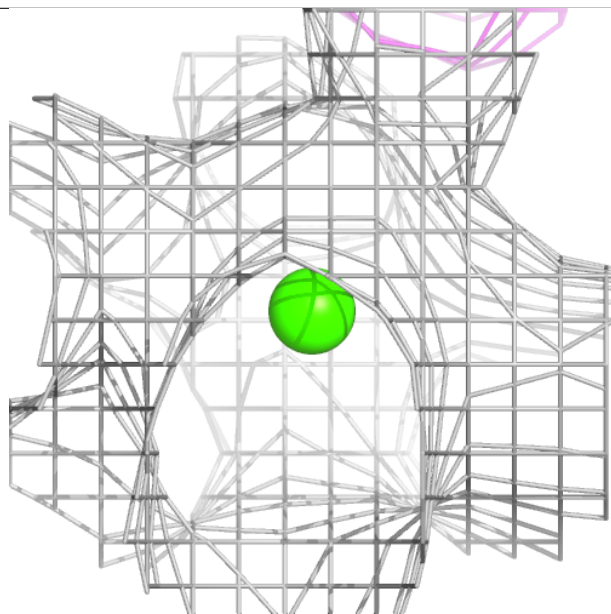
Electron density around CA A 1003:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



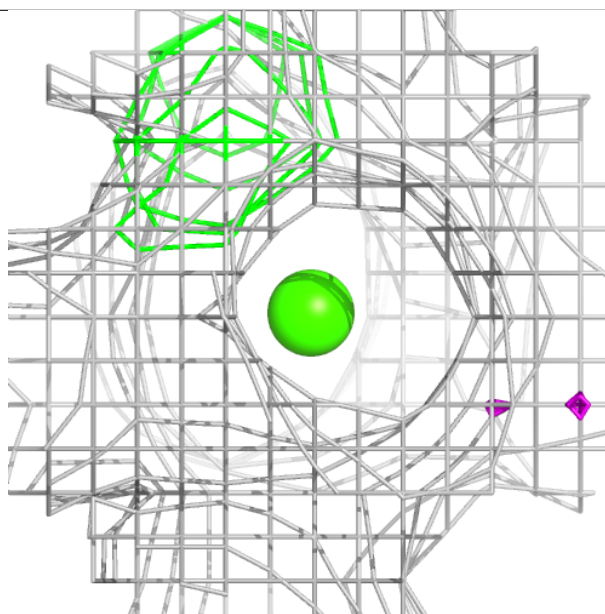
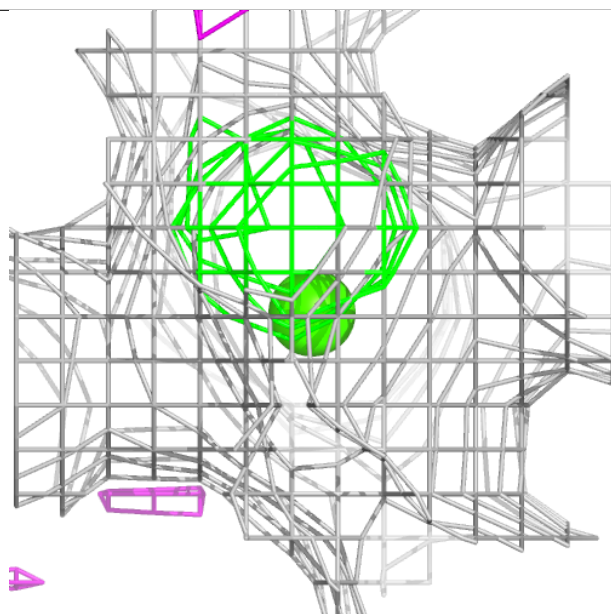
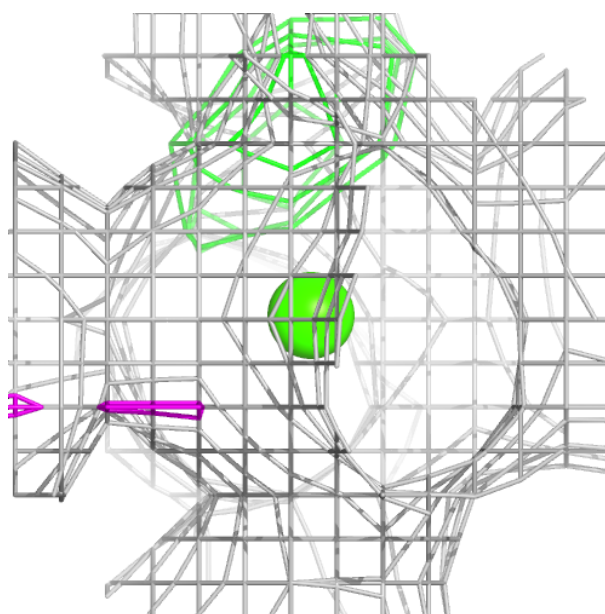
Electron density around CA B 1006:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



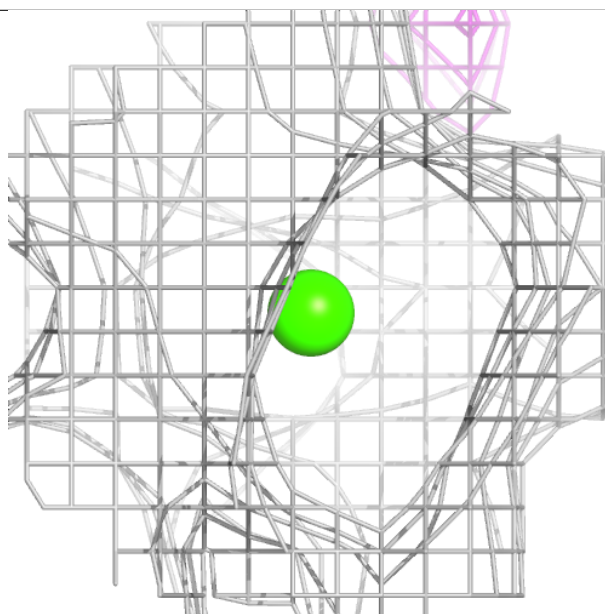
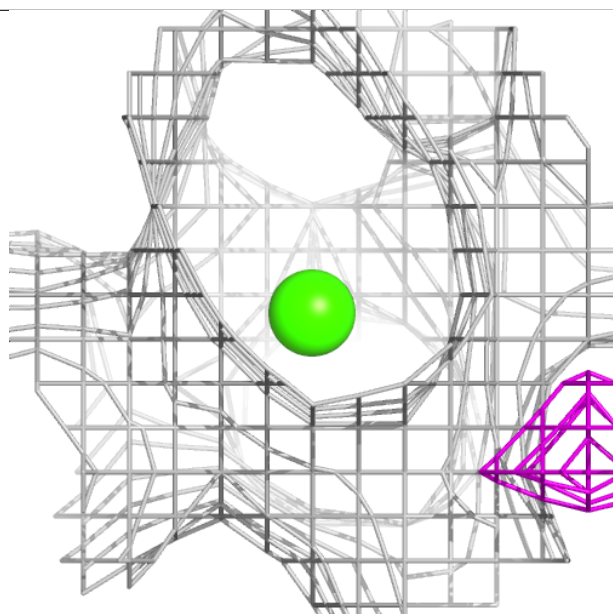
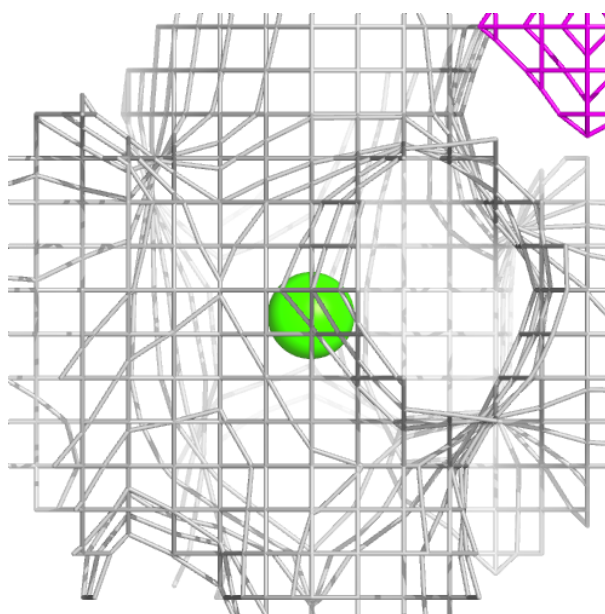
Electron density around CA A 1005:

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



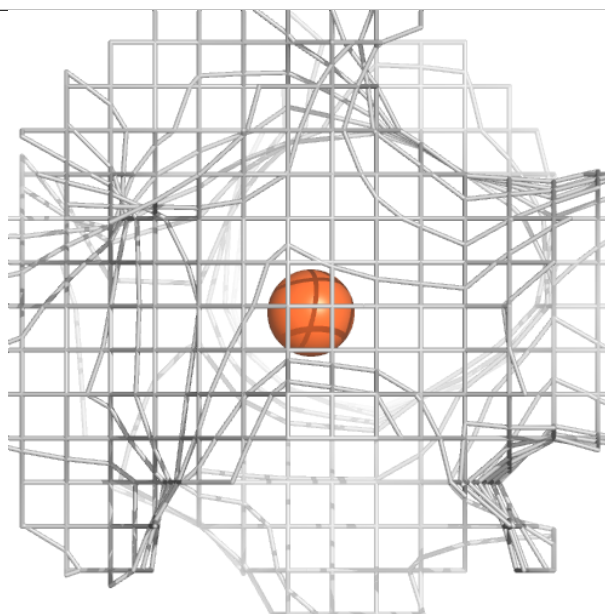
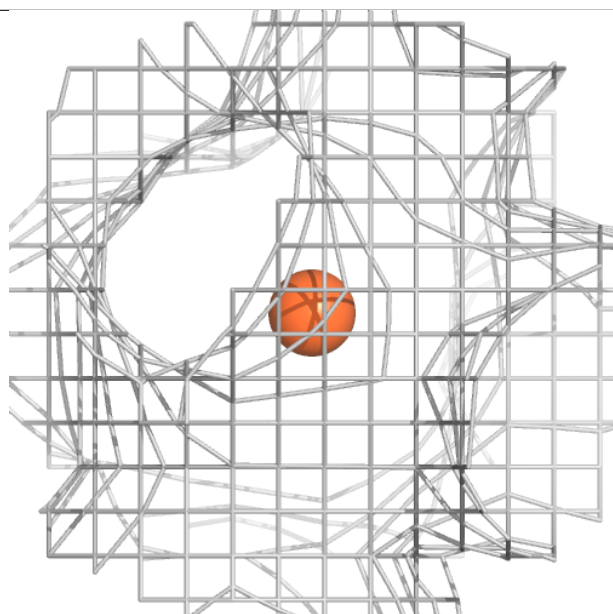
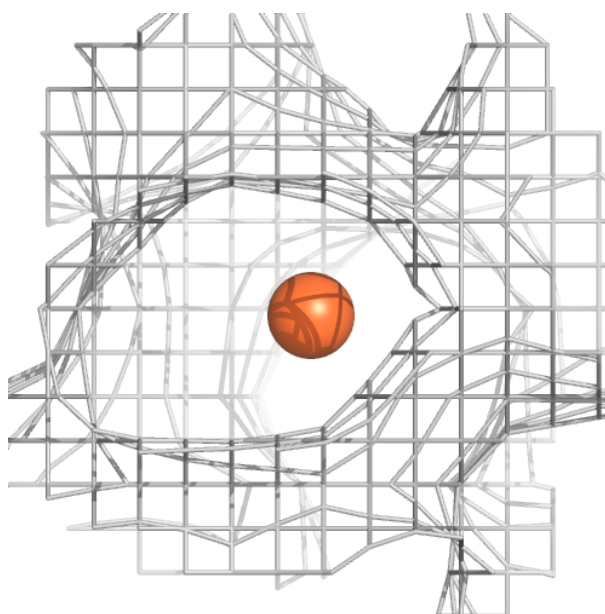
Electron density around CA C 1006:

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



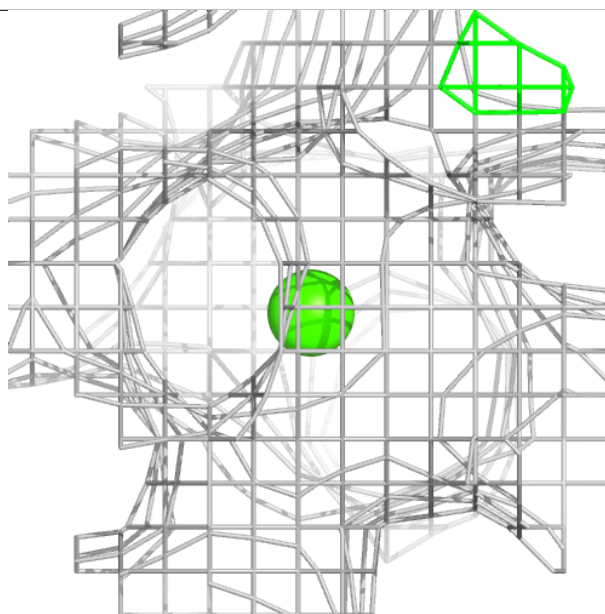
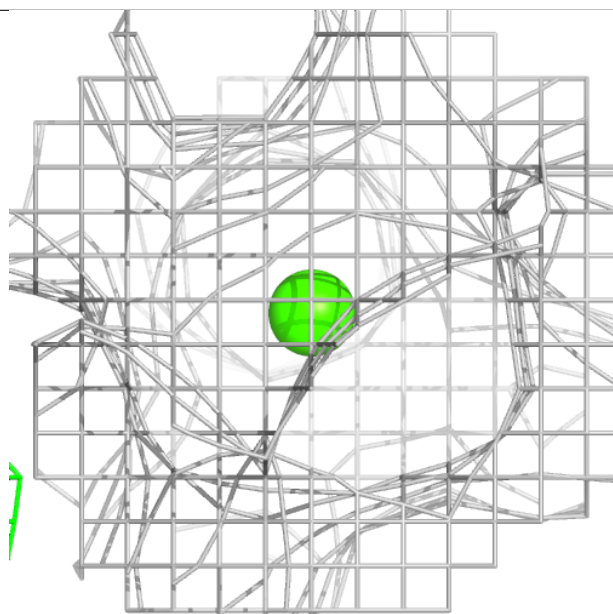
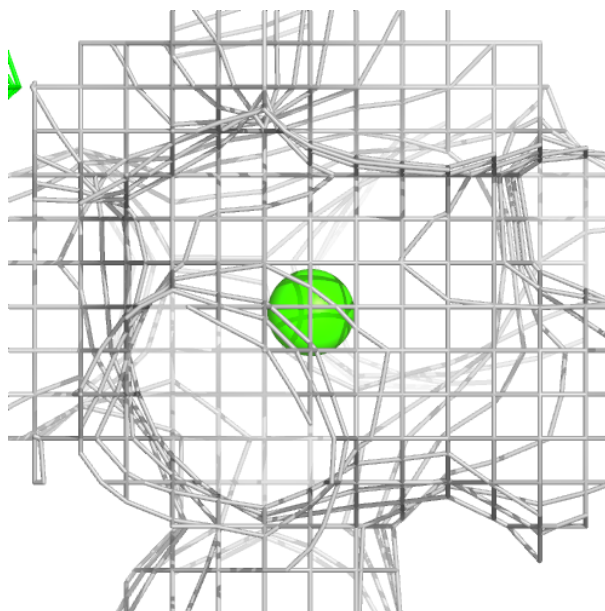
Electron density around FE D 1001:

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



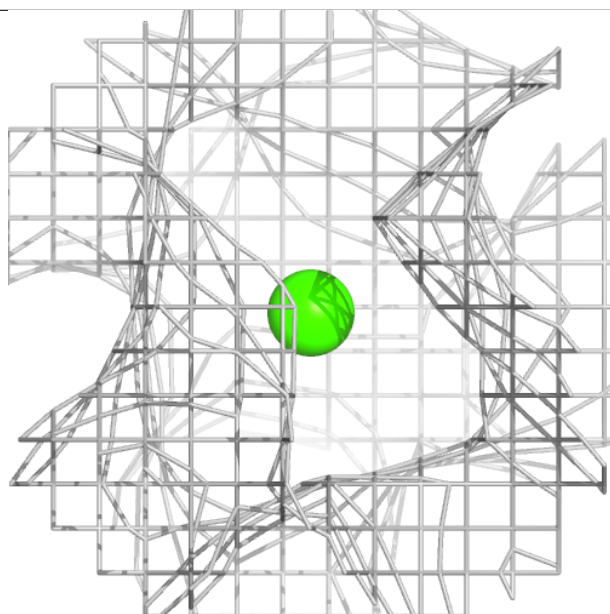
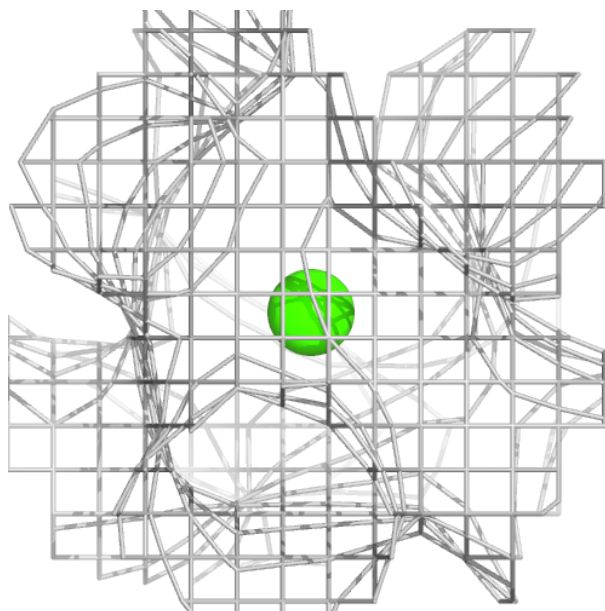
Electron density around CA D 1003:

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



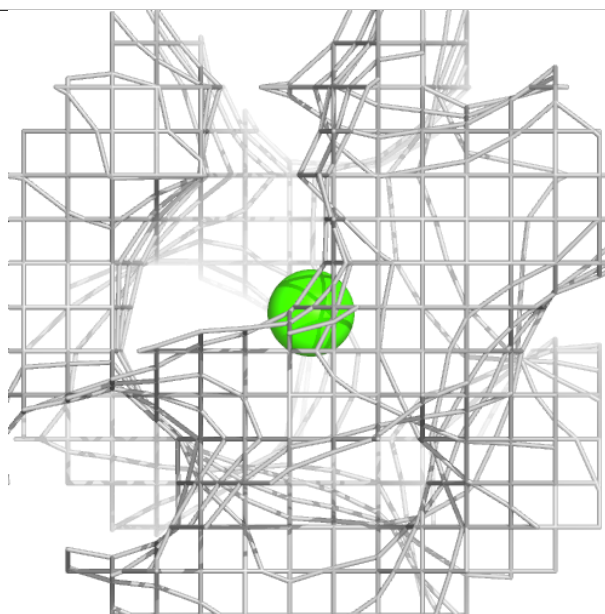
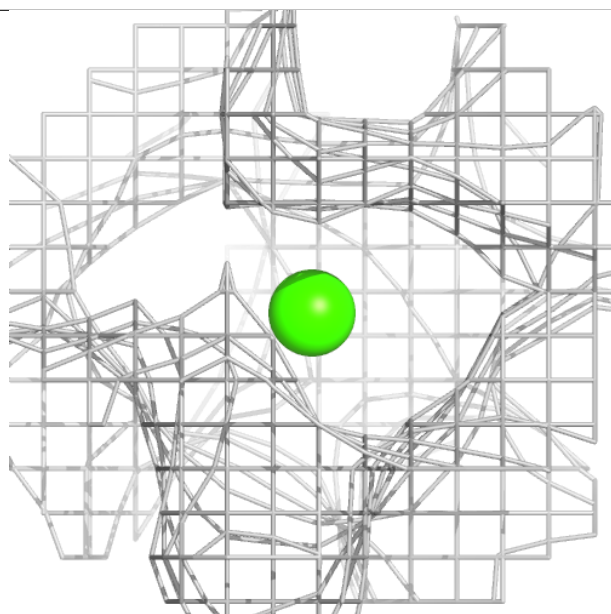
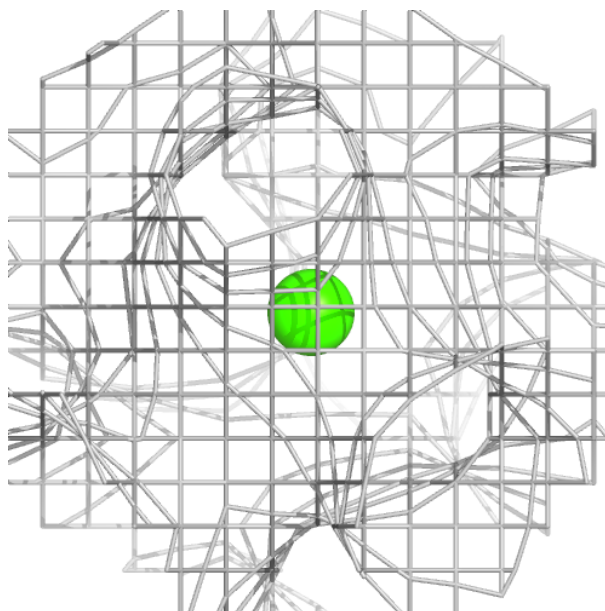
Electron density around CA B 1002:

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



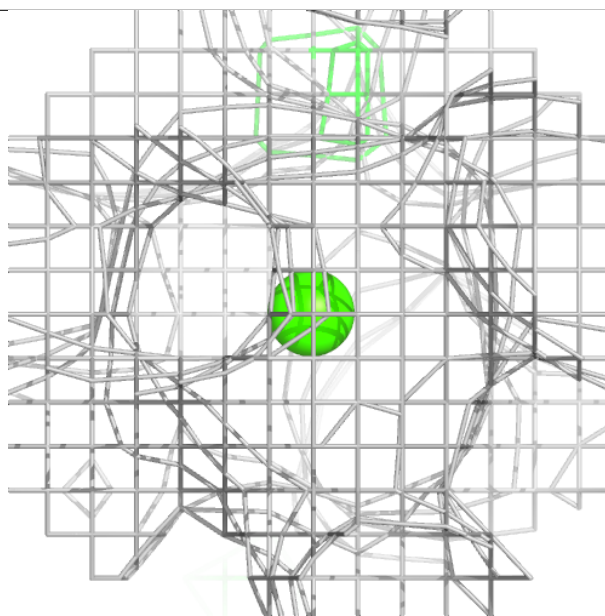
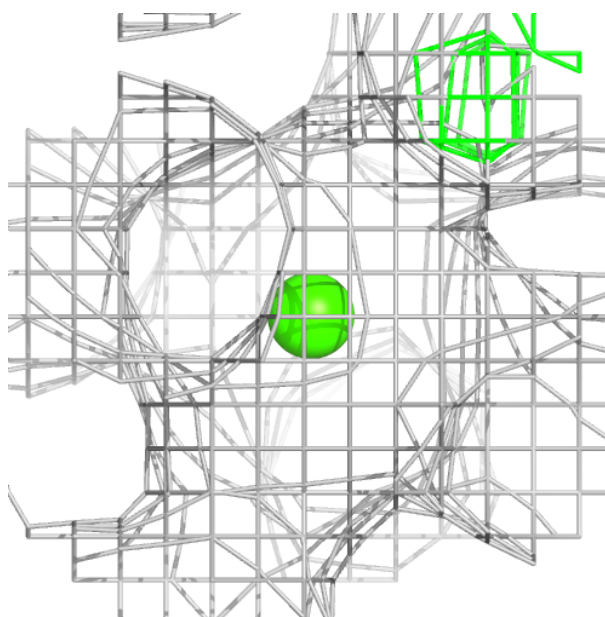
Electron density around CA C 1002:

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



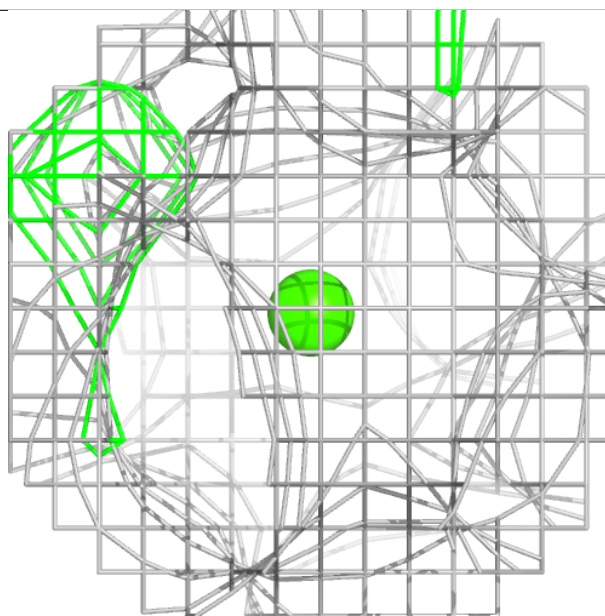
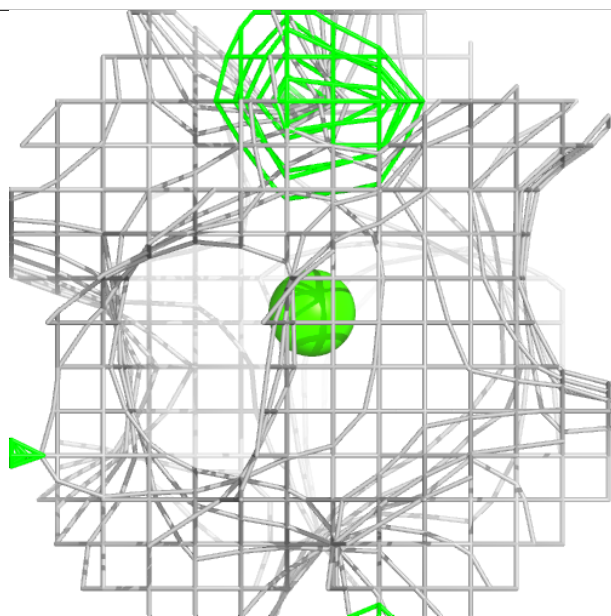
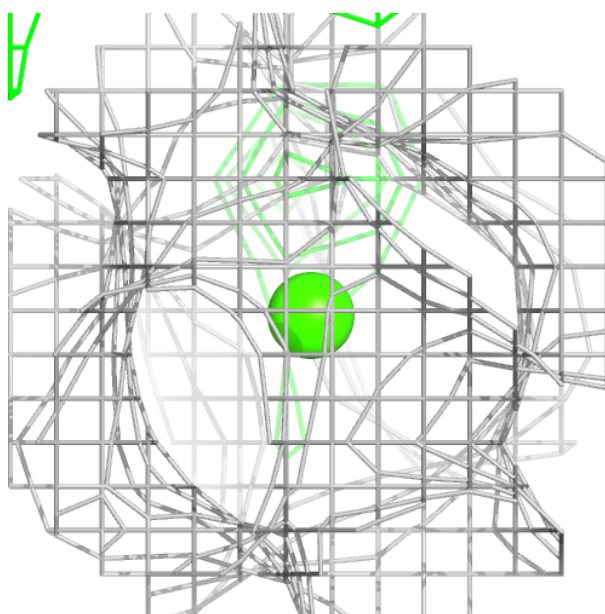
Electron density around CA C 1003:

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



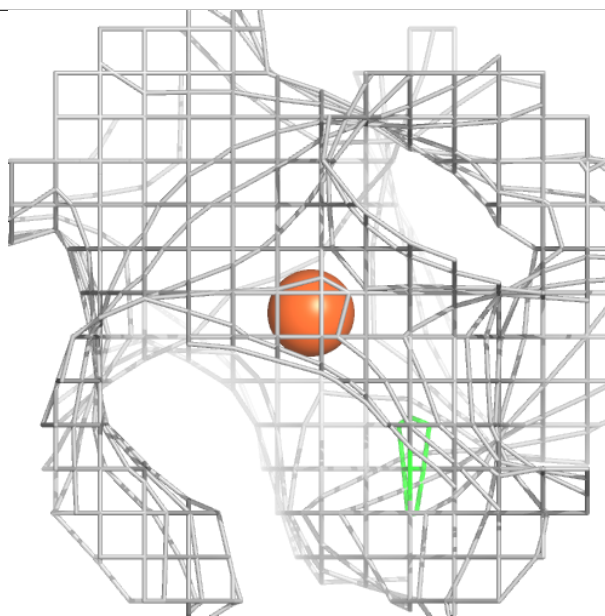
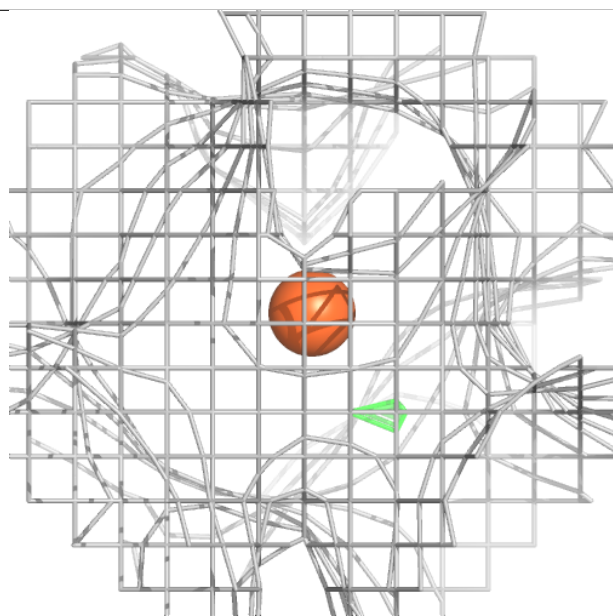
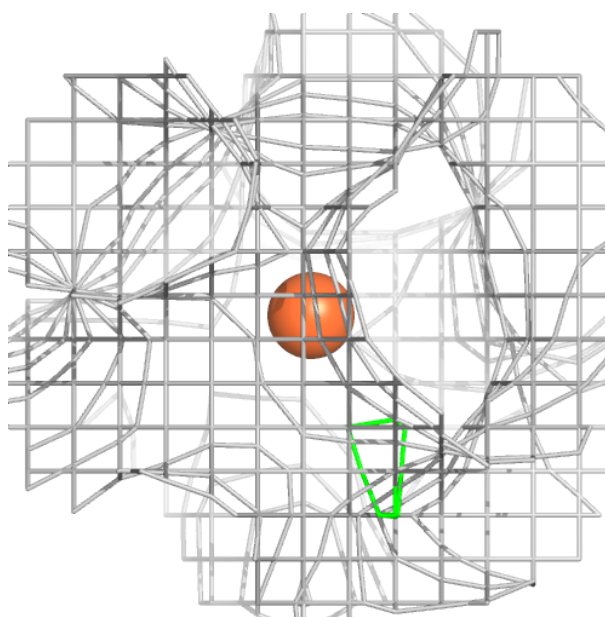
Electron density around CA C 1005:

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



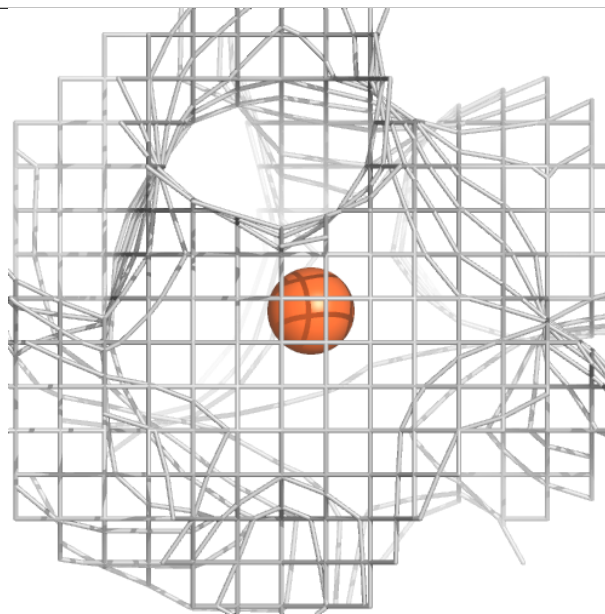
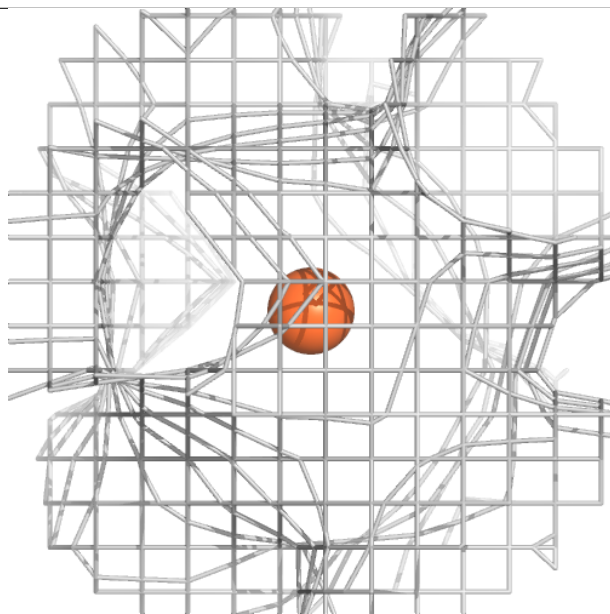
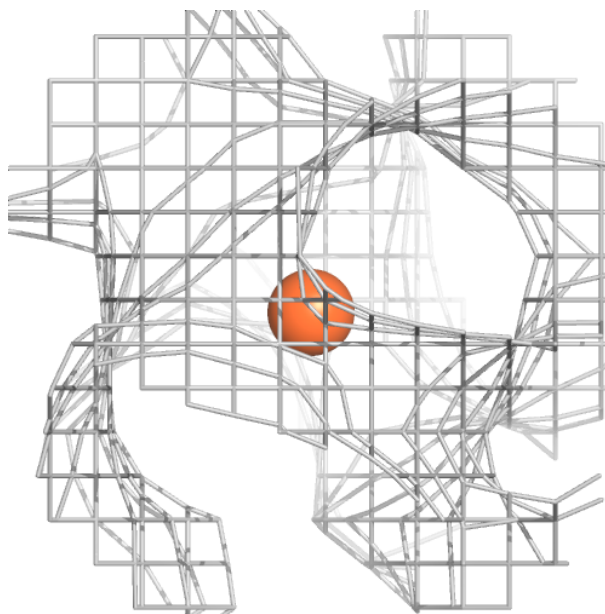
Electron density around FE A 1001:

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



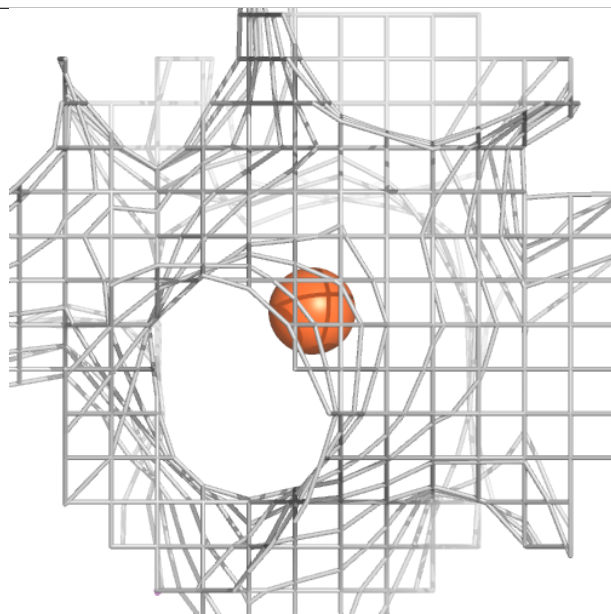
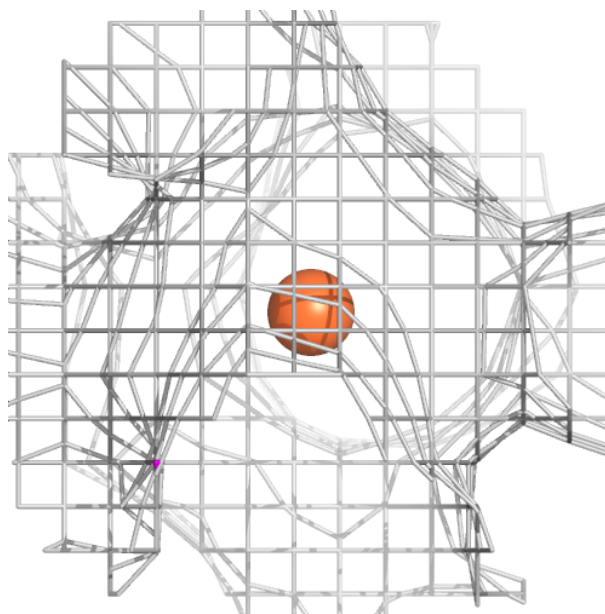
Electron density around FE B 1001:

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



Electron density around FE C 1001:

$2mF_o-DF_c$ (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.