wwPDB X-ray Structure Validation Summary Report (i)

Jan 20, 2024 – 02:18 pm GMT

PDB ID	:	7PT4
Title	:	Actinobacterial 2-hydroxyacyl-CoA lyase (AcHACL) structure in complex with a covalently bound reaction intermediate as well as products formyl-CoA and acetone
Authors	:	Zahn, M.; Rohwerder, T.
Deposited on	:	2021-09-25
Resolution	:	1.64 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) 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 (i)) were used in the production of this report:

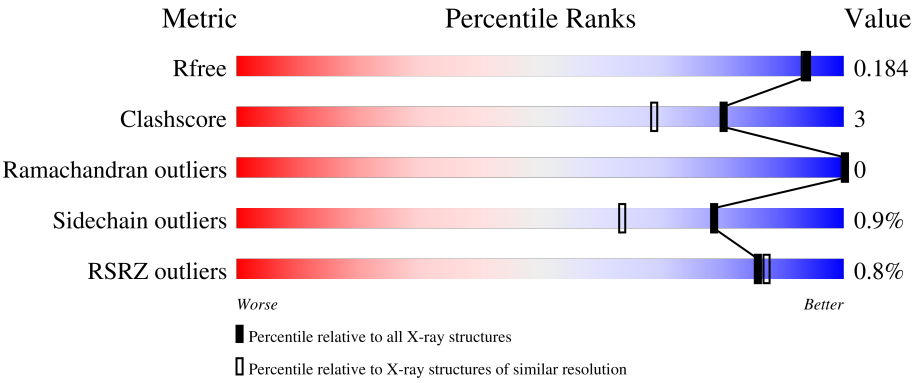
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.64 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}	130704	3122 (1.66-1.62)
Clashscore	141614	3268 (1.66-1.62)
Ramachandran outliers	138981	3215 (1.66-1.62)
Sidechain outliers	138945	3215 (1.66-1.62)
RSRZ outliers	127900	3079 (1.66-1.62)

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 <=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	612	87% 7% 5%
1	B	612	% 89% 7% 5%

2 Entry composition

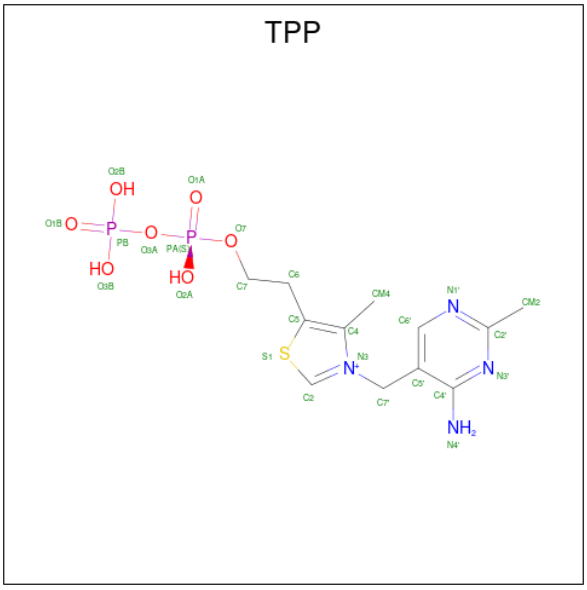
There are 8 unique types of molecules in this entry. The entry contains 18926 atoms, of which 8836 are hydrogens and 0 are deuteriums.

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 2-hydroxyacyl-CoA lyase.

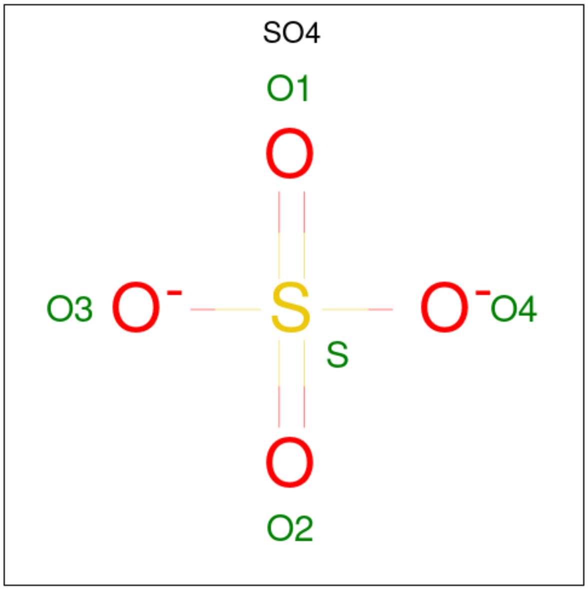
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	580	Total	C	H	N	O	S	105	5	0
			8722	2716	4348	810	839	9			
1	B	584	Total	C	H	N	O	S	107	5	0
			8798	2739	4386	820	844	9			

- Molecule 2 is THIAMINE DIPHOSPHATE (three-letter code: TPP) (formula: $C_{12}H_{19}N_4O_7P_2S$).



Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
2	A	1	Total	C	H	N	O	P	S	0	0
			42	12	16	4	7	2	1		

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O_4S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0

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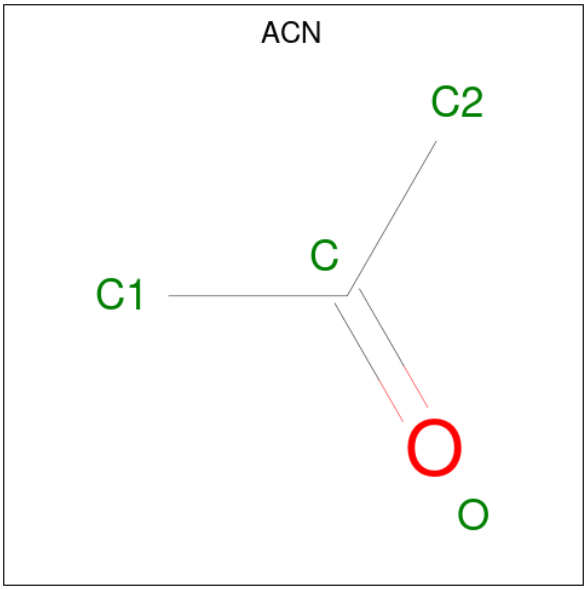
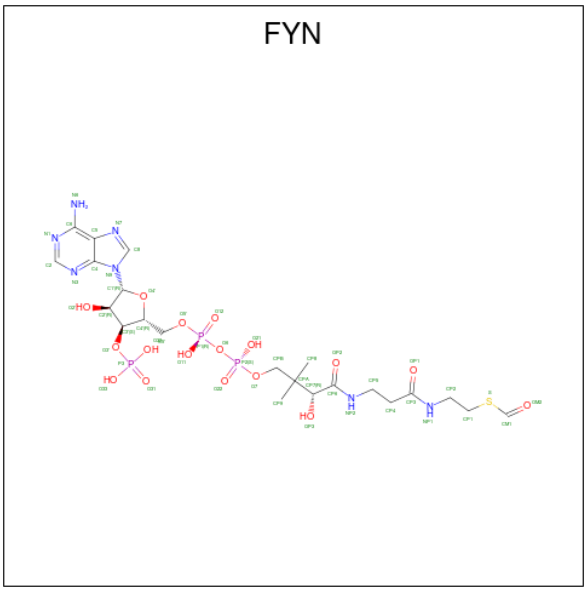
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0

- Molecule 4 is ACETONE (three-letter code: ACN) (formula: C_3H_6O) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C H O 10 3 6 1	0	0

- Molecule 5 is S-{(9R,13S,15R)-17-[(2R,3S,4R,5R)-5-(6-AMINO-9H-PURIN-9-YL)-4-HYDROXY-3-(PHOSPHONOOXY)TETRAHYDROFURAN-2-YL]-9,13,15-TRIHYDROXY-10,10-DIMETHYL-13,15-DIOXIDO-4,8-DIOXO-12,14,16-TRIOXA-3,7-DIAZA-13,15-DIPHOSPHAHEPTADEC-1-YL} THIOFORMATE (three-letter code: FYN) (formula: $C_{22}H_{36}N_7O_{17}P_3S$) (labeled as "Ligand of Interest" by depositor).

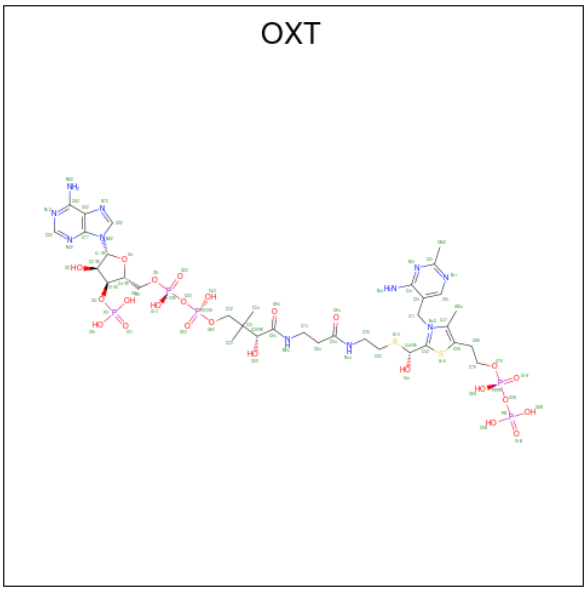


Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
5	A	1	Total	C	H	N	O	P	S	2	0
			82	22	32	7	17	3	1		

- Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	2	Total	Mg	0	0
			2	2		
6	B	2	Total	Mg	0	0
			2	2		

- Molecule 7 is 3-[(4-AMINO-2-METHYLPYRIMIDIN-5-YL)METHYL]-2-{(1R,11R,15S,17R)-19-[(2R,3S,4R,5R)-5-(6-AMINO-9H-PURIN-9-YL)-4-HYDROXY-3-(PHOSPHONOOXY)TETRAHYDROFURAN-2-YL]-1,11,15,17-TETRAHYDROXY-12,12-DIMETHYL-15,17-DIOXIDO-6,10-DIOXO-14,16,18-TRIOXA-2-THIA-5,9-DIAZA-15,17-DIPHOSPHANONADEC-1-YL}-5-(2-{[(R)-HYDROXY(PHOSPHONOOXY)PHOSPHORYL]OXY}ETHYL)-4-METHYL-1,3-THIAZOL-3-IUM (three-letter code: OXT) (formula: $C_{34}H_{55}N_{11}O_{24}P_5S_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
7	B	1	Total	C	H	N	O	P	S	3	0
			124	34	48	11	24	5	2		

- Molecule 8 is water.

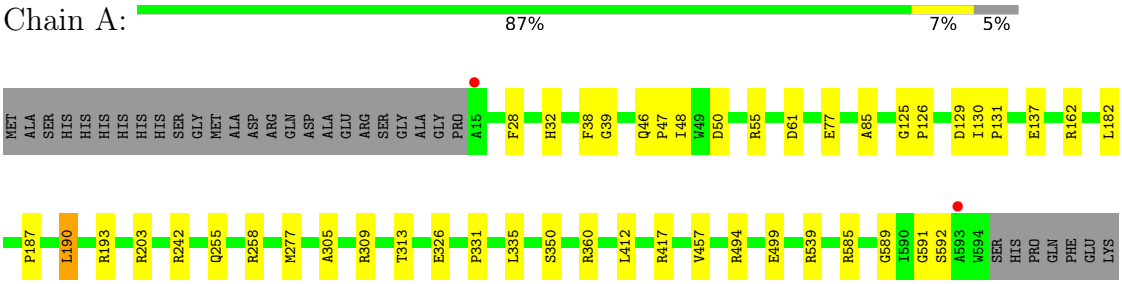
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	506	Total	O	0	0
			506	506		
8	B	543	Total	O	0	0
			543	543		

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.

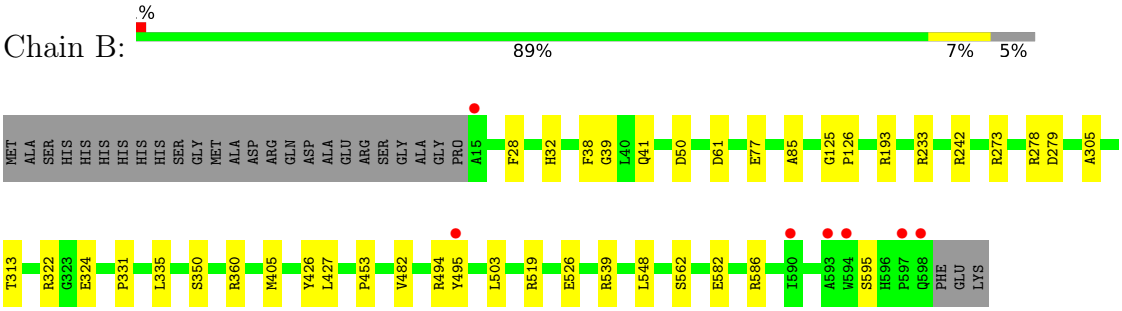
• Molecule 1: 2-hydroxyacyl-CoA lyase

Chain A:



• Molecule 1: 2-hydroxyacyl-CoA lyase

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 65 2 2	Depositor
Cell constants a, b, c, α, β, γ	116.23Å 116.23Å 312.06Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	100.66 – 1.64 100.66 – 1.64	Depositor EDS
% Data completeness (in resolution range)	64.5 (100.66-1.64) 64.5 (100.66-1.64)	Depositor EDS
R_{merge}	0.19	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.62 (at 1.64Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.145 , 0.175 0.159 , 0.184	Depositor DCC
R_{free} test set	4841 reflections (4.93%)	wwPDB-VP
Wilson B-factor (Å^2)	17.5	Xtriage
Anisotropy	0.071	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.42 , 45.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	18926	wwPDB-VP
Average B, all atoms (Å^2)	21.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.82% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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: OXT, SO4, FYN, MG, TPP, ACN

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	0.83	2/4473 (0.0%)	0.94	9/6096 (0.1%)
1	B	0.85	2/4513 (0.0%)	0.95	6/6150 (0.1%)
All	All	0.84	4/8986 (0.0%)	0.94	15/12246 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
All	All	0	2

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	453	PRO	C-O	5.89	1.35	1.23
1	A	137	GLU	CD-OE1	5.28	1.31	1.25
1	A	499	GLU	CD-OE1	-5.12	1.20	1.25
1	B	526	GLU	CD-OE2	-5.01	1.20	1.25

The worst 5 of 15 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	242	ARG	NE-CZ-NH1	8.08	124.34	120.30
1	B	360	ARG	NE-CZ-NH1	7.08	123.84	120.30
1	A	162	ARG	NE-CZ-NH2	-6.92	116.84	120.30
1	A	585	ARG	NE-CZ-NH2	-6.82	116.89	120.30
1	A	55	ARG	NE-CZ-NH2	6.70	123.65	120.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	305	ALA	Peptide
1	B	305	ALA	Peptide

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	4374	4348	4335	22	0
1	B	4412	4386	4372	22	0
2	A	26	16	16	3	0
3	A	60	0	0	3	0
3	B	35	0	0	1	0
4	A	4	6	6	0	0
5	A	50	32	32	3	0
6	A	2	0	0	0	0
6	B	2	0	0	0	0
7	B	76	48	48	1	0
8	A	506	0	0	6	2
8	B	543	0	0	8	1
All	All	10090	8836	8809	48	2

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 3.

The worst 5 of 48 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:586[A]:ARG:HG3	1:B:586[A]:ARG:HH21	1.41	0.85
1:B:539:ARG:NH2	3:B:702:SO4:O1	2.13	0.78
2:A:701:TPP:H2	5:A:715:FYN:OM2	1.84	0.78
1:B:279:ASP:OD2	8:B:801:HOH:O	2.08	0.70
1:B:586[A]:ARG:HG3	1:B:586[A]:ARG:NH2	2.06	0.70

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the sym-

metry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1131:HOH:O	8:B:1292:HOH:O[5_545]	2.09	0.11
8:A:829:HOH:O	8:A:829:HOH:O[10_445]	2.13	0.07

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	583/612 (95%)	573 (98%)	10 (2%)	0	100	100
1	B	587/612 (96%)	574 (98%)	13 (2%)	0	100	100
All	All	1170/1224 (96%)	1147 (98%)	23 (2%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	447/467 (96%)	442 (99%)	5 (1%)	73	55
1	B	451/467 (97%)	447 (99%)	4 (1%)	78	63
All	All	898/934 (96%)	889 (99%)	9 (1%)	78	59

5 of 9 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	350	SER
1	B	595	SER
1	A	313	THR
1	A	350	SER
1	B	41	GLN

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

Mol	Chain	Res	Type
1	A	128	GLN
1	A	587	GLN
1	B	41	GLN
1	B	587	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 27 ligands modelled in this entry, 4 are monoatomic - leaving 23 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	ACN	A	714	-	3,3,3	1.13	0	3,3,3	0.24	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	SO4	B	707	-	4,4,4	0.26	0	6,6,6	0.12	0
3	SO4	A	706	-	4,4,4	0.25	0	6,6,6	0.20	0
3	SO4	B	705	-	4,4,4	0.31	0	6,6,6	0.25	0
3	SO4	A	710	-	4,4,4	0.28	0	6,6,6	0.21	0
3	SO4	B	706	-	4,4,4	0.32	0	6,6,6	0.27	0
3	SO4	B	708	-	4,4,4	0.36	0	6,6,6	0.10	0
3	SO4	A	707	-	4,4,4	1.28	1 (25%)	6,6,6	0.75	0
3	SO4	A	705	-	4,4,4	0.24	0	6,6,6	0.21	0
3	SO4	A	704	-	4,4,4	0.34	0	6,6,6	0.19	0
3	SO4	A	708	-	4,4,4	0.30	0	6,6,6	0.48	0
3	SO4	A	713	-	4,4,4	0.34	0	6,6,6	0.09	0
3	SO4	A	703	-	4,4,4	0.24	0	6,6,6	0.25	0
3	SO4	B	703	-	4,4,4	0.13	0	6,6,6	0.16	0
5	FYN	A	715	-	43,52,52	0.69	1 (2%)	52,77,77	1.03	2 (3%)
2	TPP	A	701	6	22,27,27	0.73	0	29,40,40	1.12	1 (3%)
3	SO4	A	711	-	4,4,4	0.30	0	6,6,6	0.08	0
7	OXT	B	701	6	64,80,80	0.70	1 (1%)	81,121,121	0.94	3 (3%)
3	SO4	A	712	-	4,4,4	0.28	0	6,6,6	0.17	0
3	SO4	A	709	-	4,4,4	0.22	0	6,6,6	0.16	0
3	SO4	A	702	-	4,4,4	0.66	0	6,6,6	0.74	0
3	SO4	B	704	-	4,4,4	0.25	0	6,6,6	0.33	0
3	SO4	B	702	-	4,4,4	0.31	0	6,6,6	0.22	0

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
5	FYN	A	715	-	-	12/45/66/66	0/3/3/3
2	TPP	A	701	6	-	2/16/17/17	0/2/2/2
7	OXT	B	701	6	-	5/61/88/88	0/5/5/5

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	B	701	OXT	P3'-O91	-2.95	1.43	1.54
5	A	715	FYN	CM1-S	2.25	1.80	1.74
3	A	707	SO4	O1-S	2.17	1.57	1.46

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	A	715	FYN	P2-O6-P1	3.93	146.32	132.83
7	B	701	OXT	C56-C47-N43	2.78	113.48	107.66
2	A	701	TPP	C5-C4-N3	2.70	112.97	107.57
7	B	701	OXT	CM4-C47-N43	-2.51	119.53	122.69
5	A	715	FYN	O3'-C3'-C4'	-2.06	102.64	110.08

There are no chirality outliers.

5 of 19 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	701	TPP	PA-O3A-PB-O2B
5	A	715	FYN	CP7-CP6-NP2-CP5
5	A	715	FYN	CP4-CP3-NP1-CP2
5	A	715	FYN	OP1-CP3-NP1-CP2
7	B	701	OXT	C5'-O5'-P13-O13

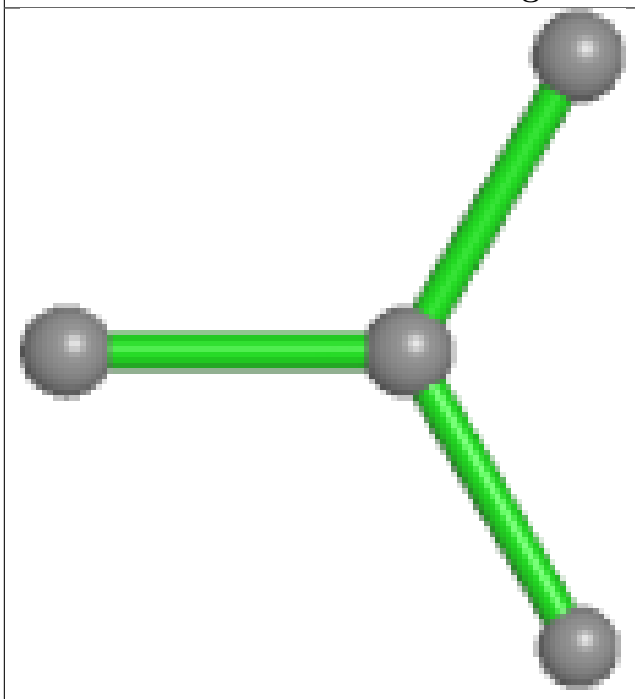
There are no ring outliers.

7 monomers are involved in 8 short contacts:

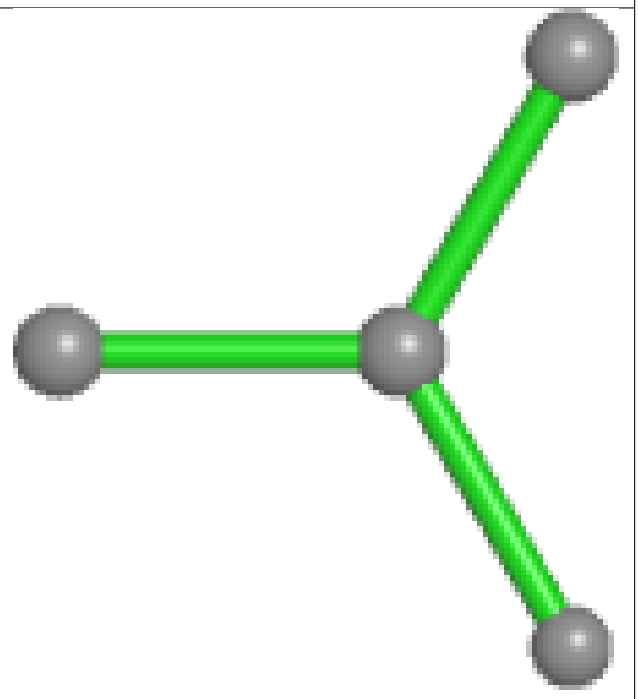
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	707	SO4	1	0
3	A	703	SO4	1	0
5	A	715	FYN	3	0
2	A	701	TPP	3	0
7	B	701	OXT	1	0
3	A	702	SO4	1	0
3	B	702	SO4	1	0

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

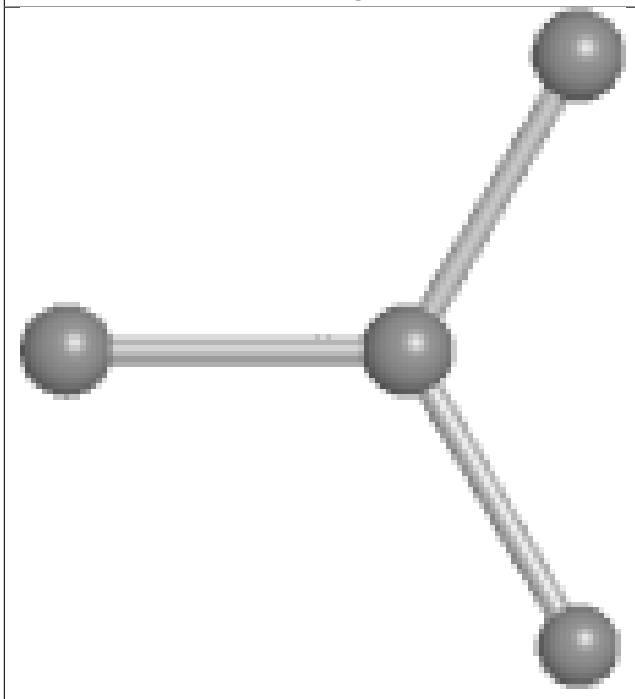
Ligand ACN A 714



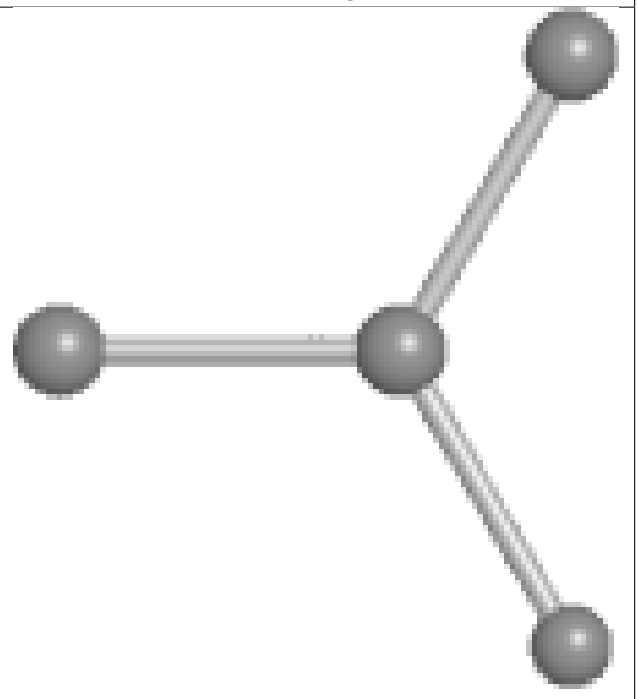
Bond lengths



Bond angles

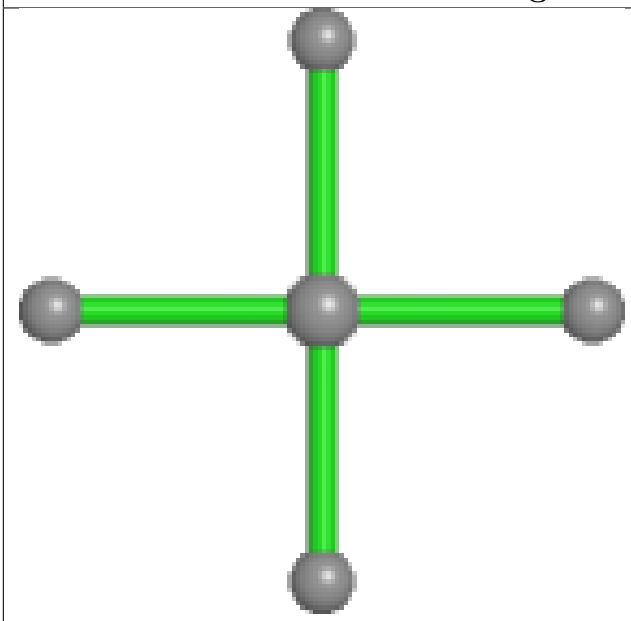


Torsions



Rings

Ligand SO4 B 707



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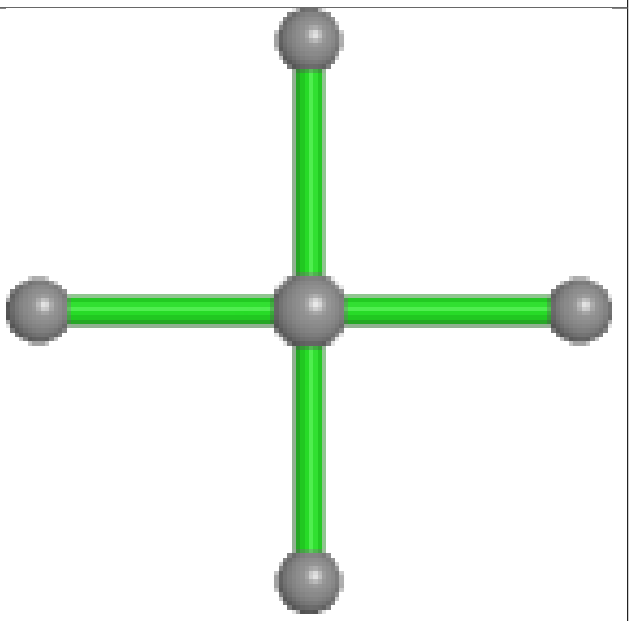
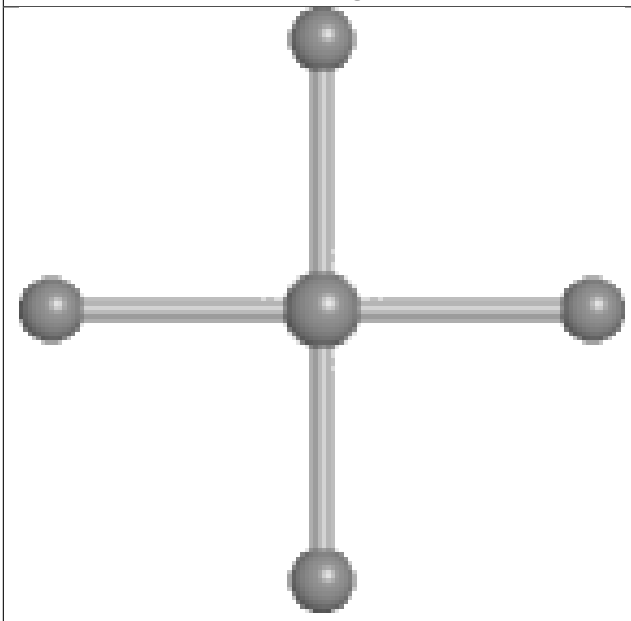


Bond angles



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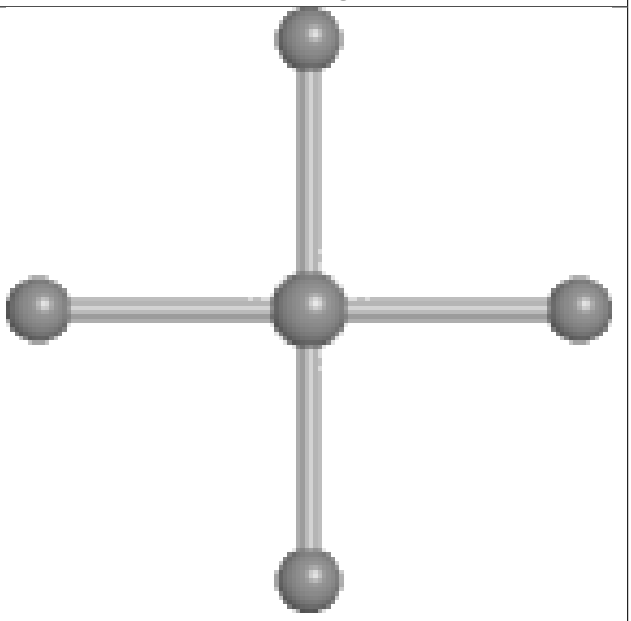
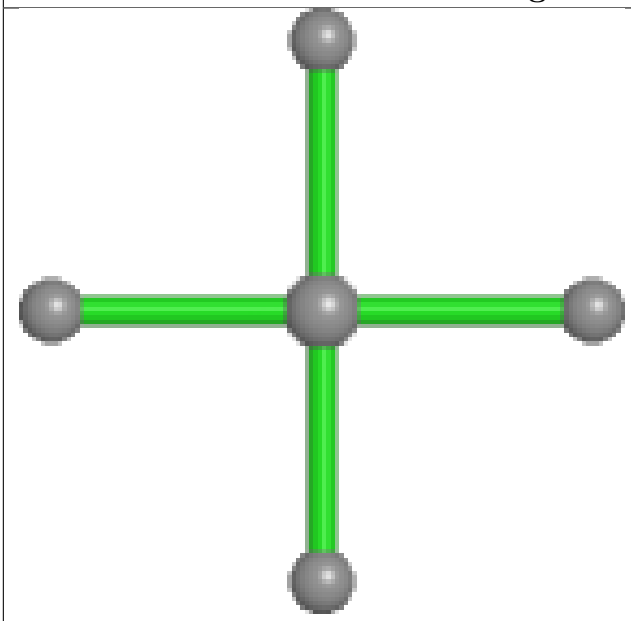


Rings

Ligand SO4 A 706



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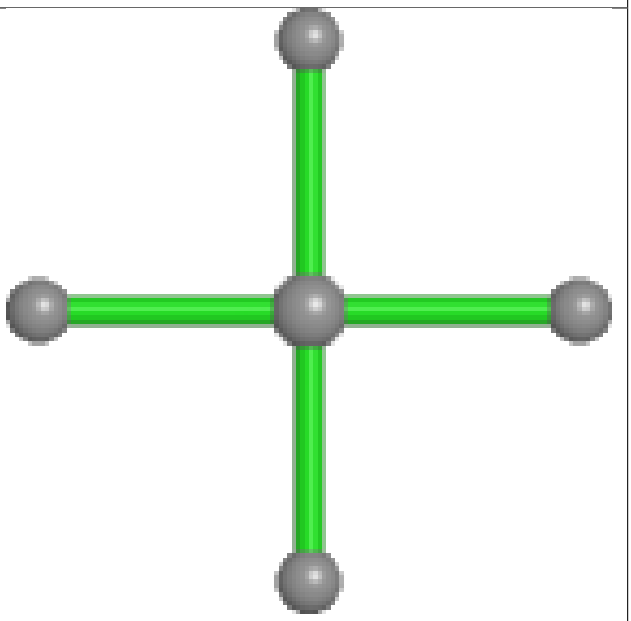
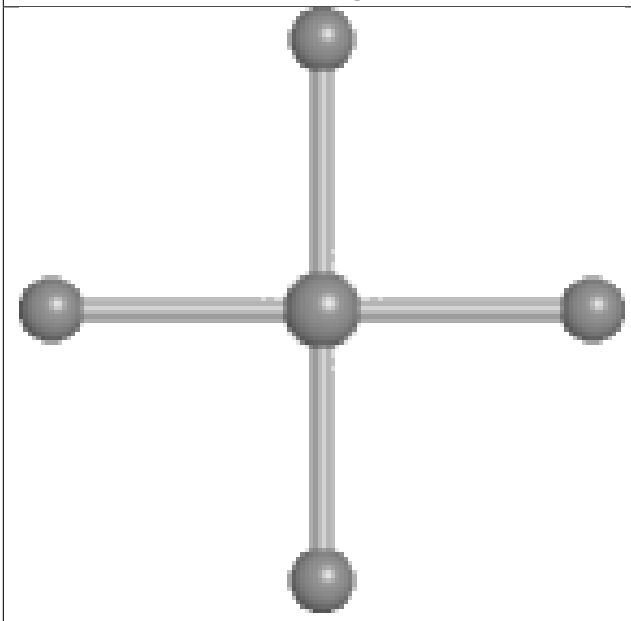


Bond angles



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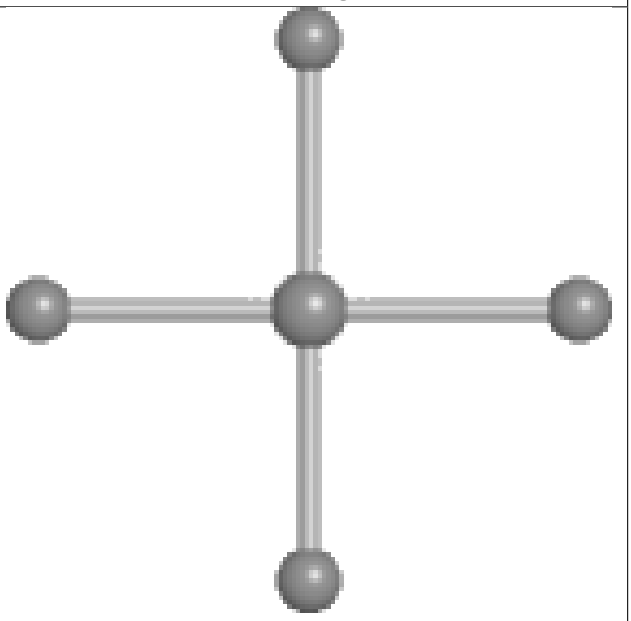
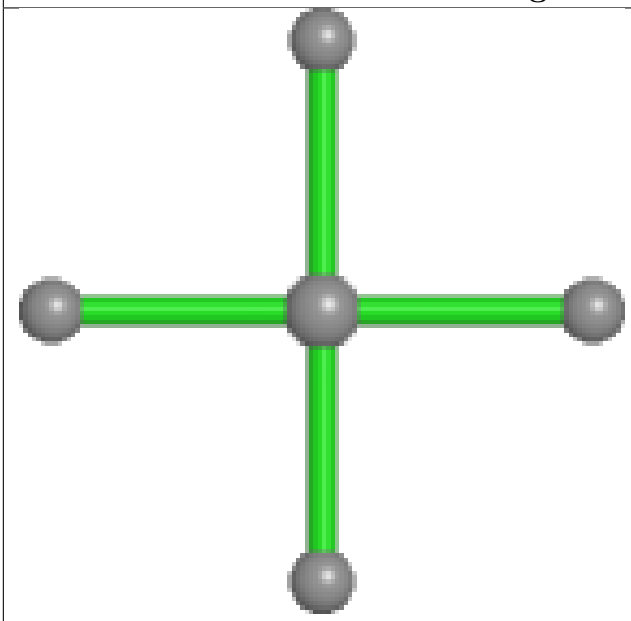


Rings

Ligand SO4 B 705



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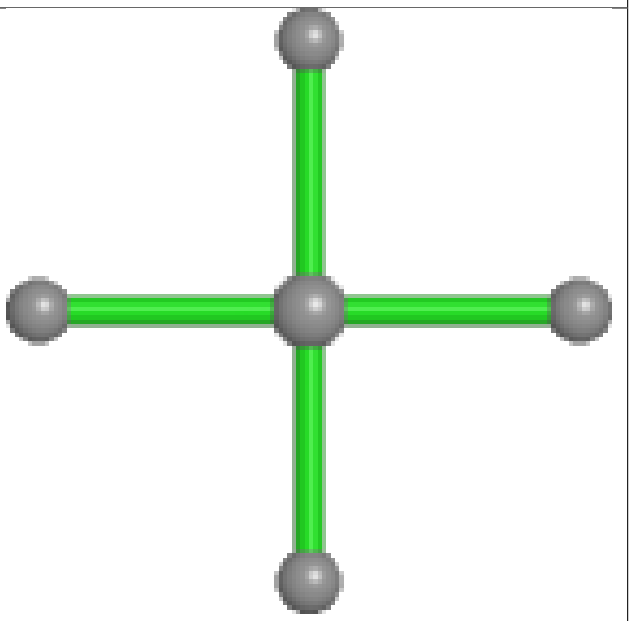

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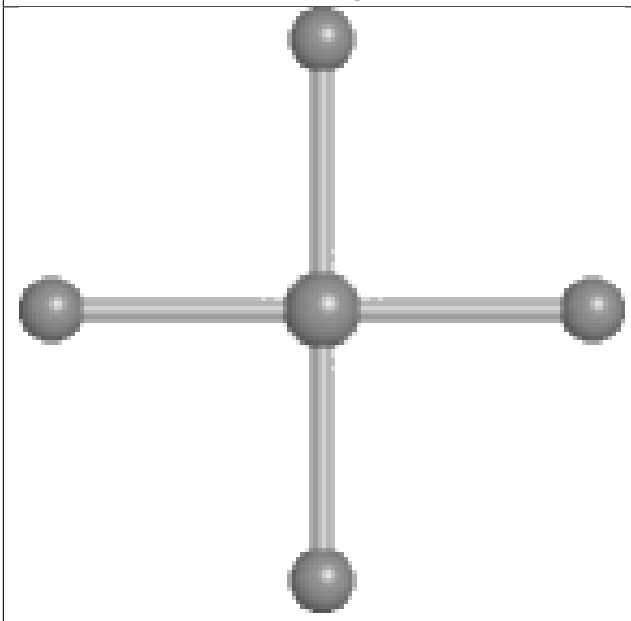

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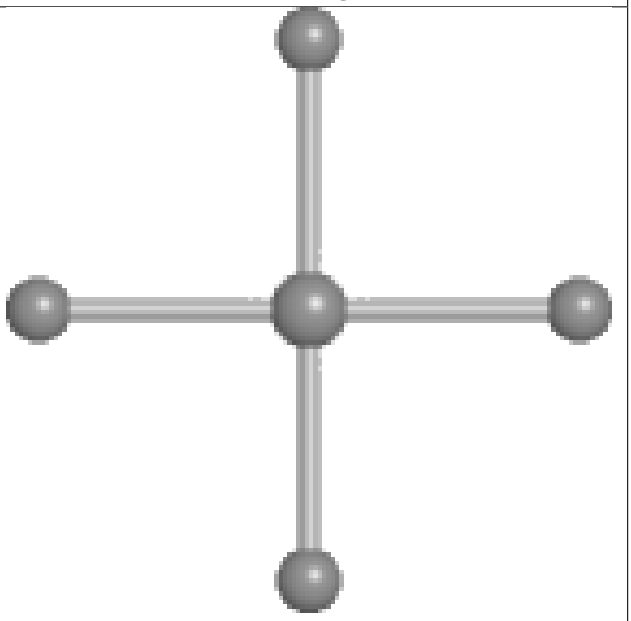
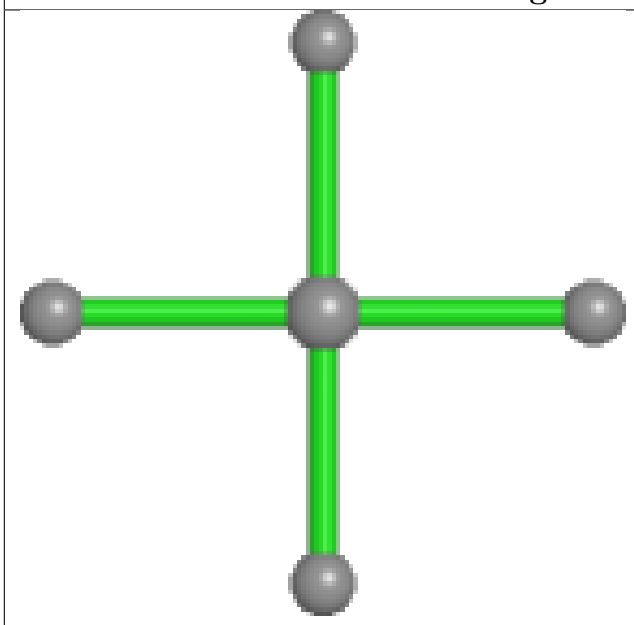


Rings

Ligand SO4 A 710



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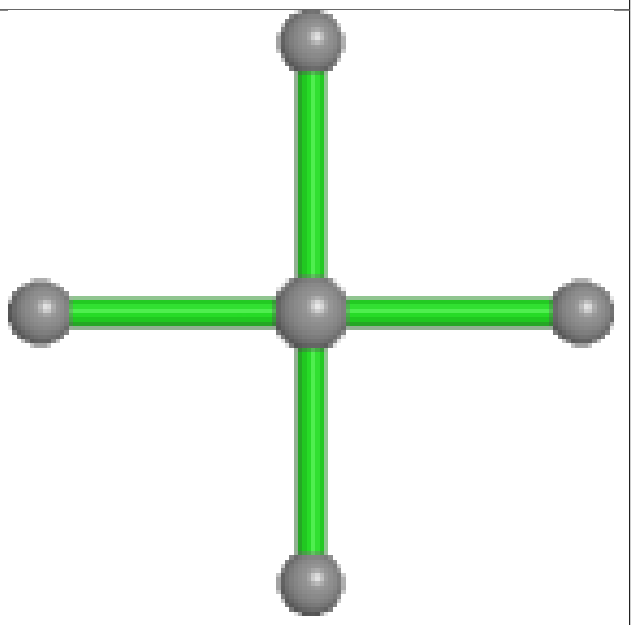

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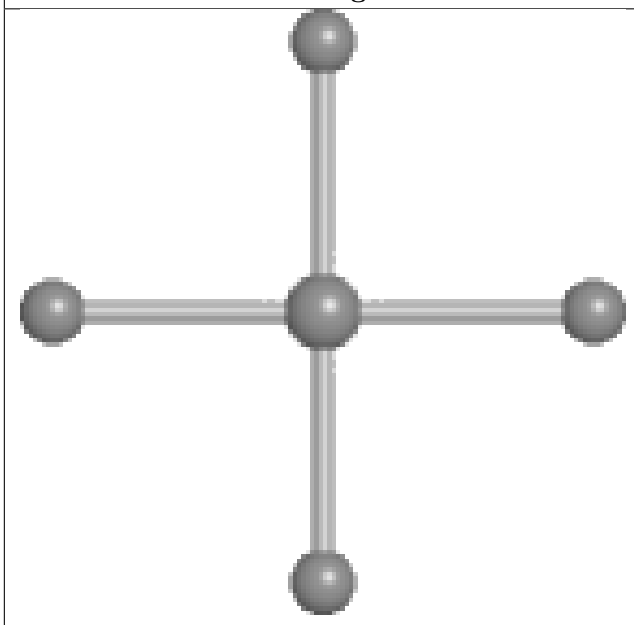

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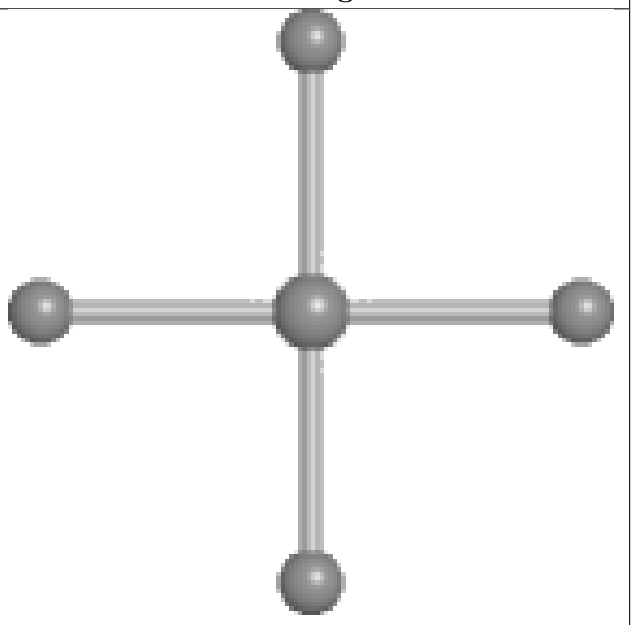

Rings

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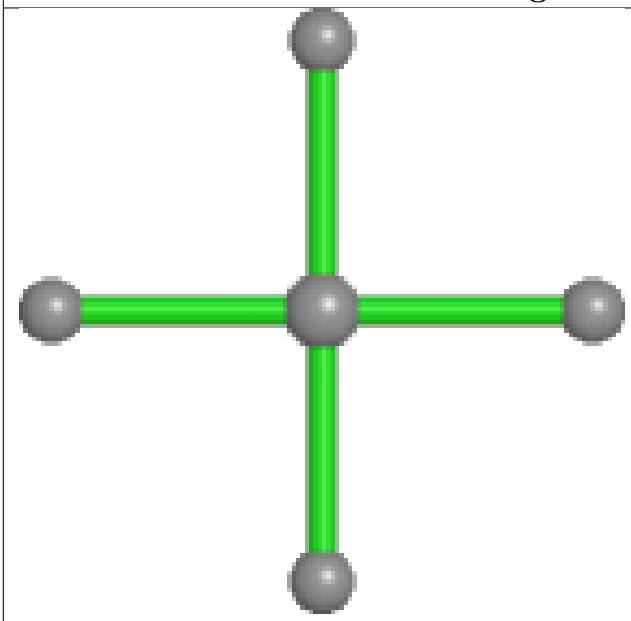

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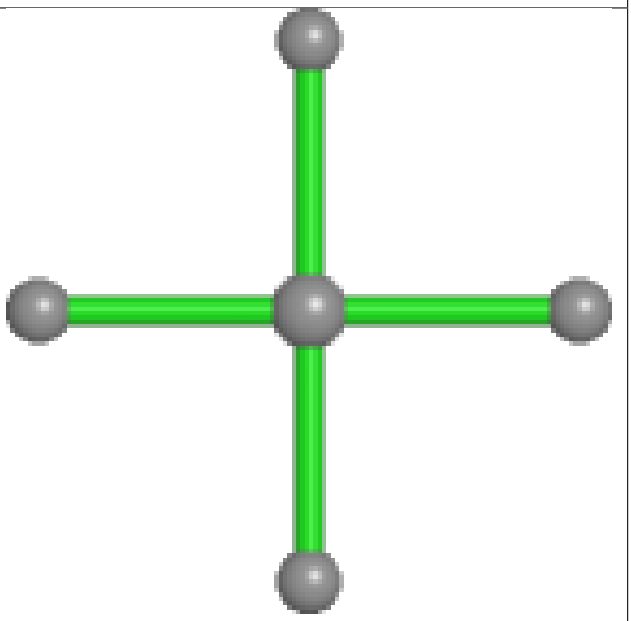

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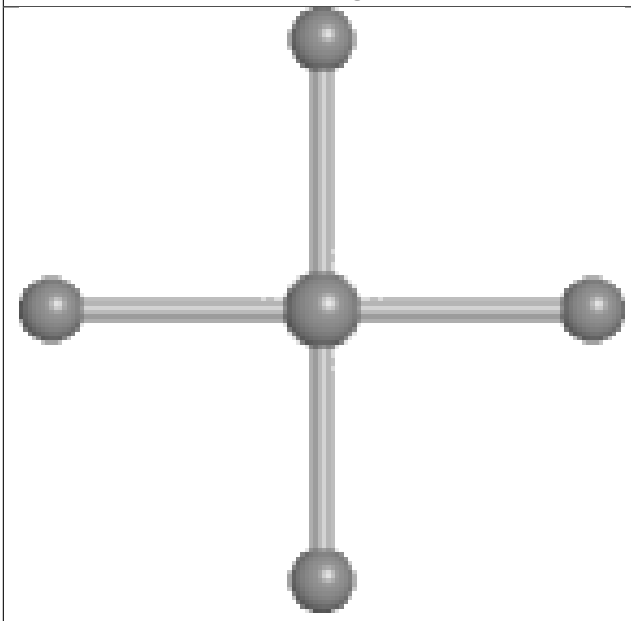

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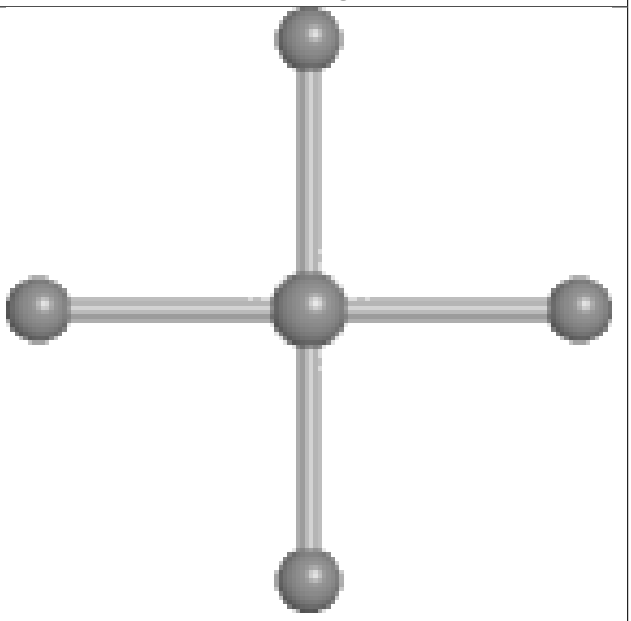
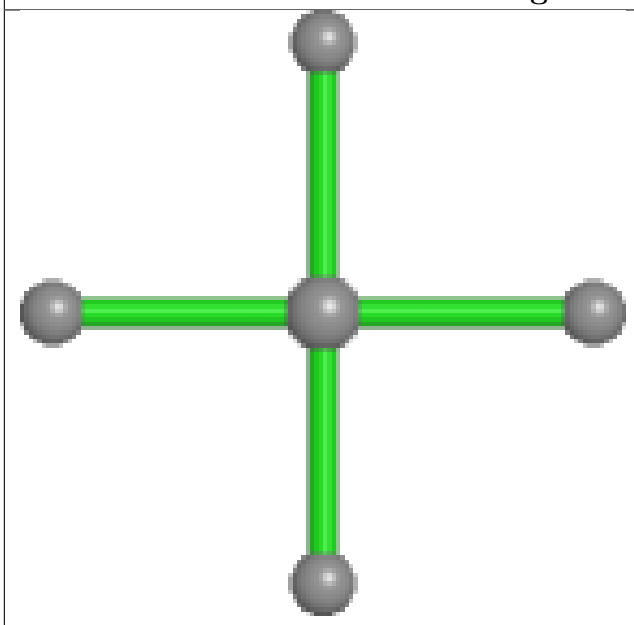


Rings

Ligand SO4 B 708



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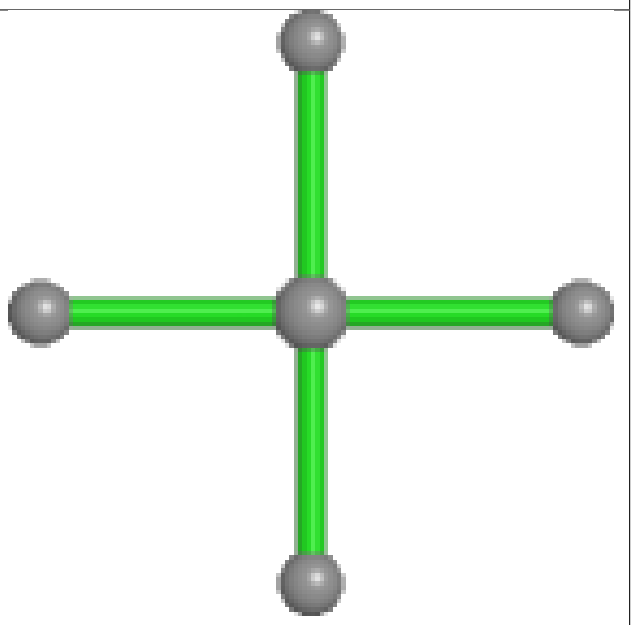

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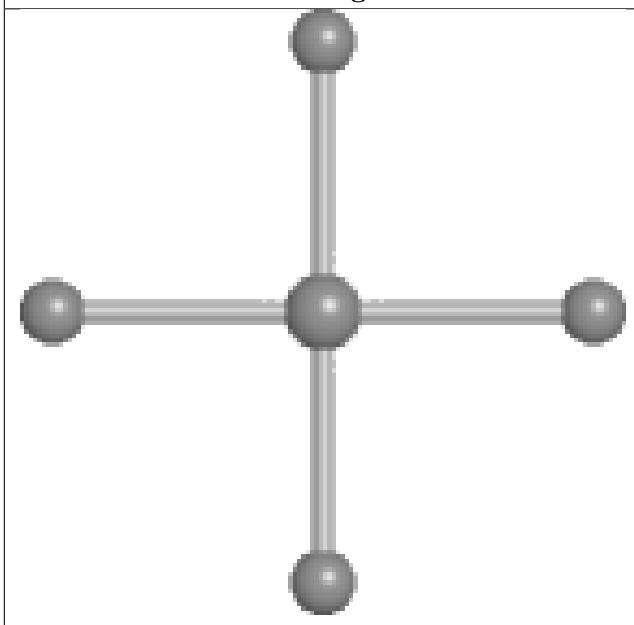

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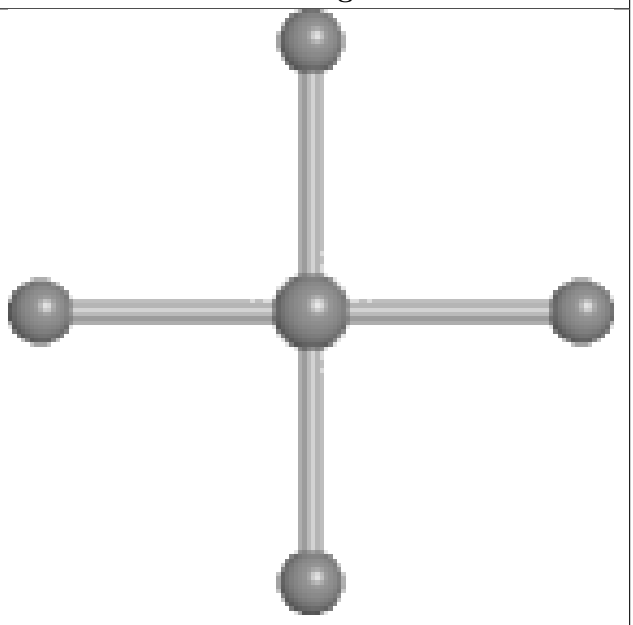
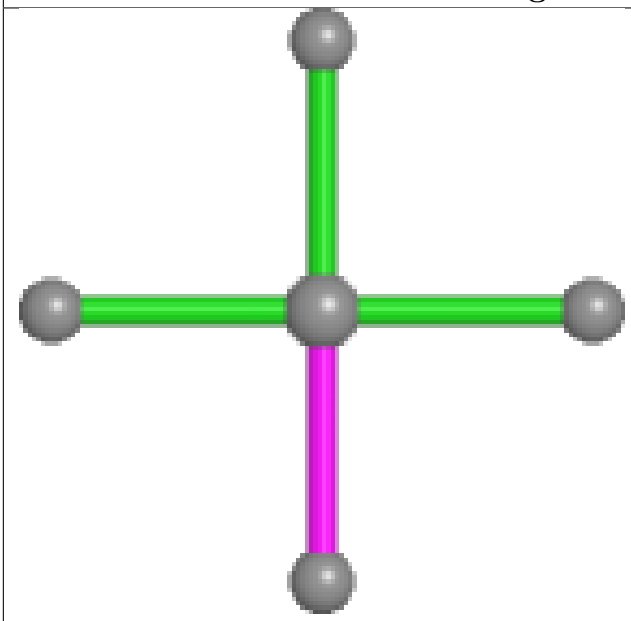


Rings

Ligand SO4 A 707



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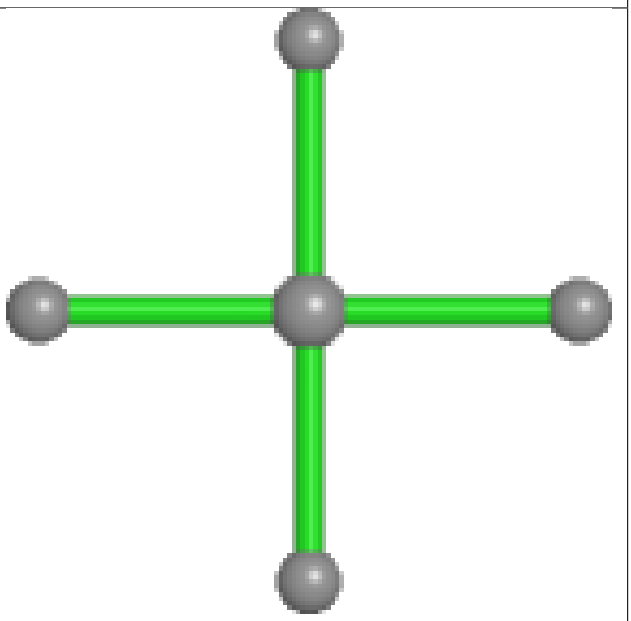

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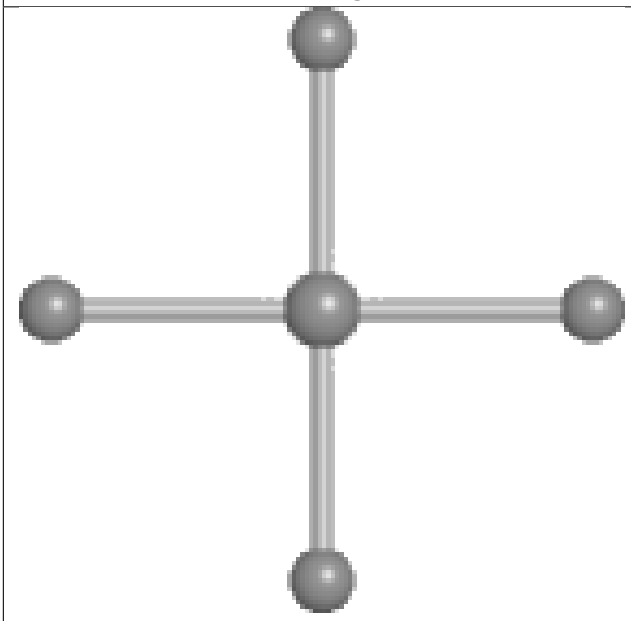

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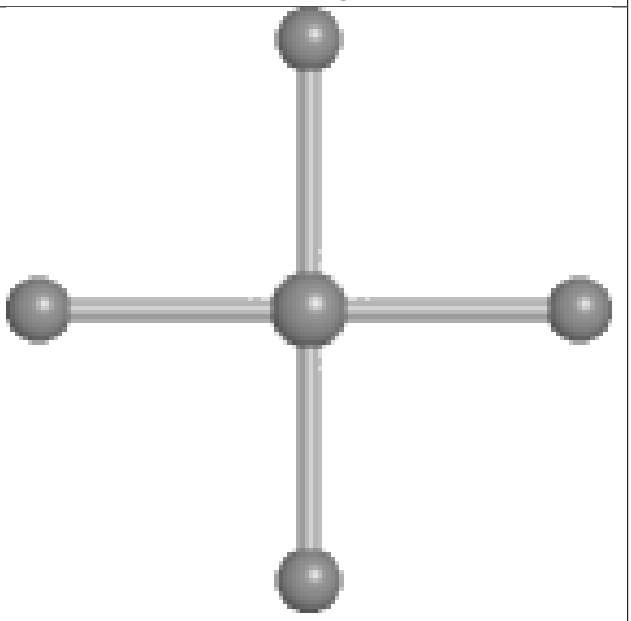
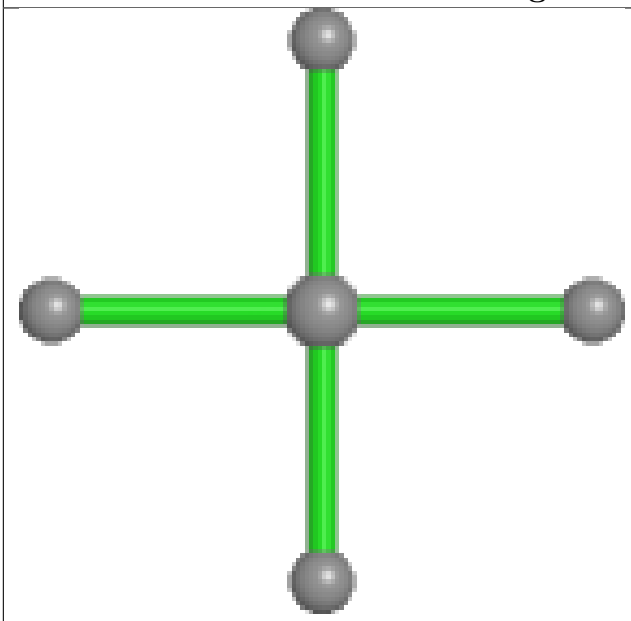


Rings

Ligand SO4 A 705



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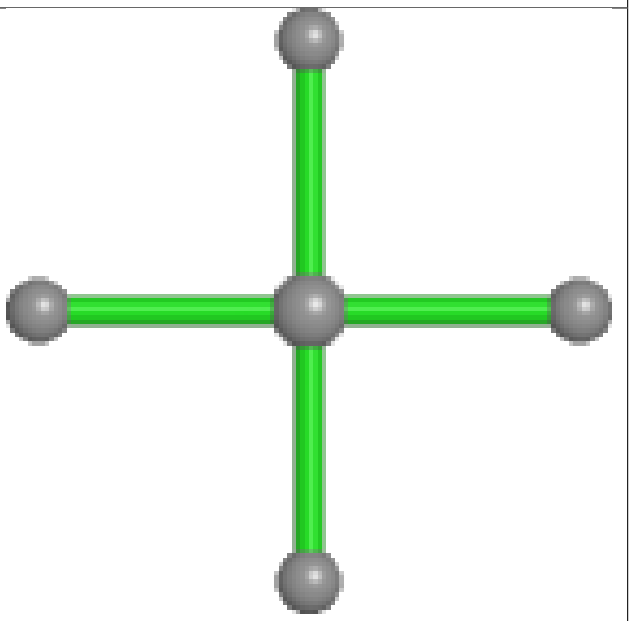

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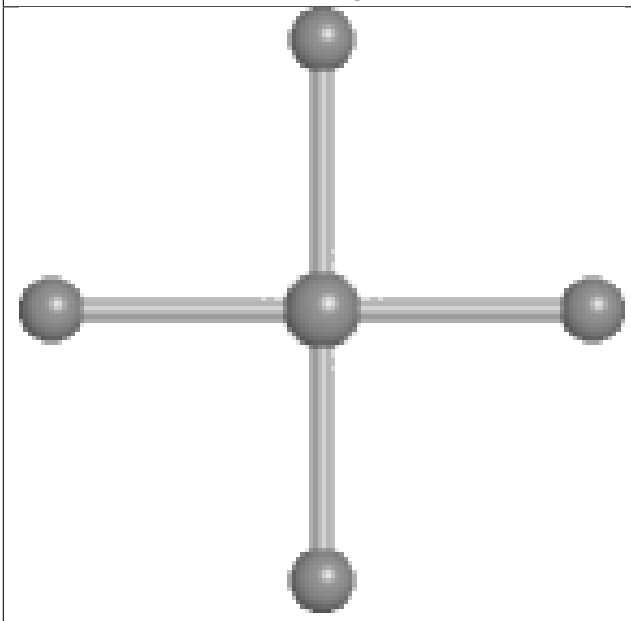

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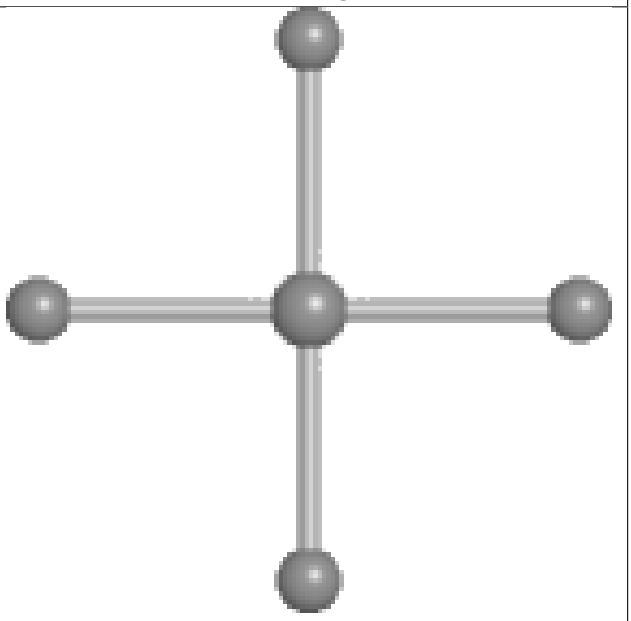
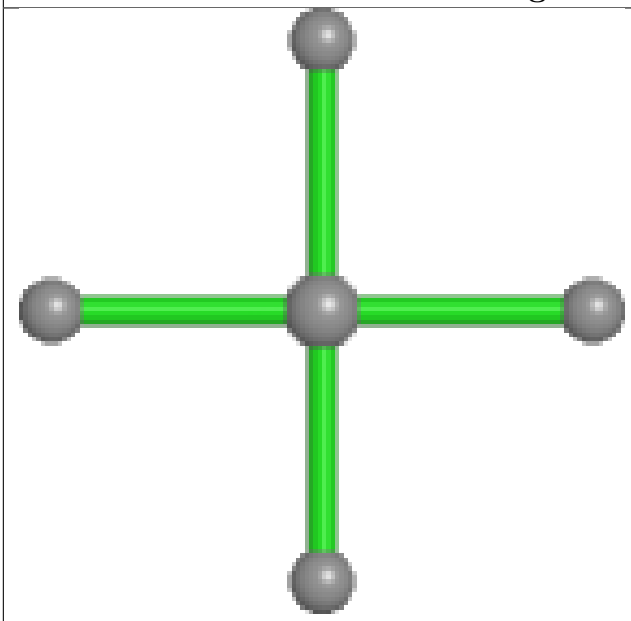


Rings

Ligand SO4 A 704



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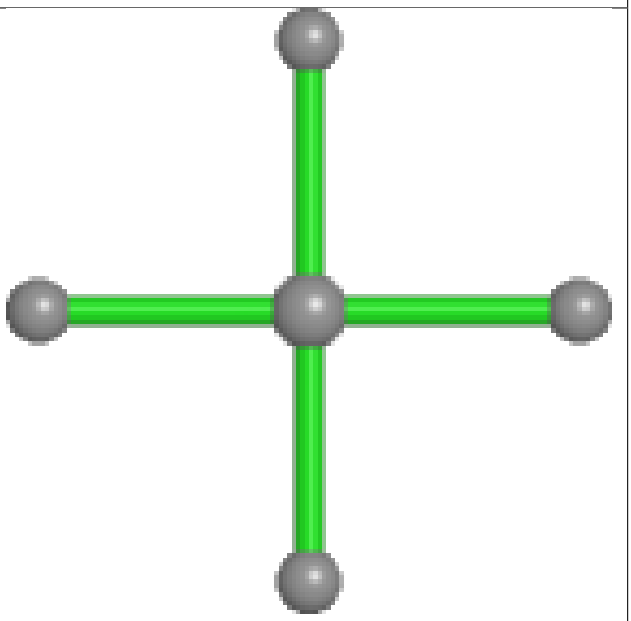

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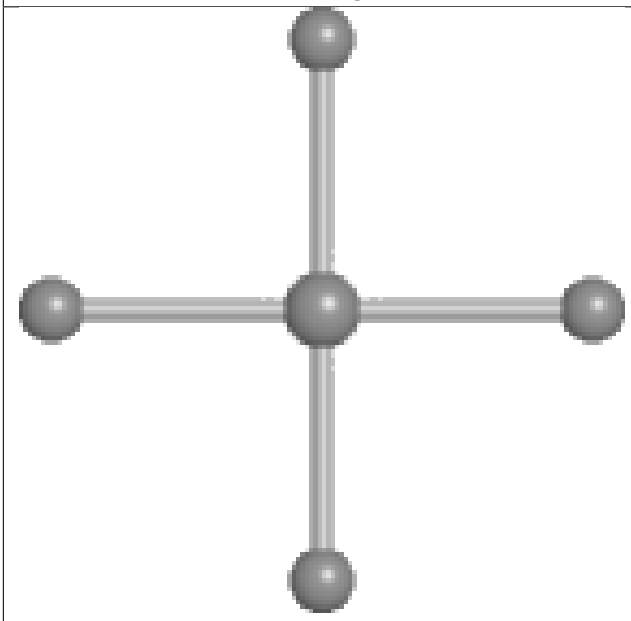

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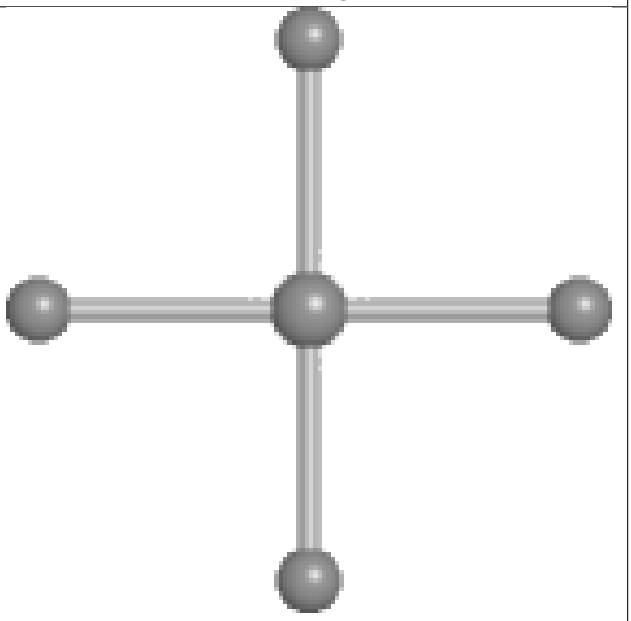
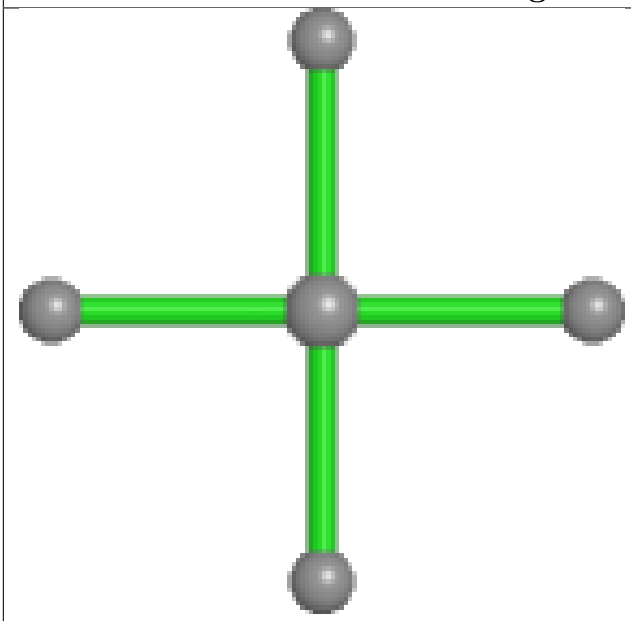


Rings

Ligand SO4 A 708



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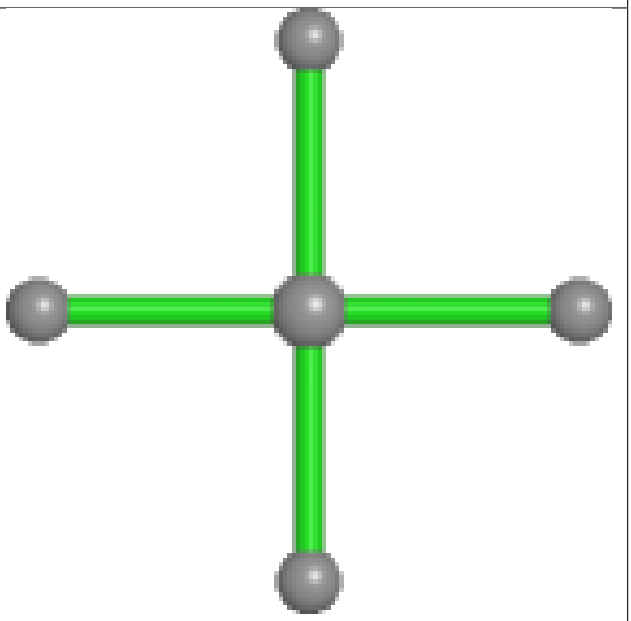

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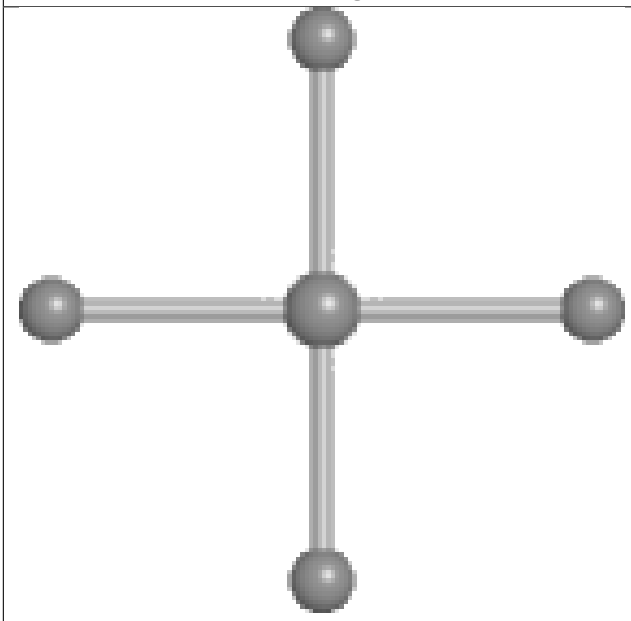

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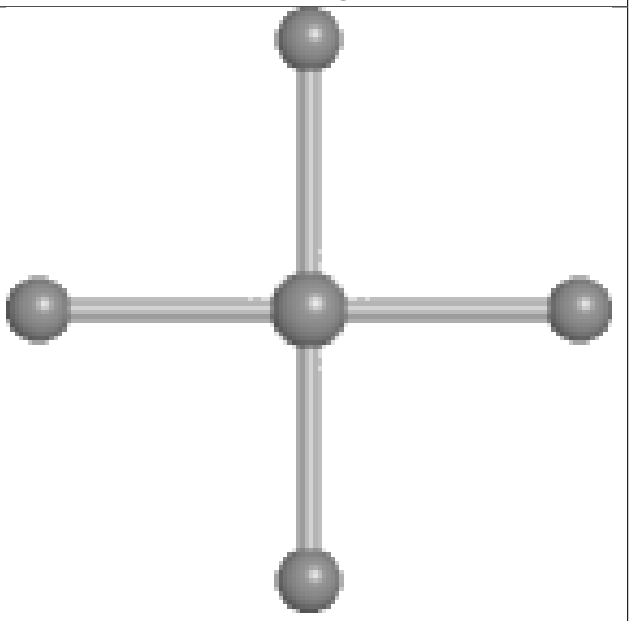
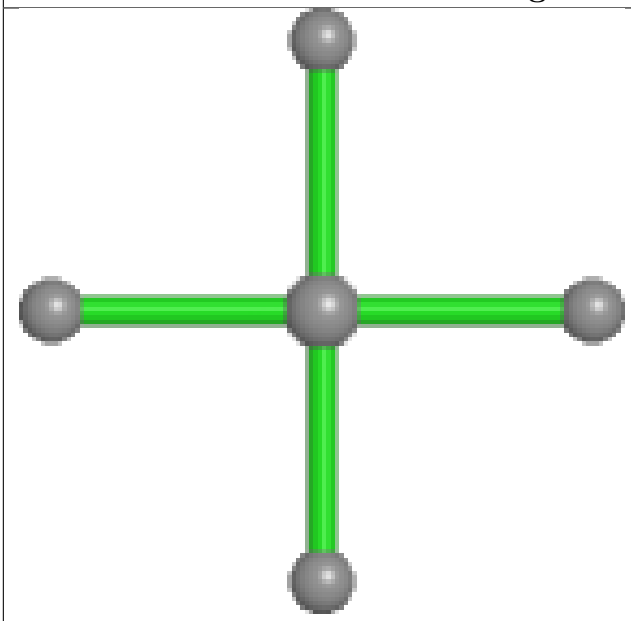
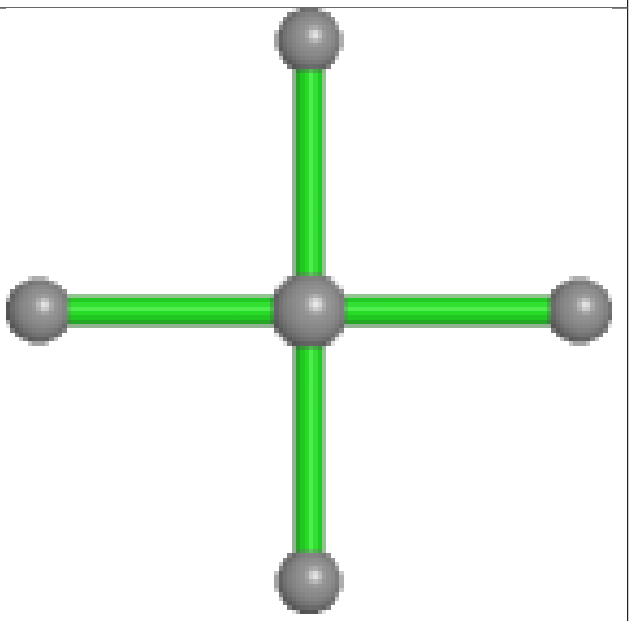


Rings

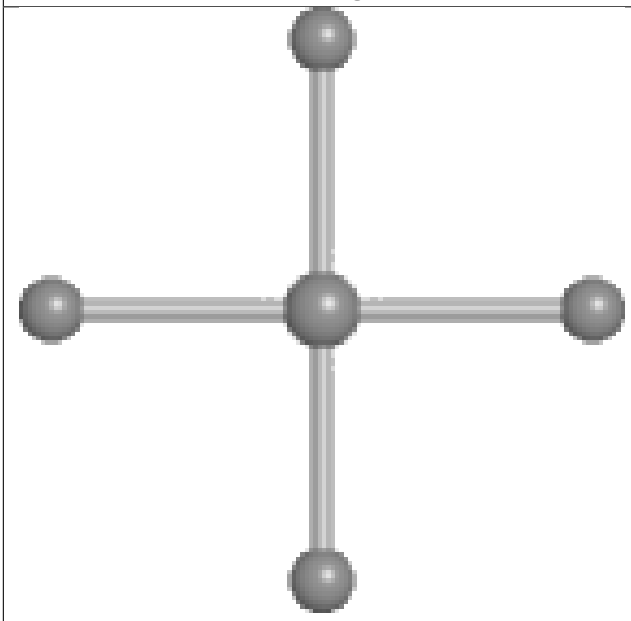
Ligand SO4 A 713



Bond lengths



Bond angles



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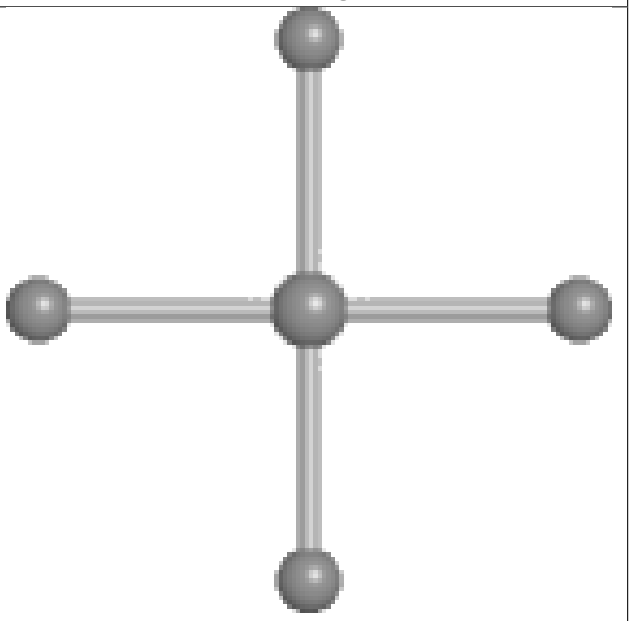
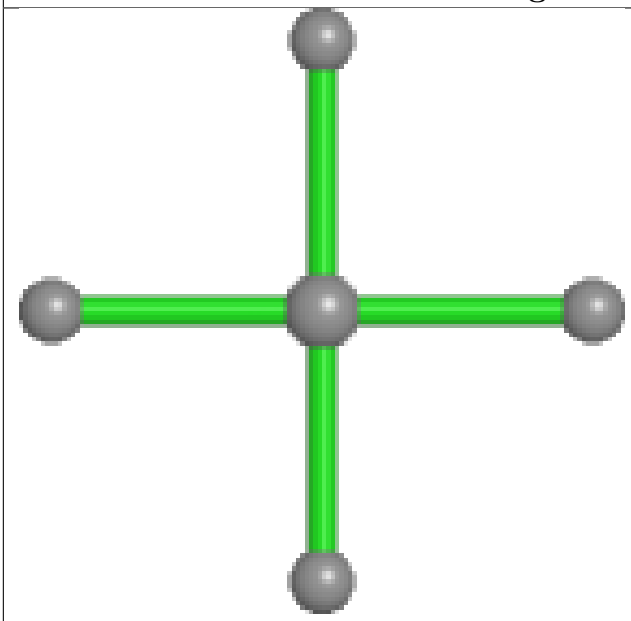


Rings

Ligand SO4 A 703



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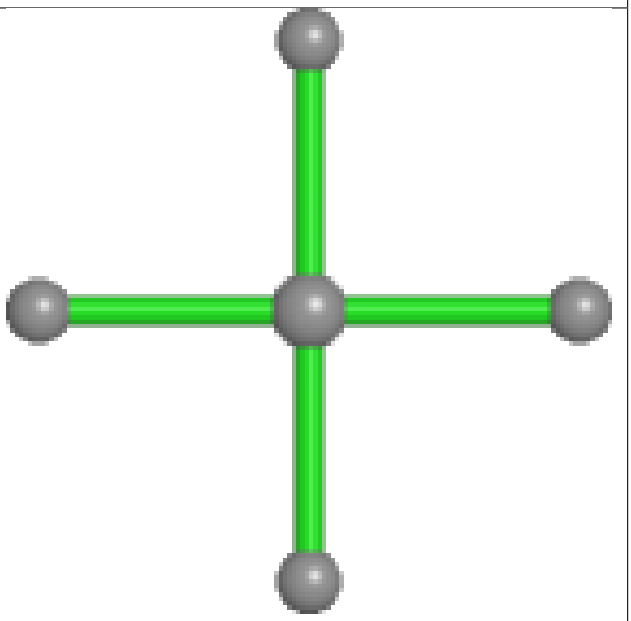
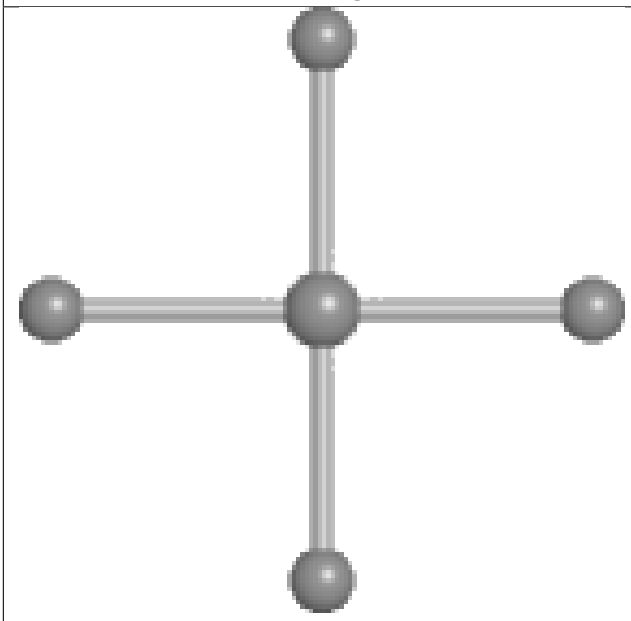
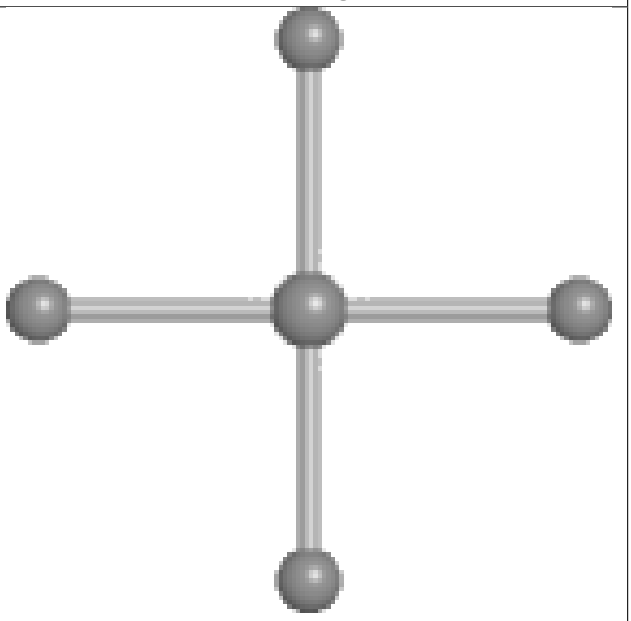


Bond angles

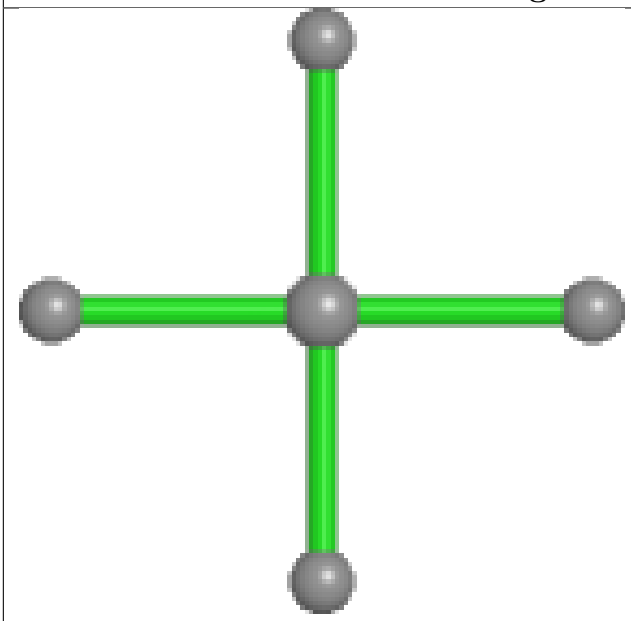


Torsions

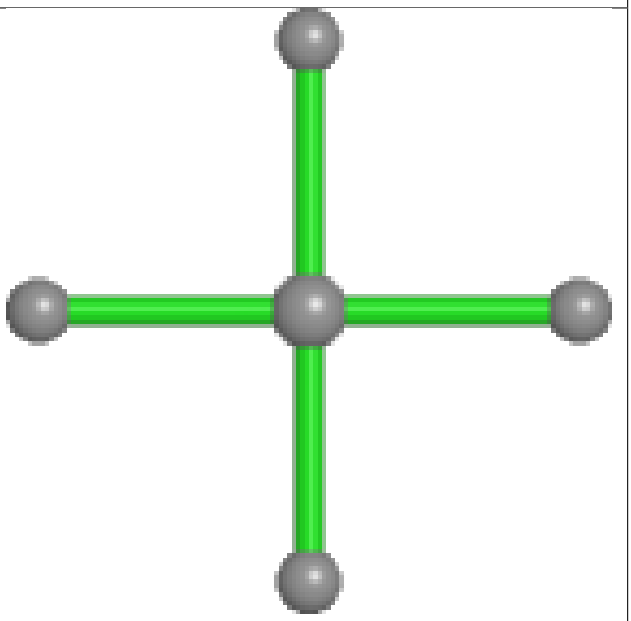


Rings

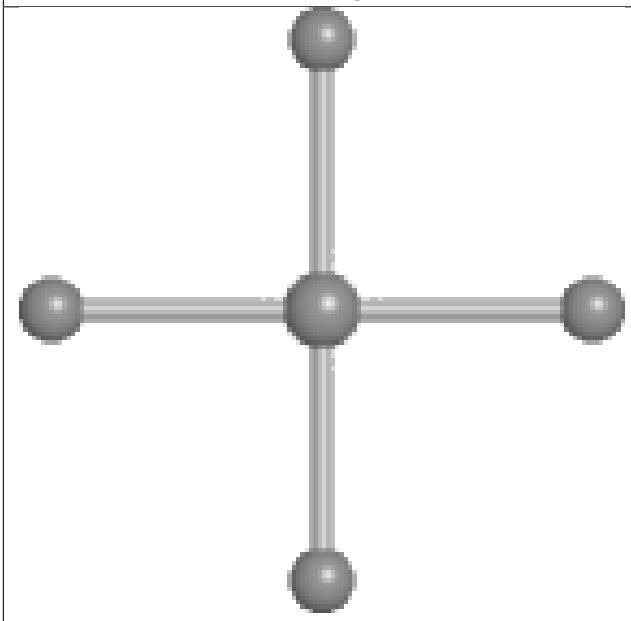
Ligand SO4 B 703



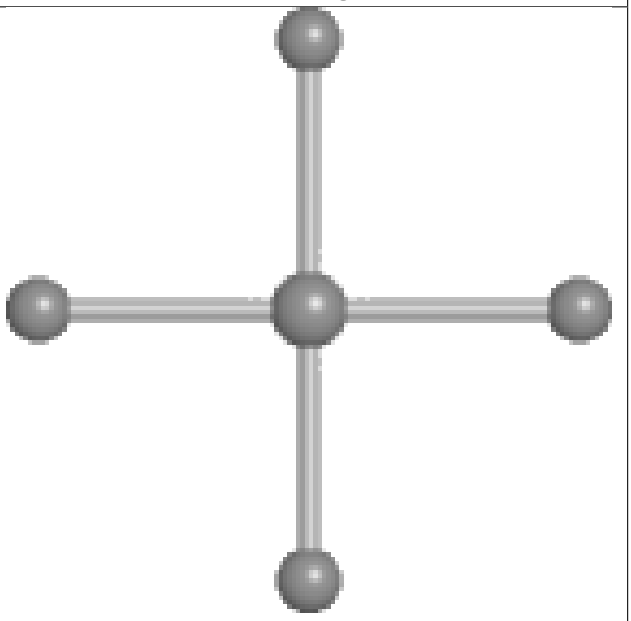
Bond lengths



Bond angles

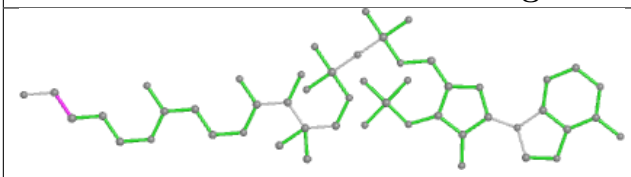


Torsions

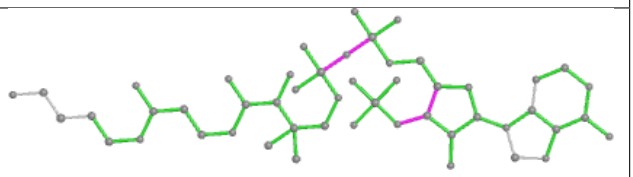


Rings

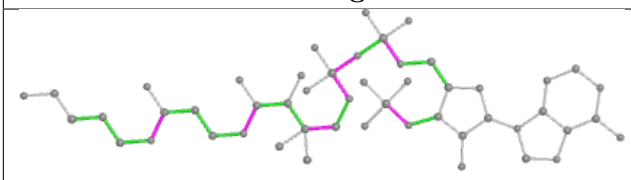
Ligand FYN A 715



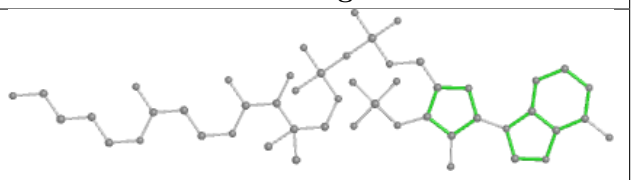
Bond lengths



Bond angles

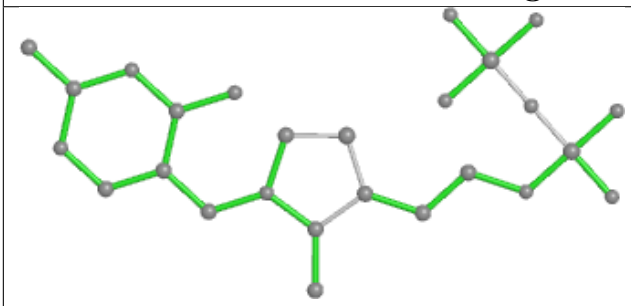


Torsions

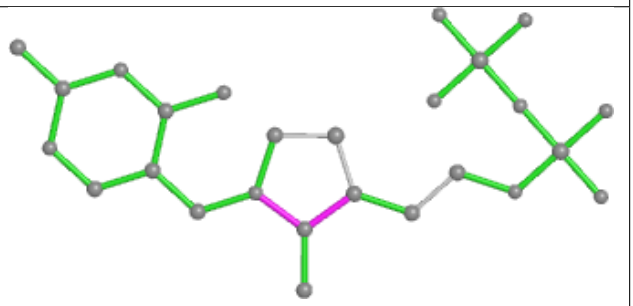


Rings

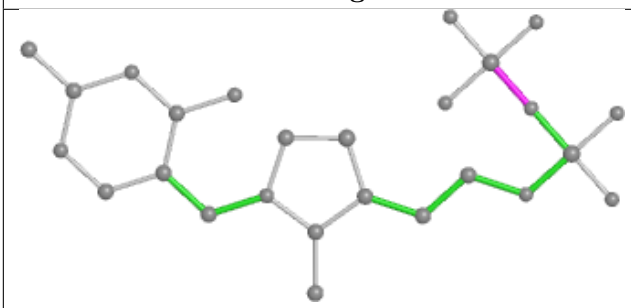
Ligand TPP A 701



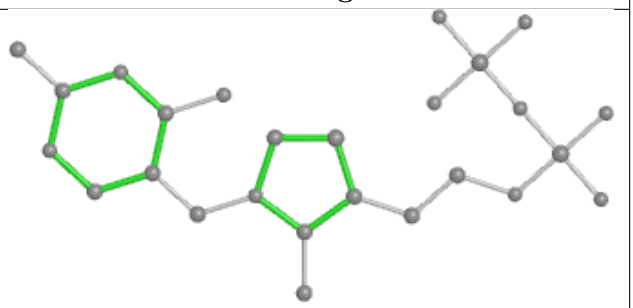
Bond lengths



Bond angles

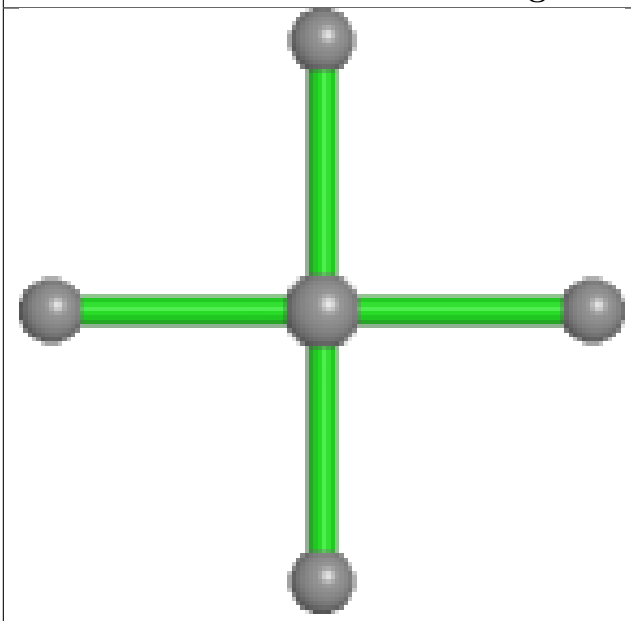


Torsions



Rings

Ligand SO4 A 711



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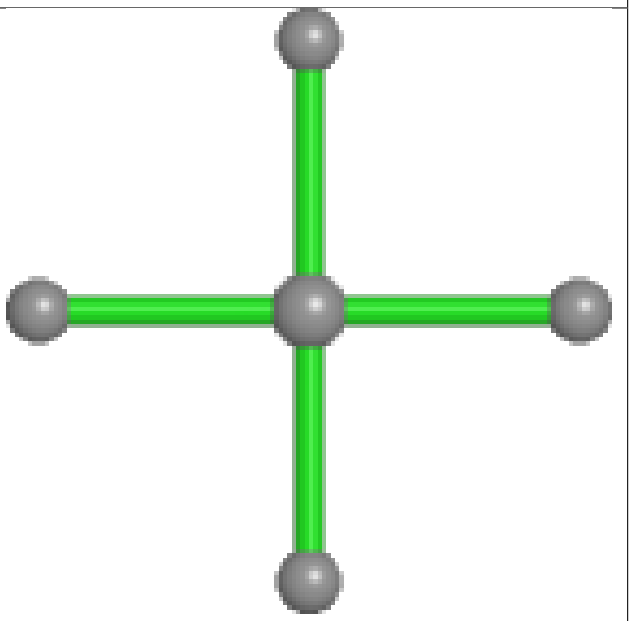
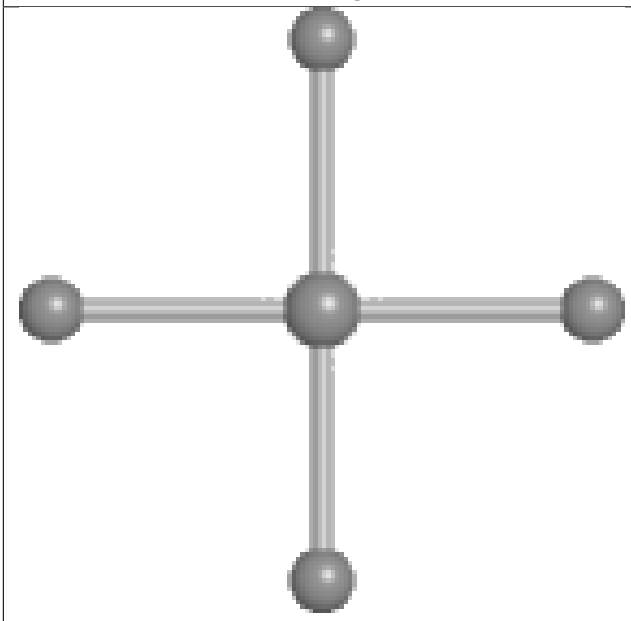
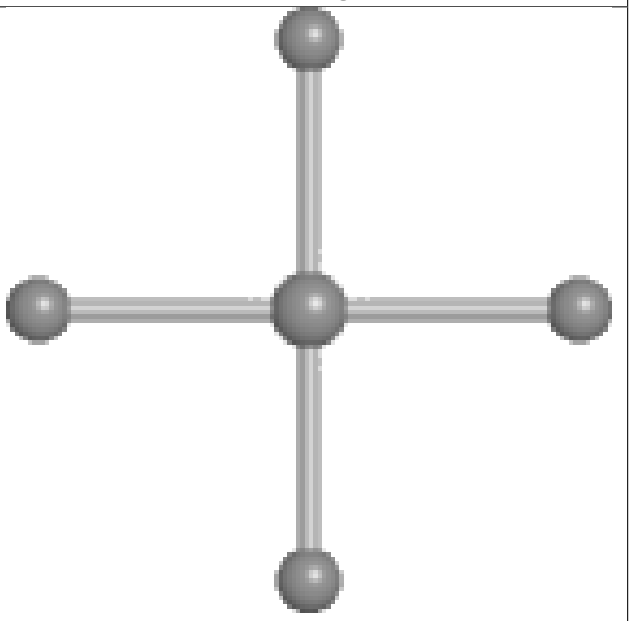


Bond angles

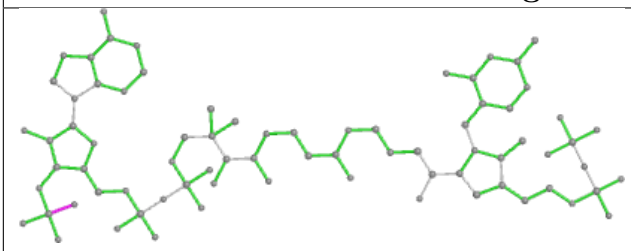


Torsions

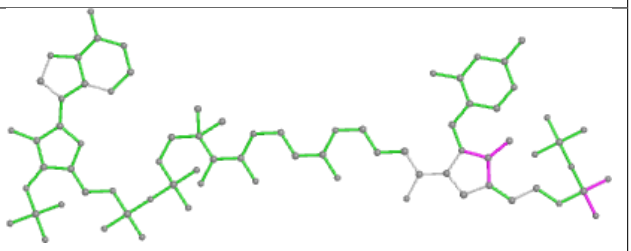


Rings

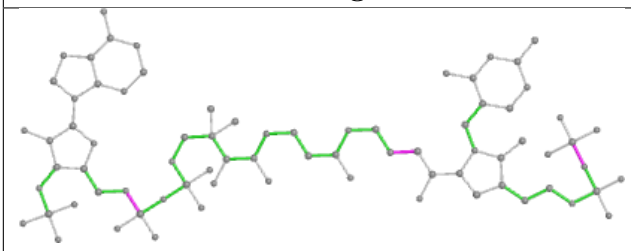
Ligand OXT B 701



Bond lengths



Bond angles



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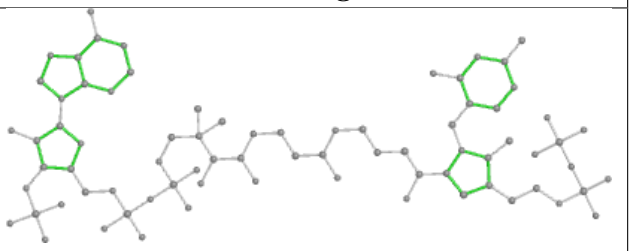
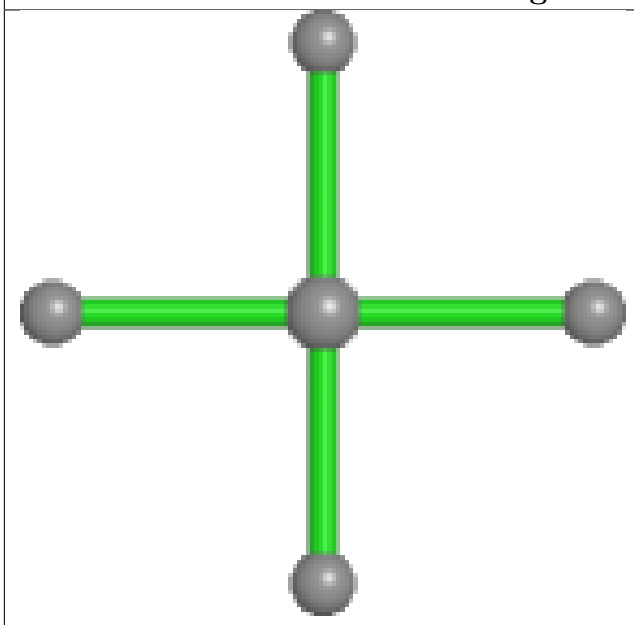


Rings

Ligand SO4 A 712



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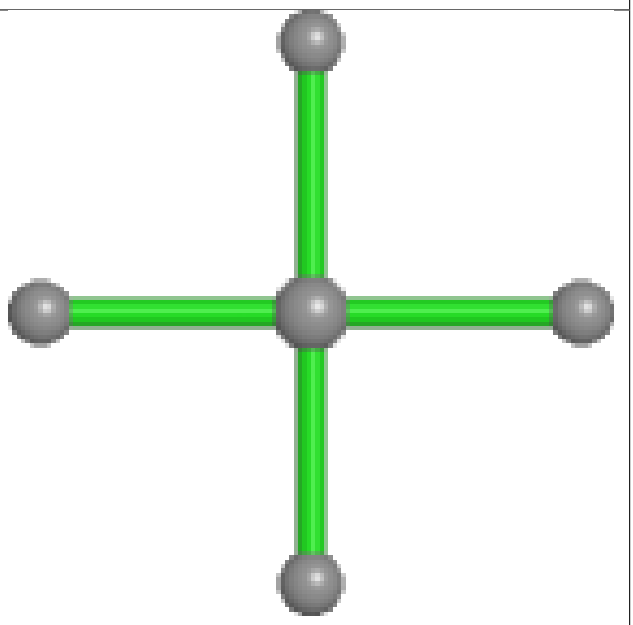
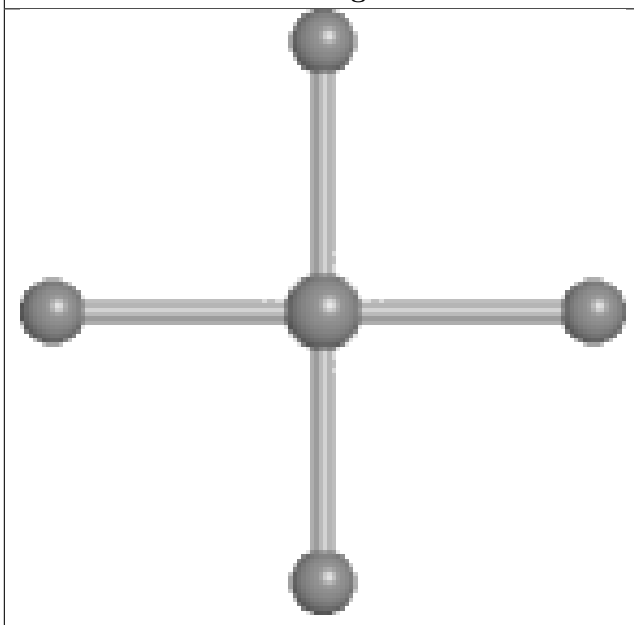


Bond angles



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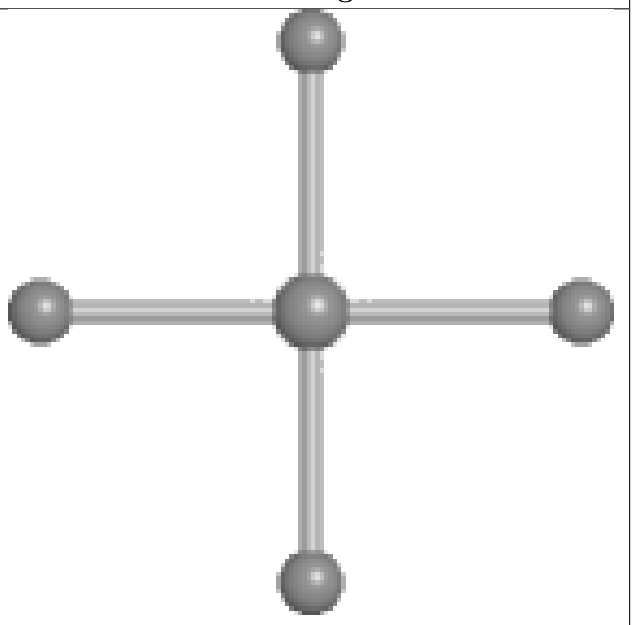
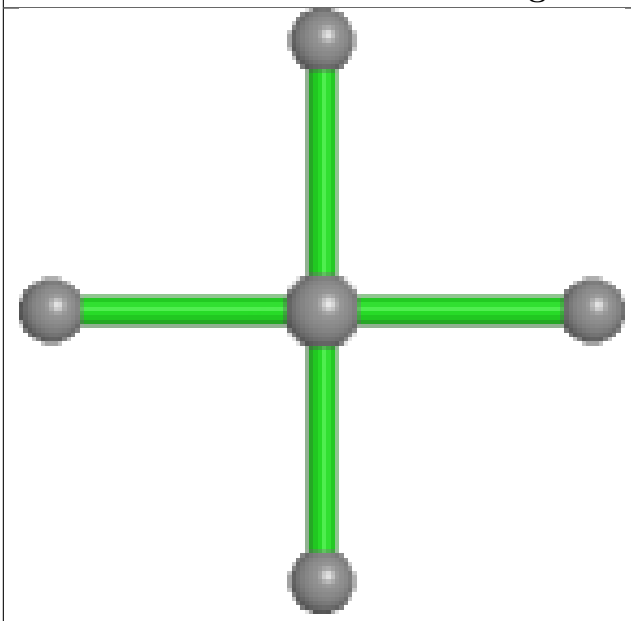


Rings

Ligand SO4 A 709



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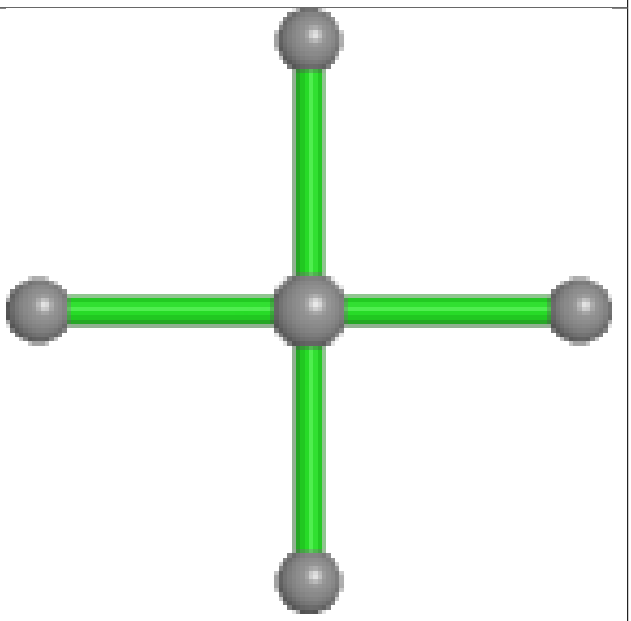
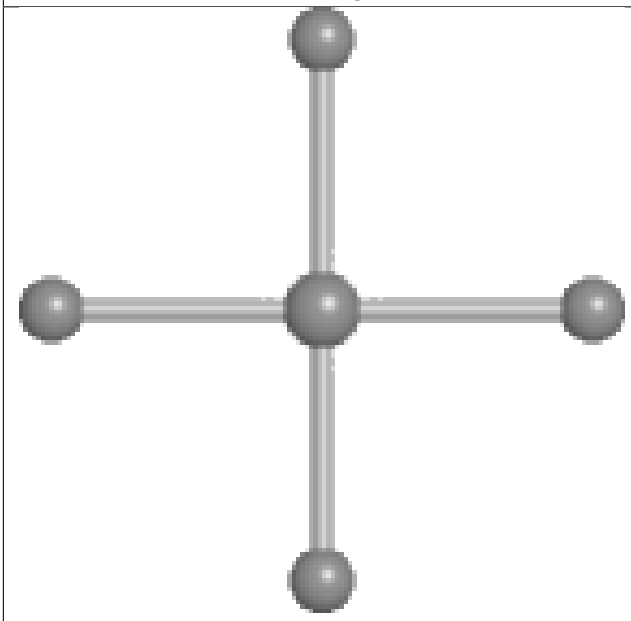


Bond angles



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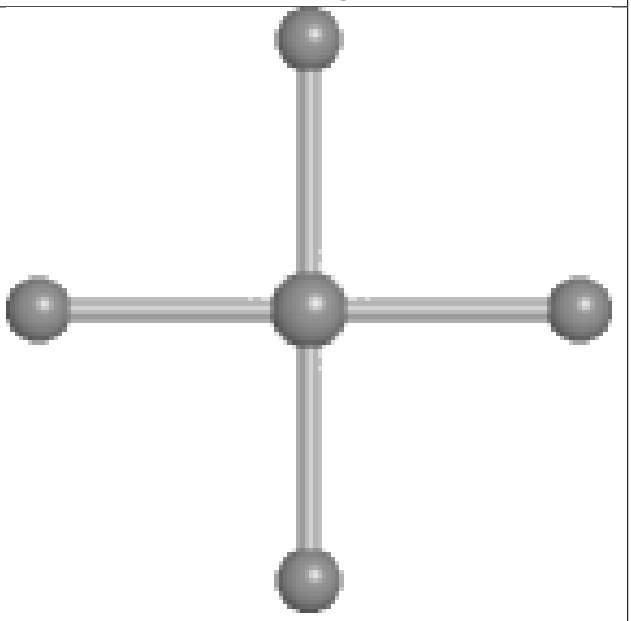
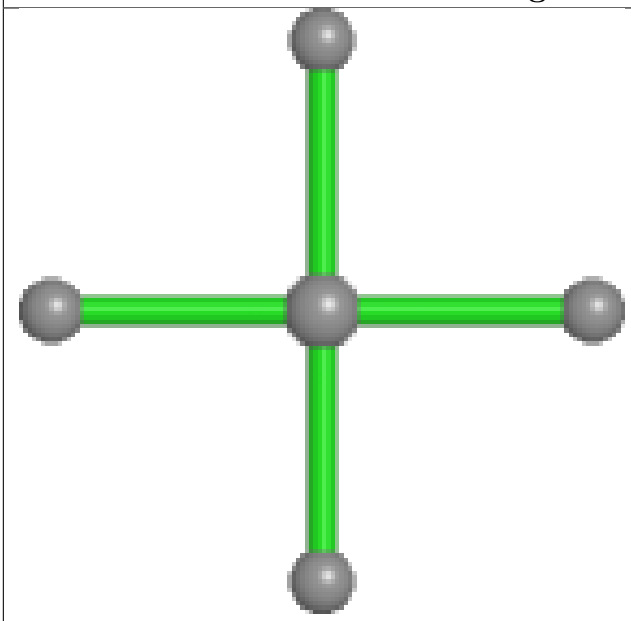
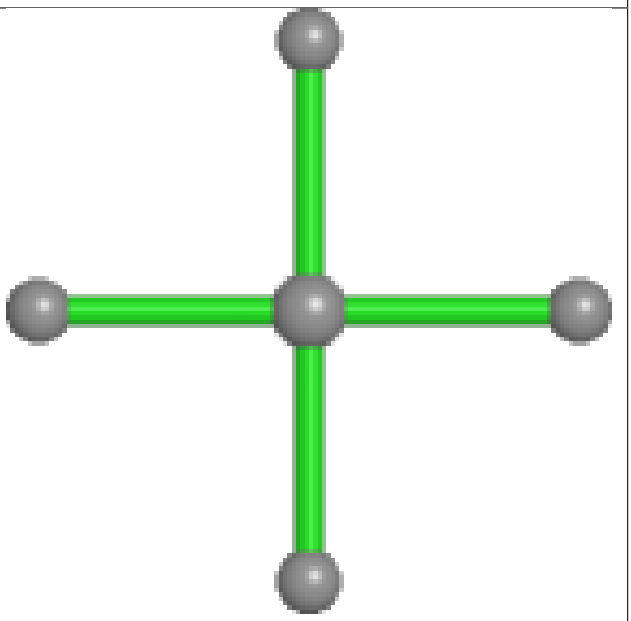


Rings

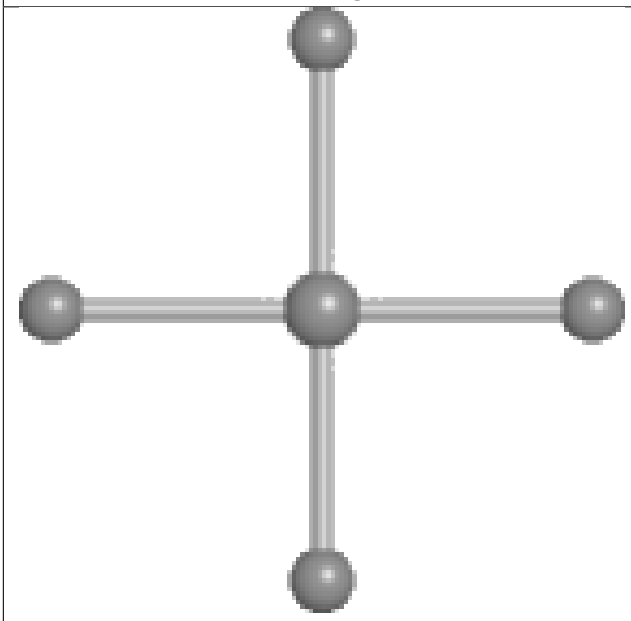
Ligand SO4 A 702



Bond lengths



Bond angles



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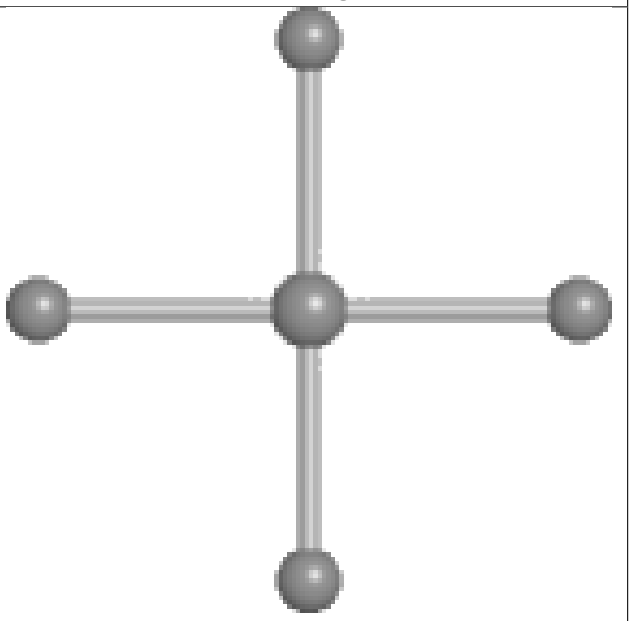
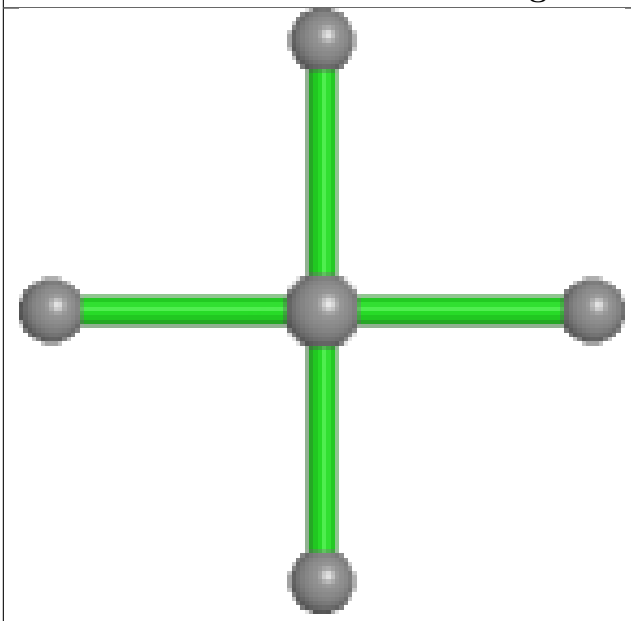
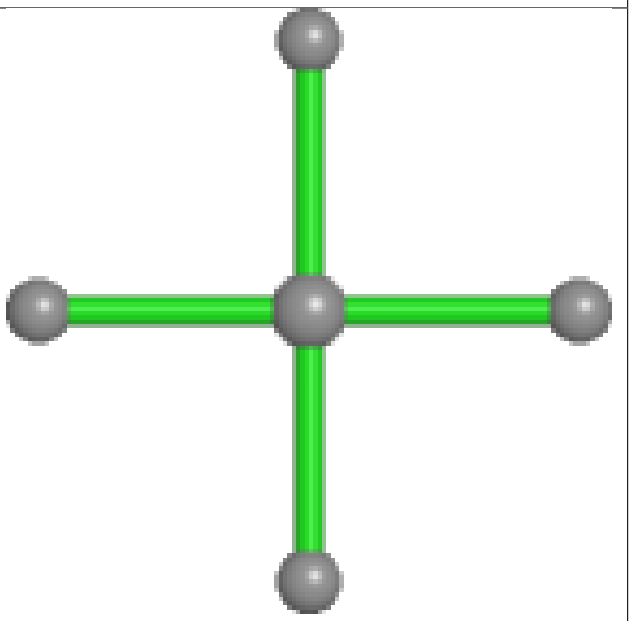


Rings

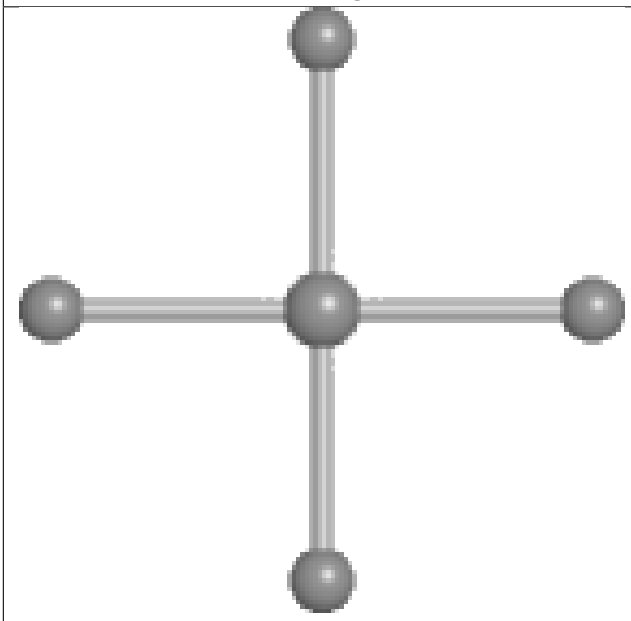
Ligand SO4 B 704



Bond lengths



Bond angles



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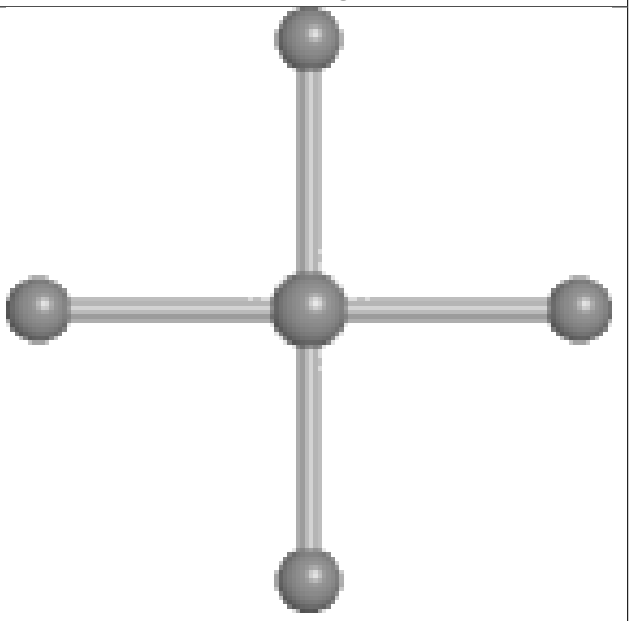
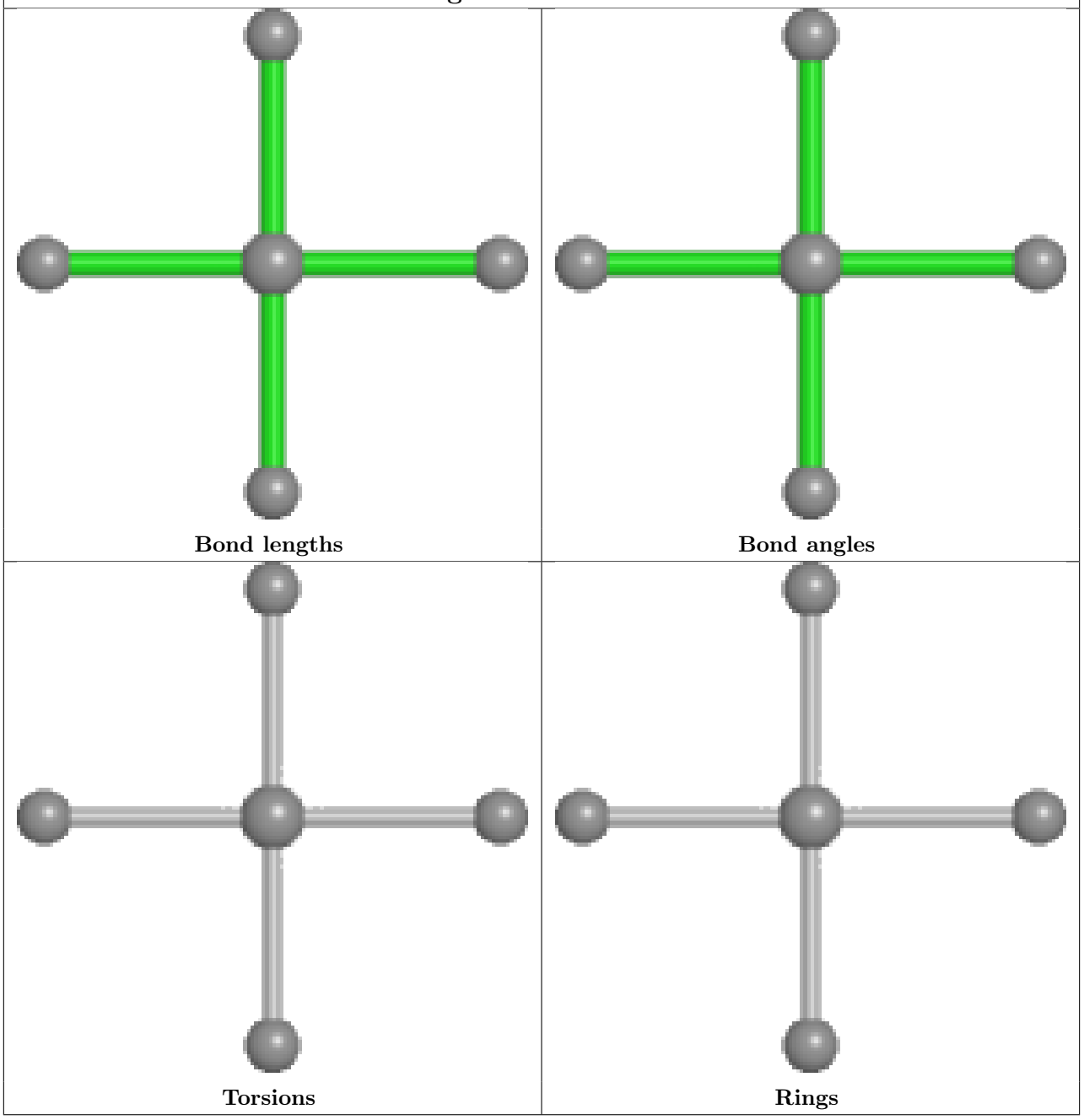


Rings

Ligand SO4 B 702



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^{th} 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	580/612 (94%)	-0.80	2 (0%)	94	94	10, 18, 37, 63	0
1	B	584/612 (95%)	-0.79	7 (1%)	79	79	11, 17, 33, 74	0
All	All	1164/1224 (95%)	-0.79	9 (0%)	86	87	10, 17, 35, 74	0

The worst 5 of 9 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	594	TRP	3.3
1	B	593	ALA	3.0
1	B	590	ILE	2.9
1	A	593	ALA	2.7
1	B	495	TYR	2.6

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 monosaccharides in this entry.

6.4 Ligands

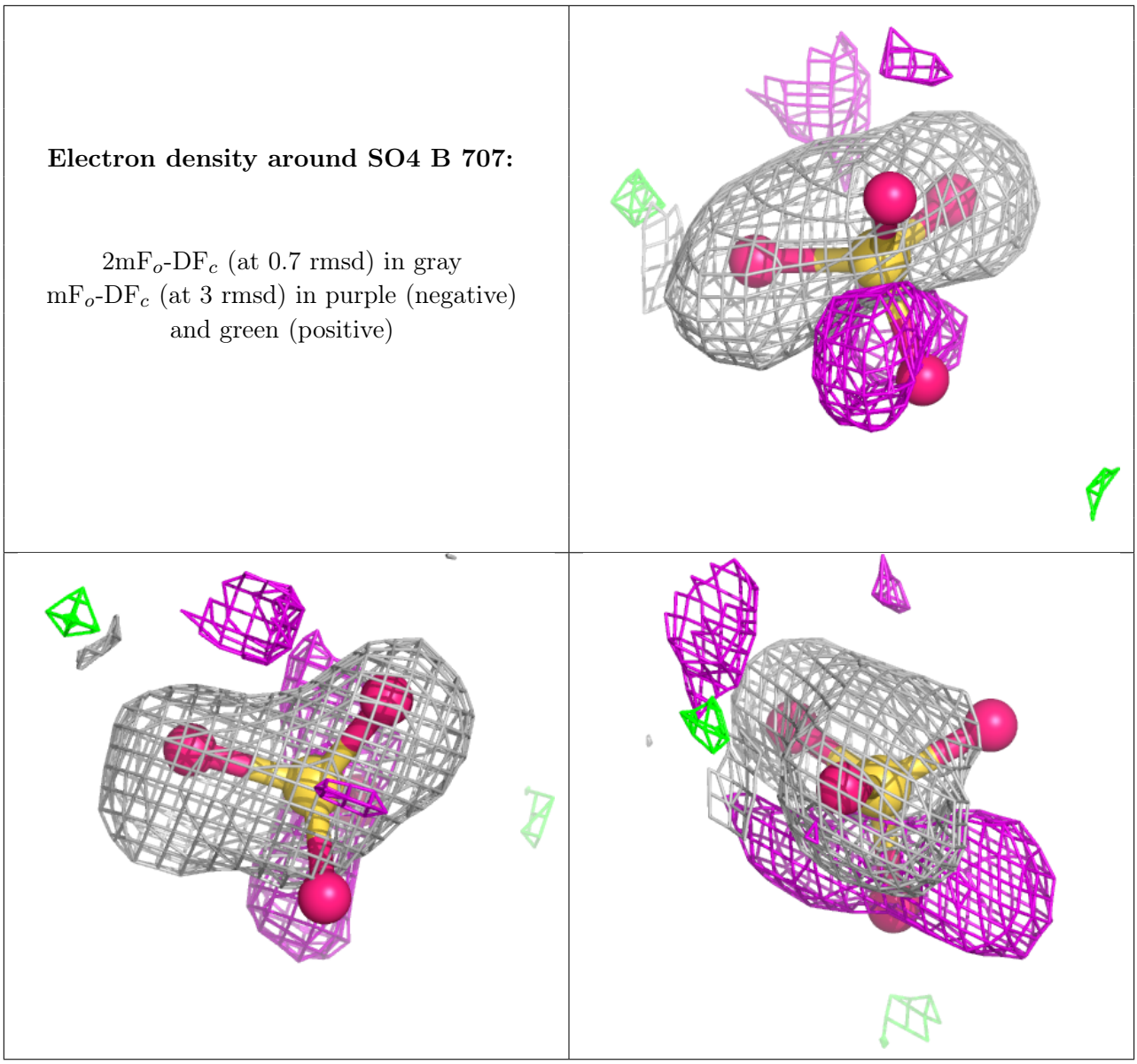
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	SO4	B	707	5/5	0.59	0.27	78,79,99,105	0
3	SO4	A	707	5/5	0.62	0.20	26,39,48,67	0
3	SO4	A	710	5/5	0.68	0.23	77,83,99,100	0
3	SO4	B	706	5/5	0.74	0.21	69,70,85,94	0
3	SO4	A	708	5/5	0.74	0.18	45,55,67,72	0
3	SO4	A	709	5/5	0.75	0.15	74,77,86,86	0
3	SO4	A	712	5/5	0.80	0.32	84,87,91,91	0
3	SO4	A	702	5/5	0.80	0.15	32,41,52,53	0
3	SO4	A	711	5/5	0.80	0.23	94,103,106,106	0
5	FYN	A	715	50/50	0.81	0.17	40,66,84,93	2
3	SO4	B	708	5/5	0.83	0.24	92,92,96,101	0
3	SO4	A	713	5/5	0.84	0.15	95,97,99,104	0
3	SO4	B	705	5/5	0.84	0.14	50,55,68,68	0
3	SO4	B	704	5/5	0.88	0.21	54,70,76,81	0
3	SO4	B	702	5/5	0.88	0.14	59,61,69,72	0
4	ACN	A	714	4/4	0.89	0.09	22,28,31,31	0
3	SO4	A	706	5/5	0.91	0.13	63,72,76,79	0
3	SO4	A	705	5/5	0.93	0.10	71,72,75,77	0
3	SO4	B	703	5/5	0.94	0.12	37,51,53,54	0
3	SO4	A	703	5/5	0.94	0.11	49,51,63,68	0
3	SO4	A	704	5/5	0.96	0.12	37,49,54,55	0
2	TPP	A	701	26/26	0.99	0.06	11,12,12,13	0
6	MG	A	716	1/1	0.99	0.03	26,26,26,26	1
7	OXT	B	701	76/76	0.99	0.06	11,19,25,29	3
6	MG	B	709	1/1	1.00	0.08	12,12,12,12	0
6	MG	B	710	1/1	1.00	0.04	33,33,33,33	1
6	MG	A	717	1/1	1.00	0.04	14,14,14,14	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.

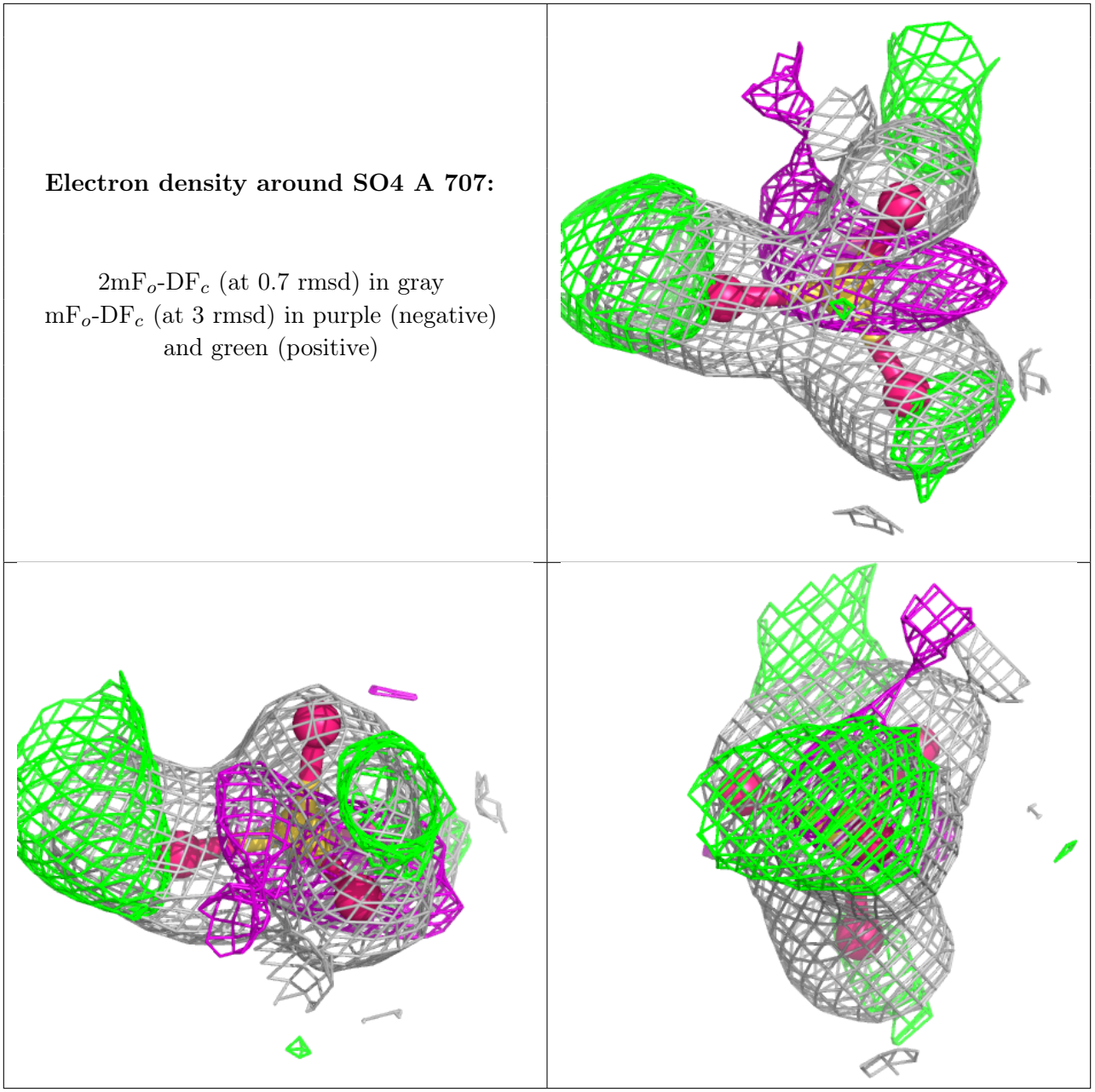
Electron density around SO4 B 707:

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



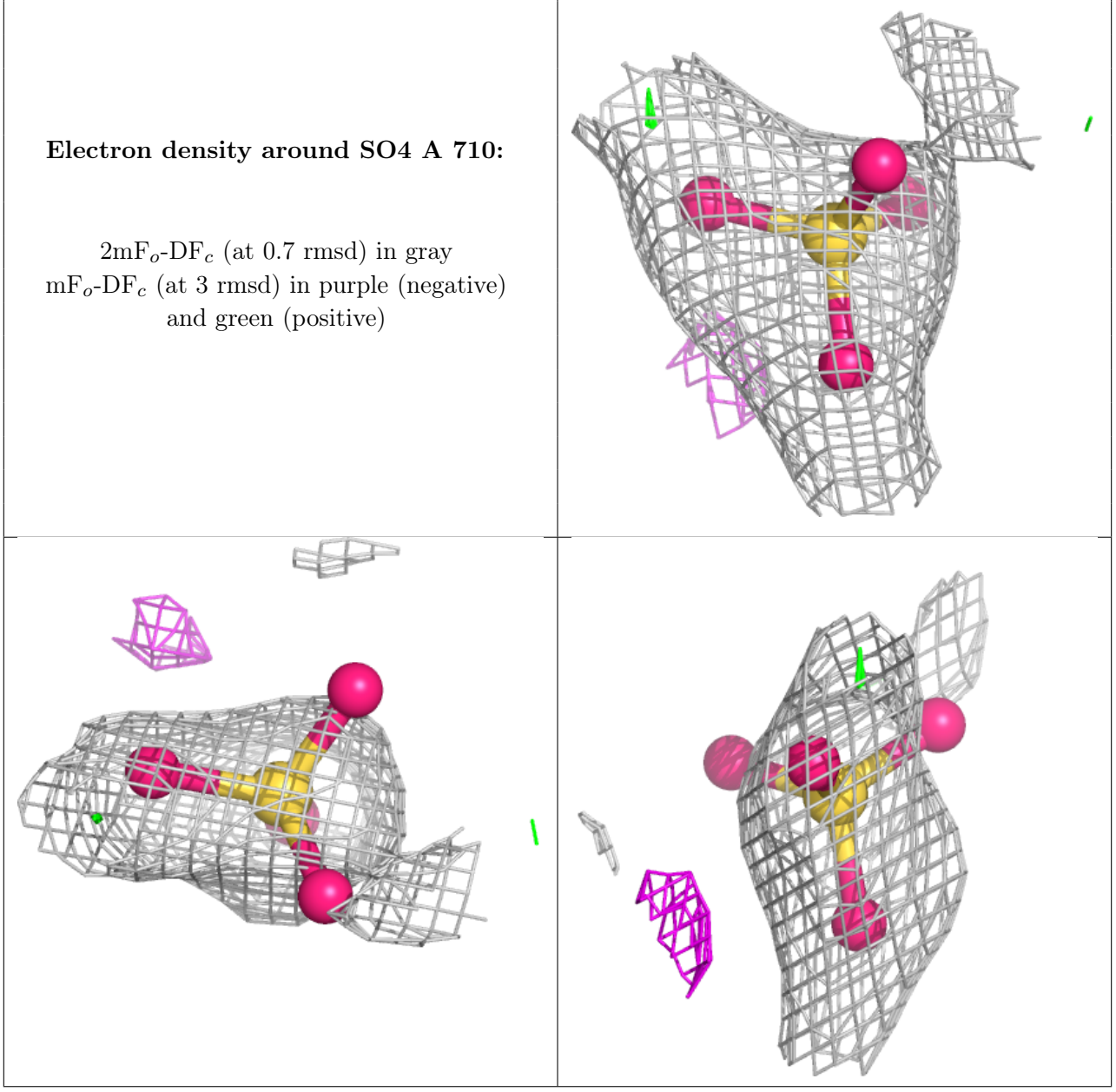
Electron density around SO4 A 707:

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



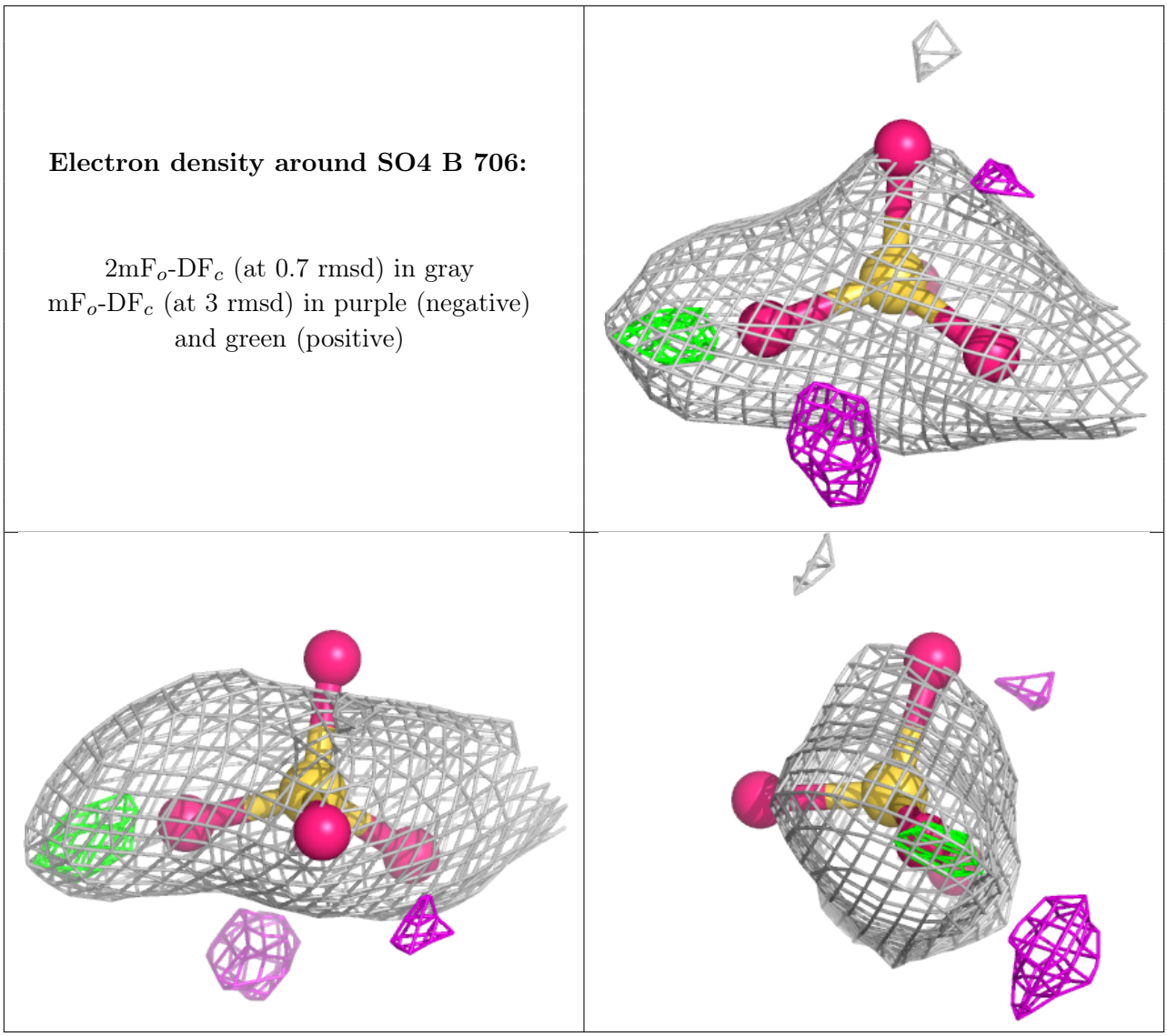
Electron density around SO4 A 710:

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



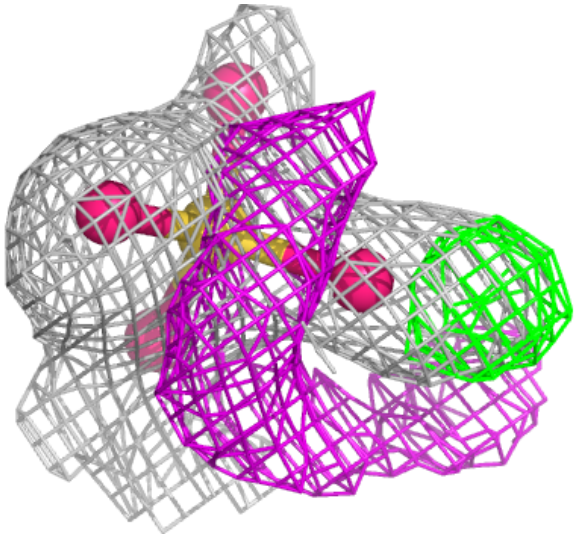
Electron density around SO4 B 706:

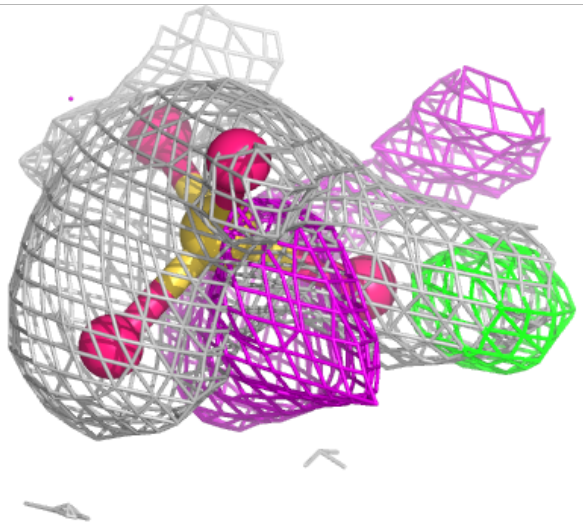
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

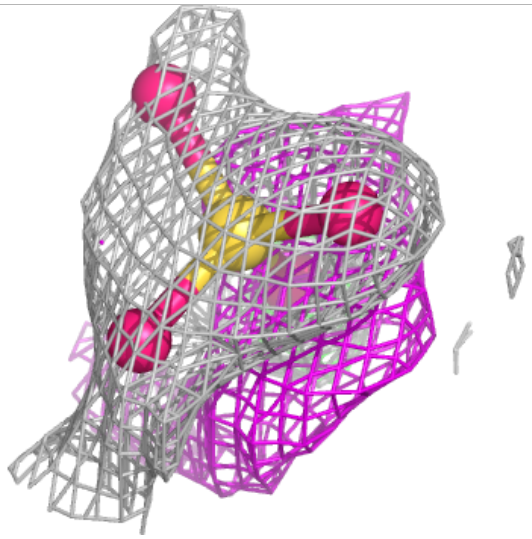


Electron density around SO4 A 708:

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

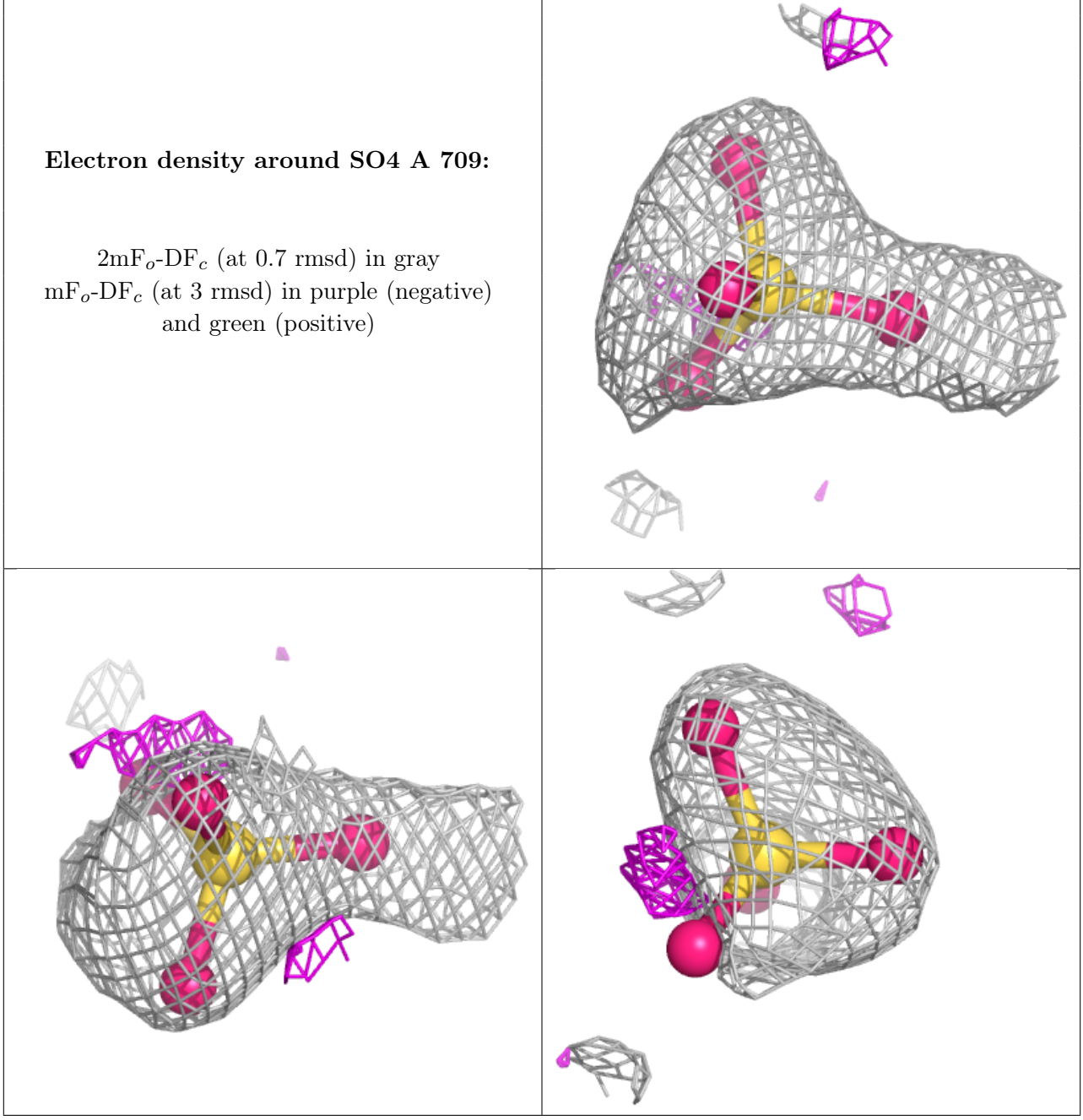






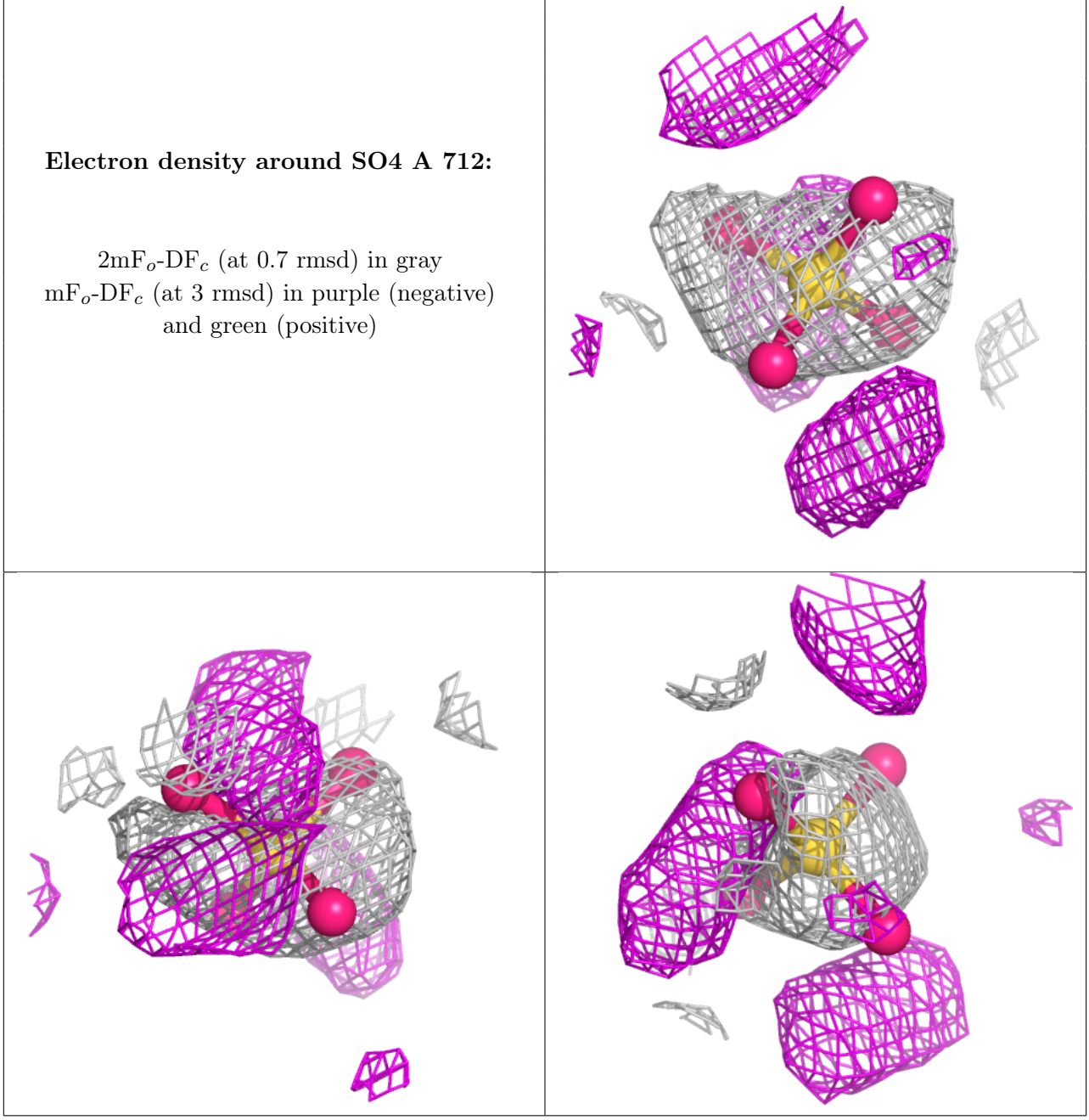
Electron density around SO4 A 709:

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



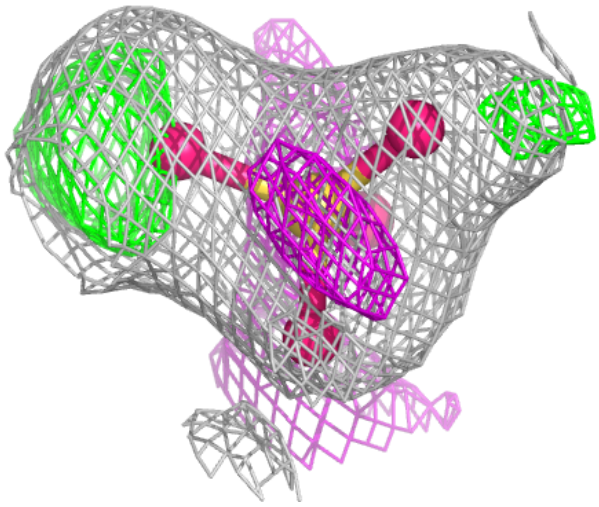
Electron density around SO4 A 712:

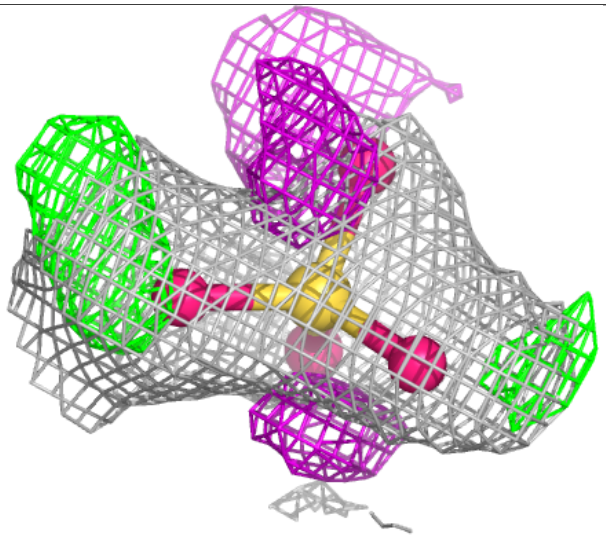
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

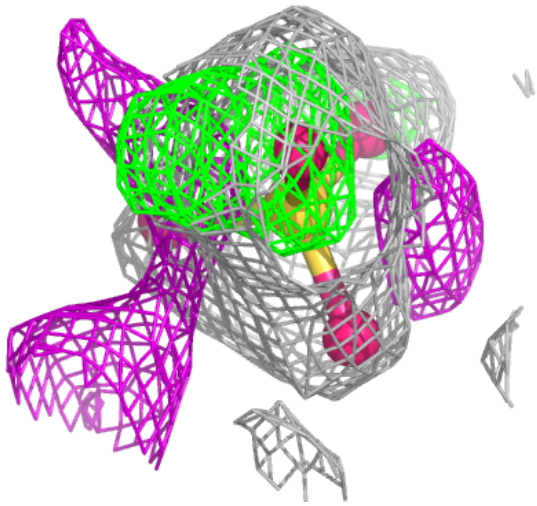


Electron density around SO4 A 702:

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

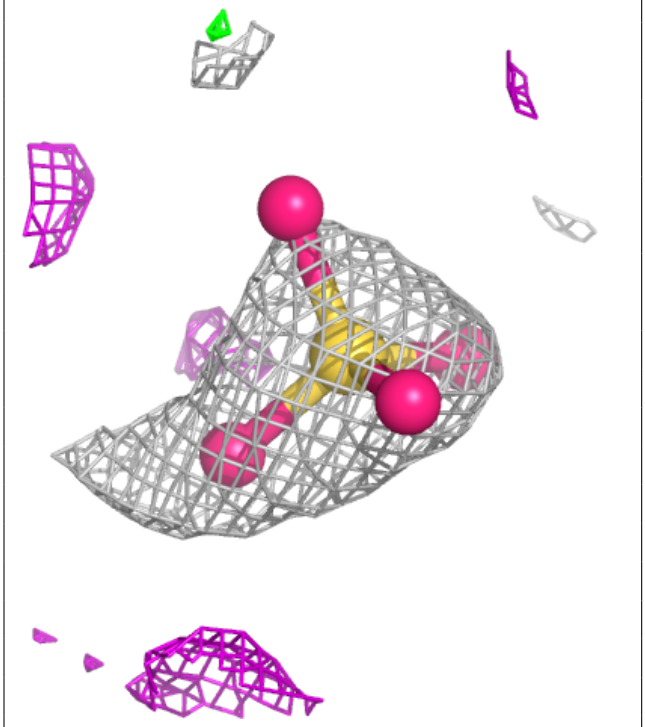


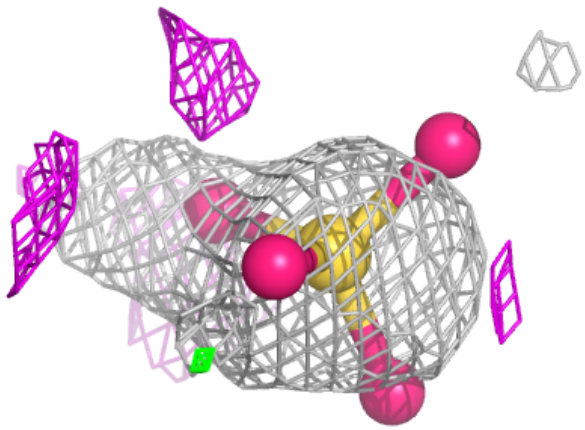


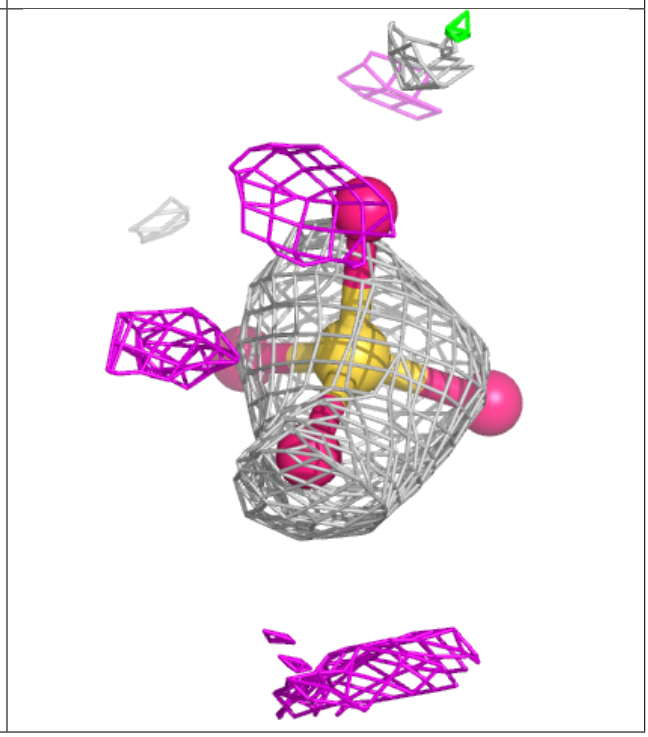


Electron density around SO4 A 711:

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

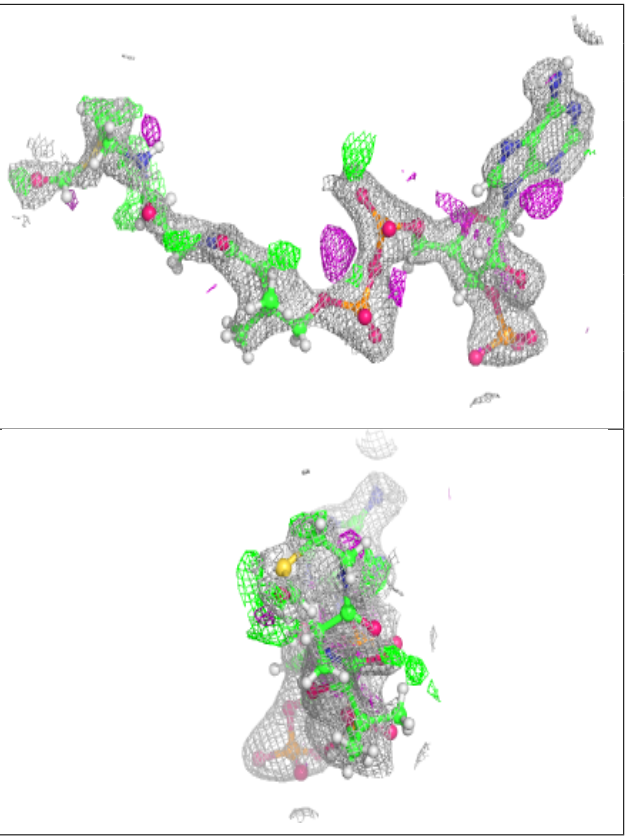


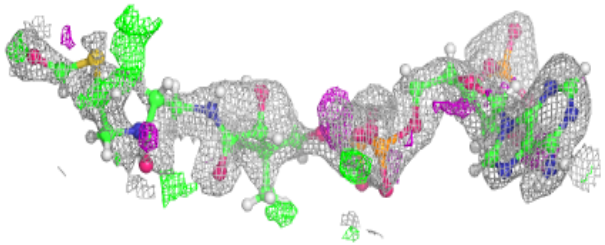




Electron density around FYN A 715:

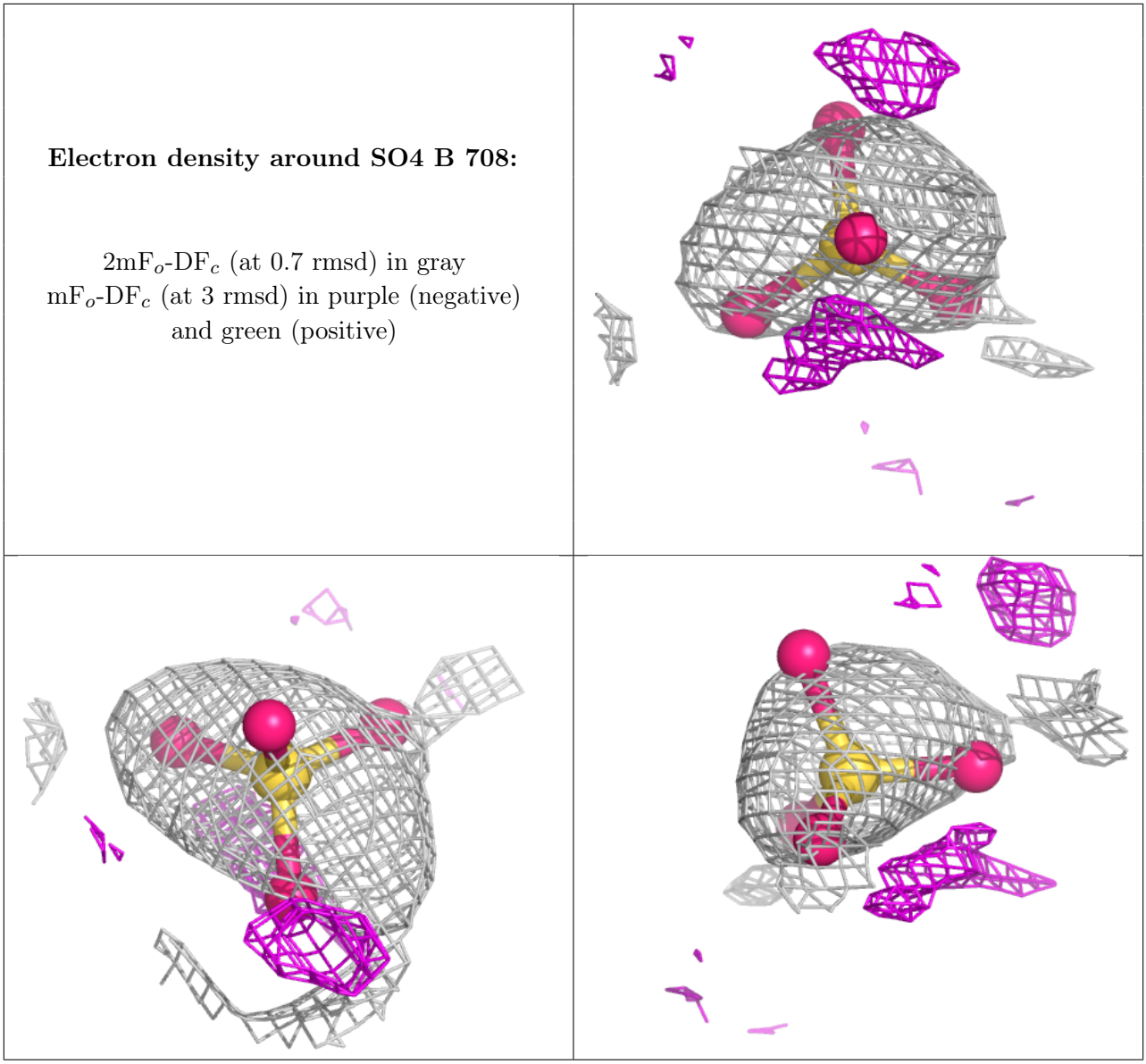
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)





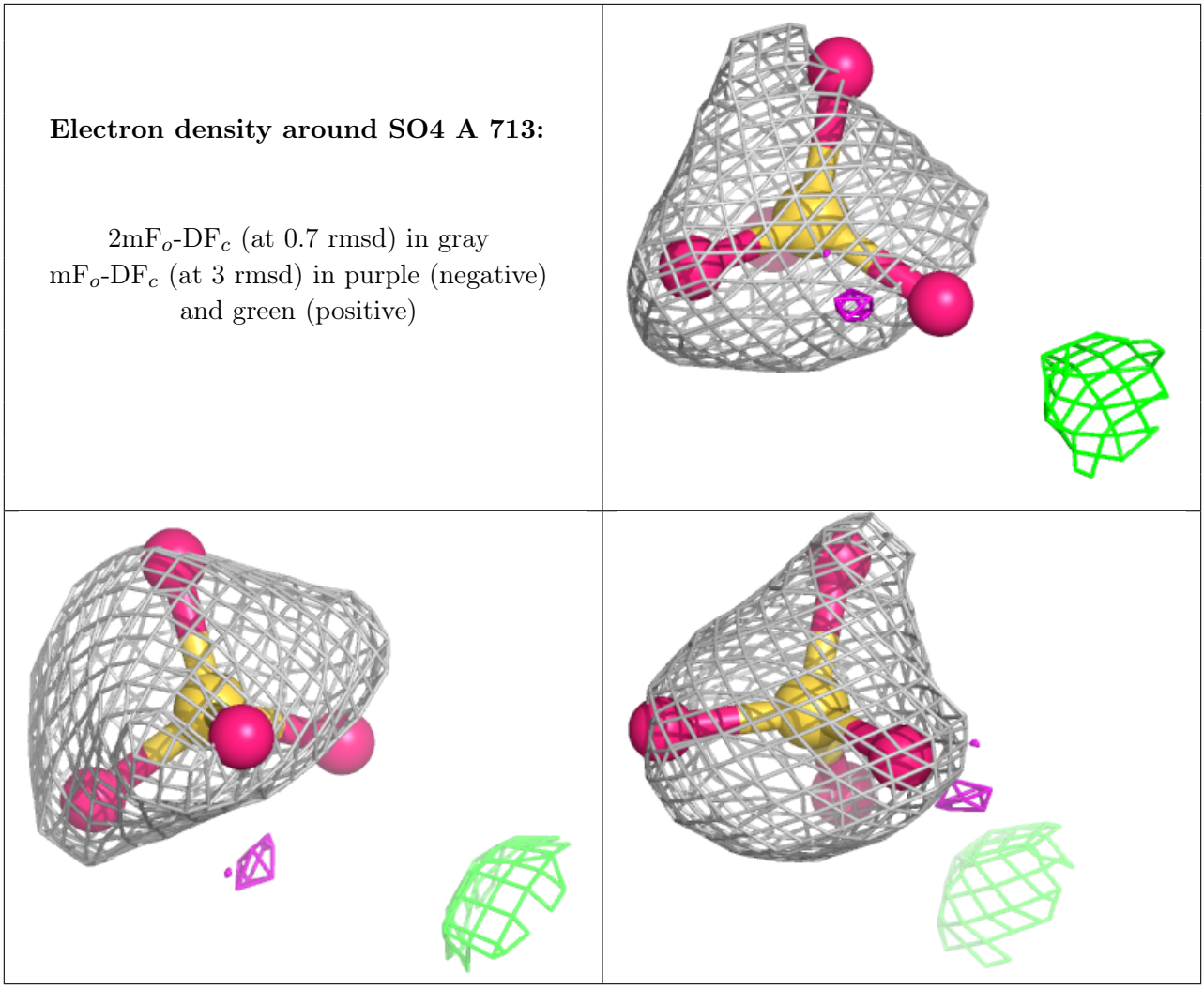
Electron density around SO4 B 708:

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



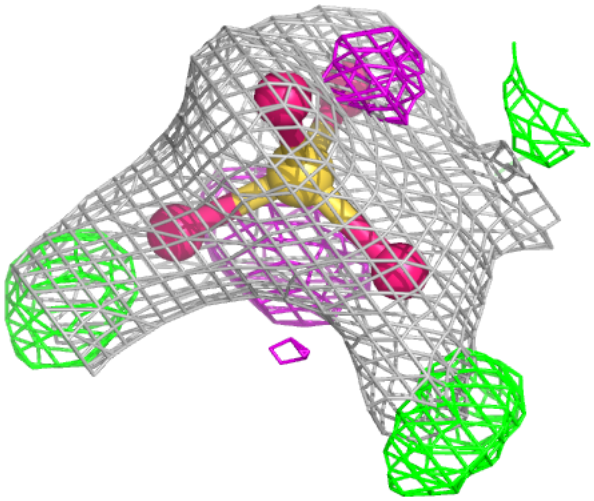
Electron density around SO4 A 713:

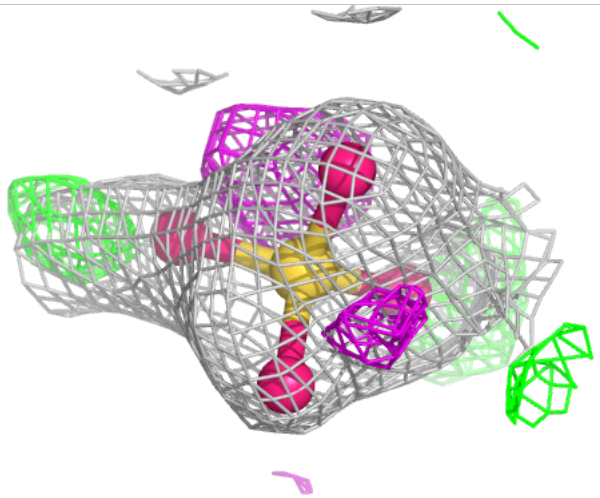
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

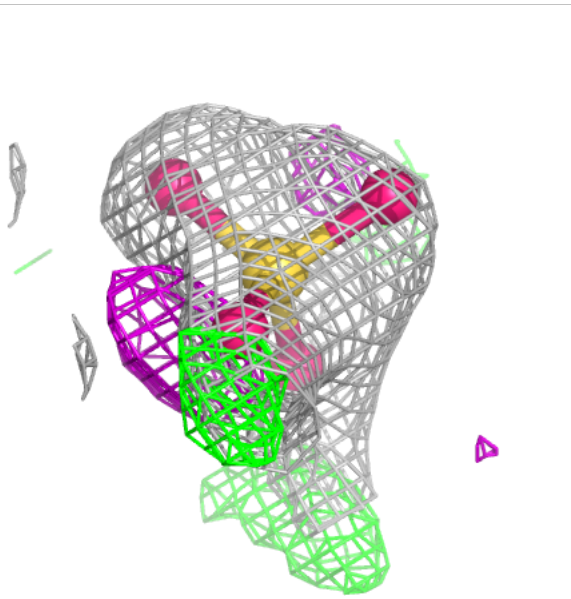


Electron density around SO4 B 705:

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

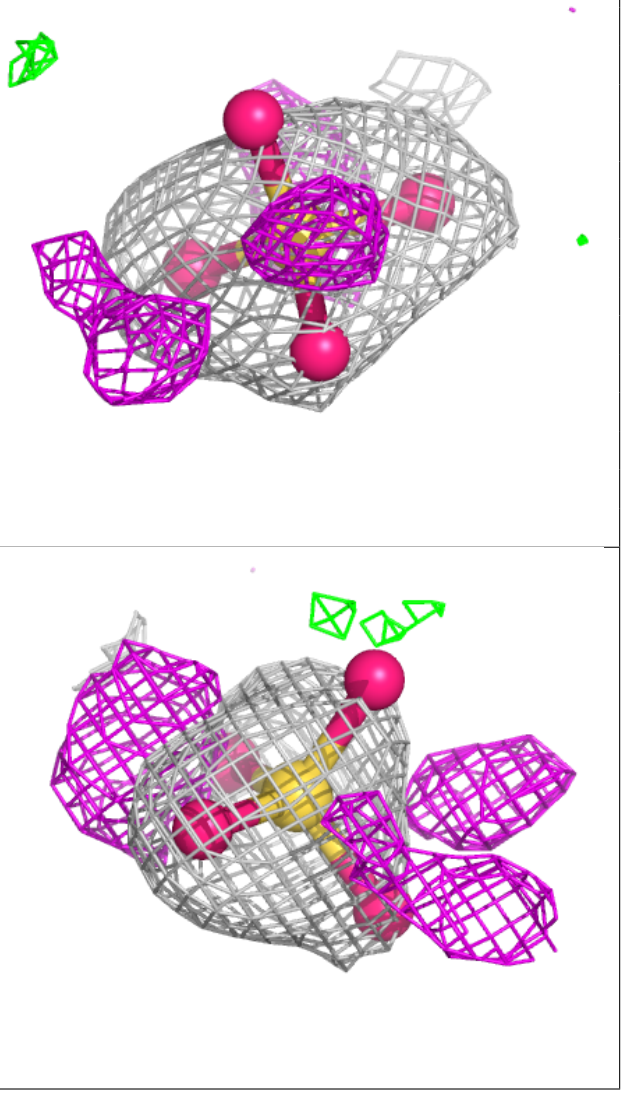






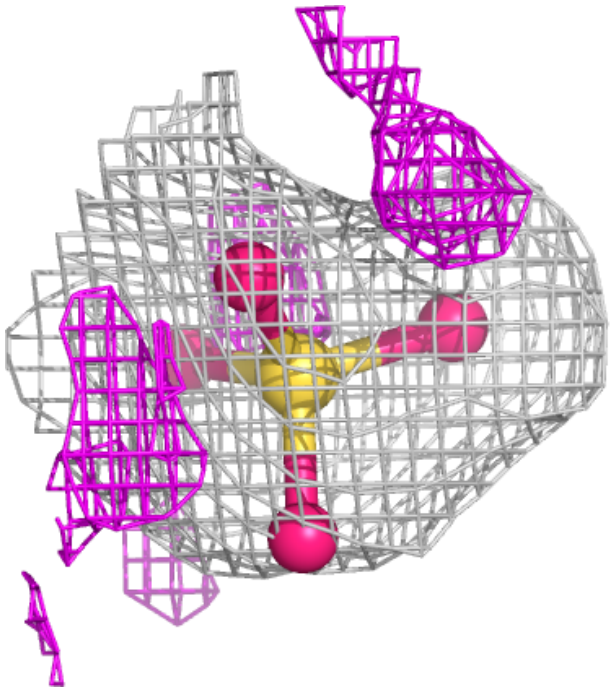
Electron density around SO4 B 704:

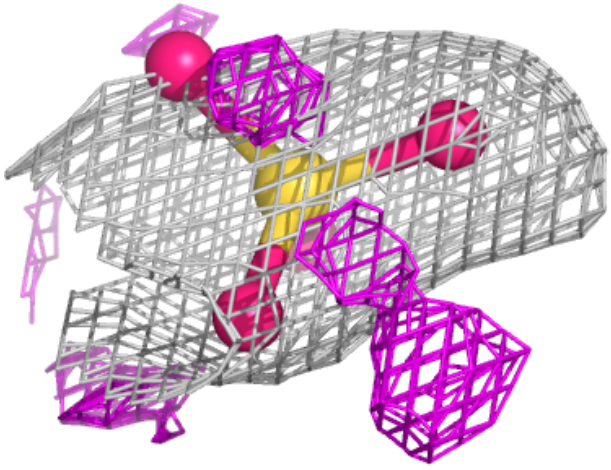
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

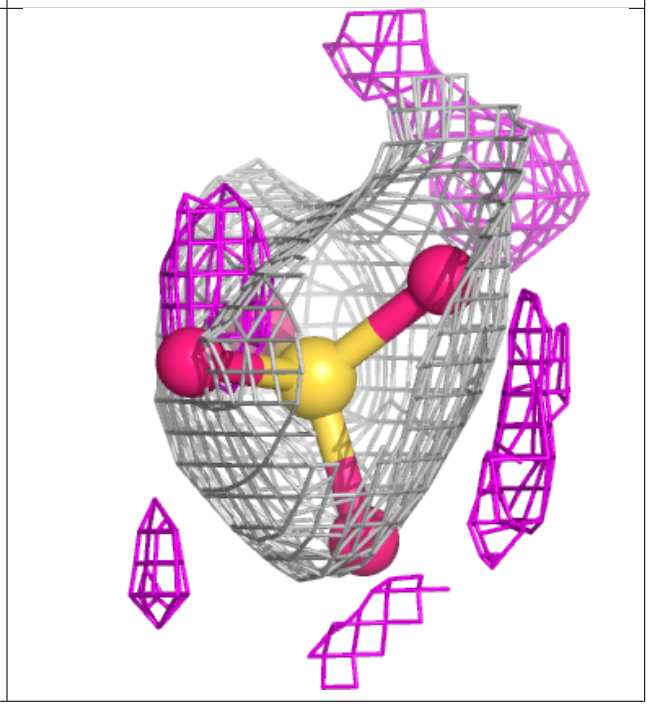


Electron density around SO4 B 702:

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

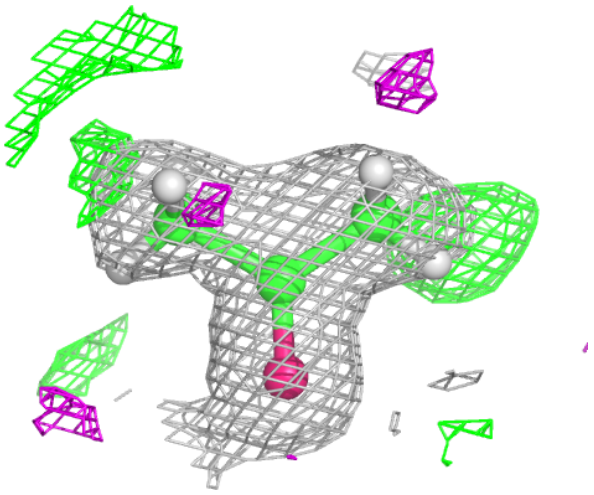


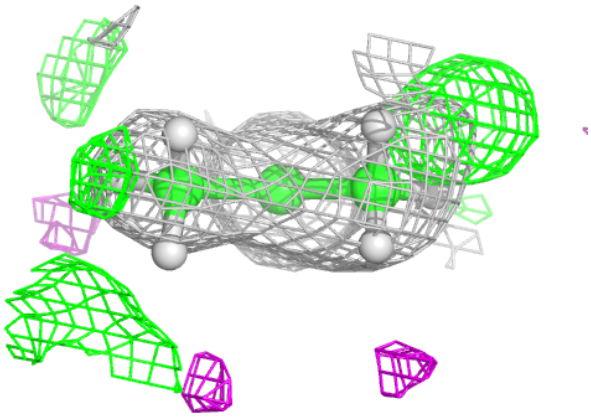


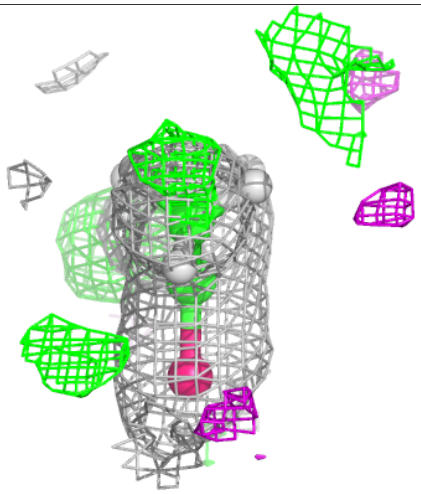


Electron density around ACN A 714:

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

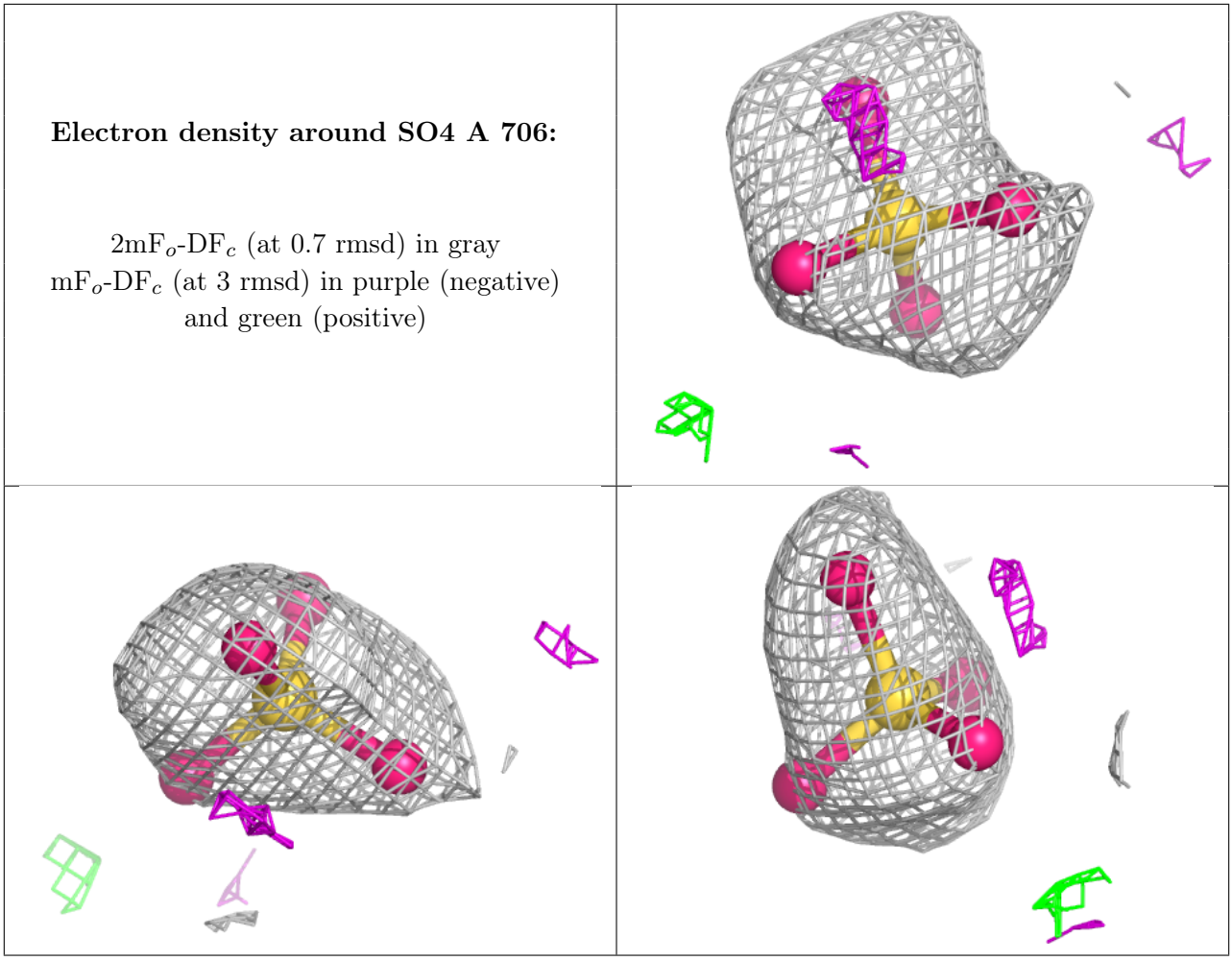






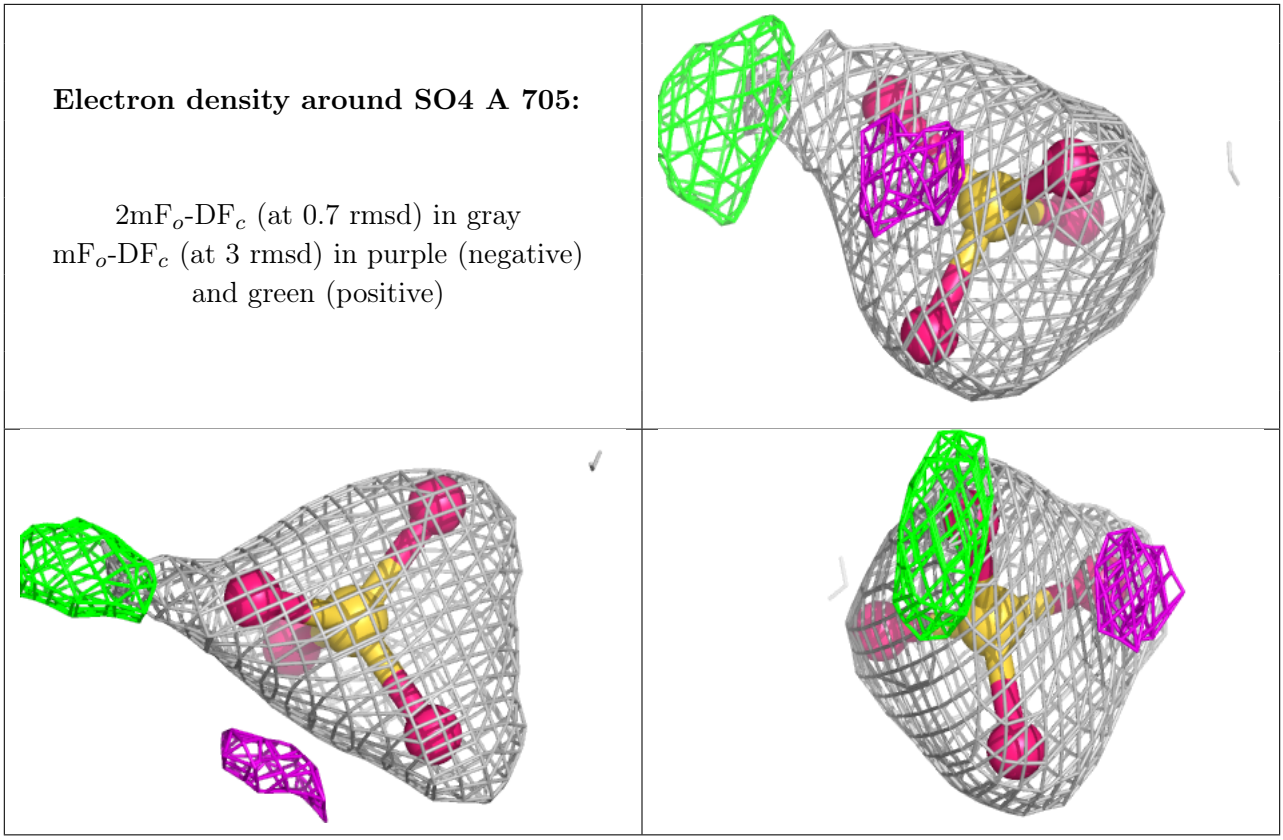
Electron density around SO4 A 706:

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



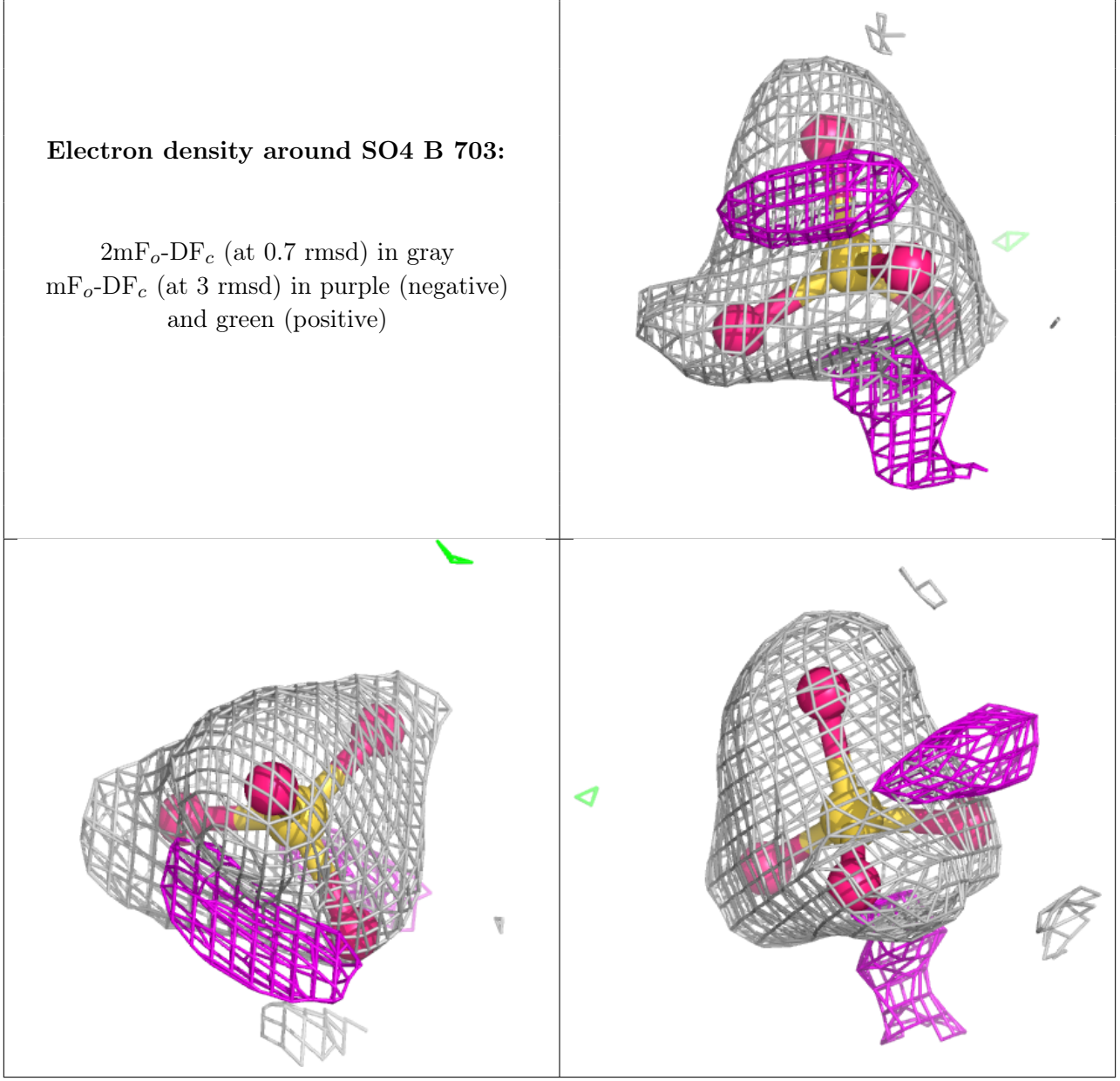
Electron density around SO4 A 705:

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



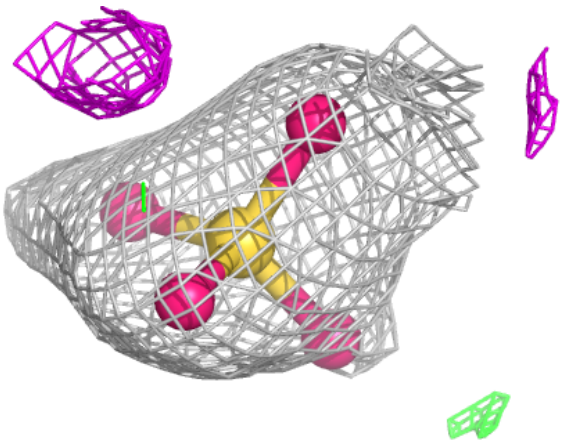
Electron density around SO4 B 703:

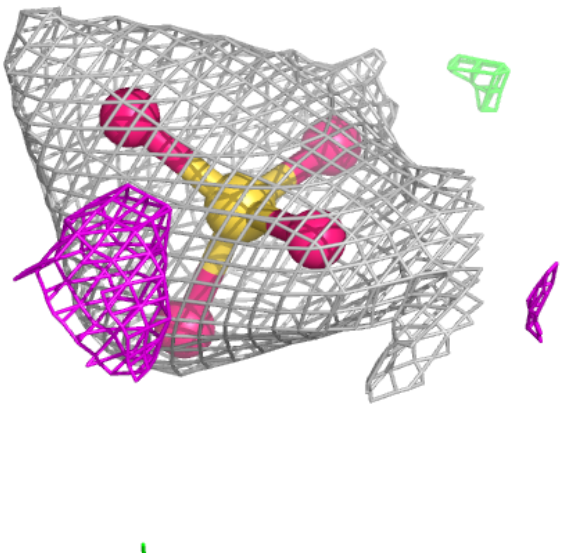
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

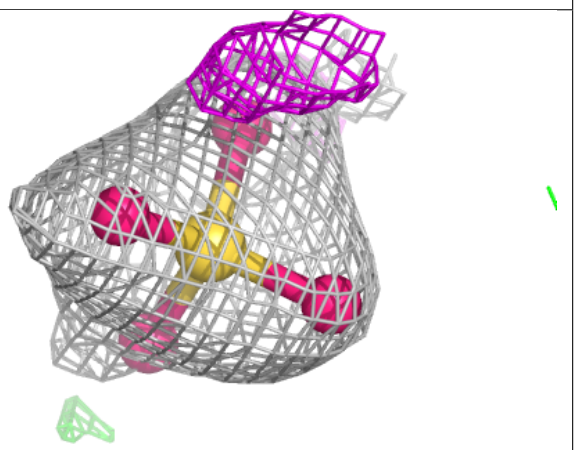


Electron density around SO4 A 703:

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

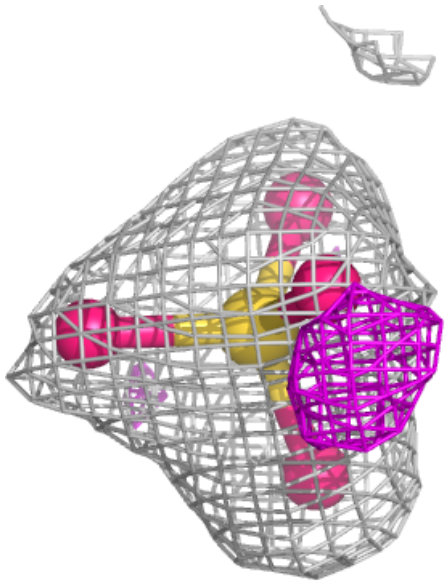


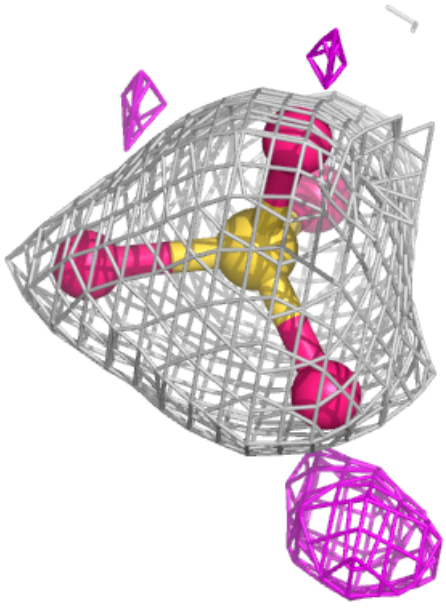


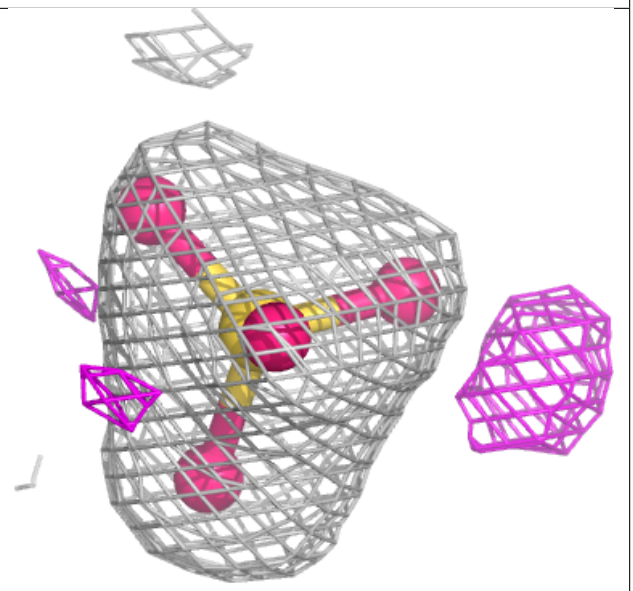


Electron density around SO4 A 704:

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

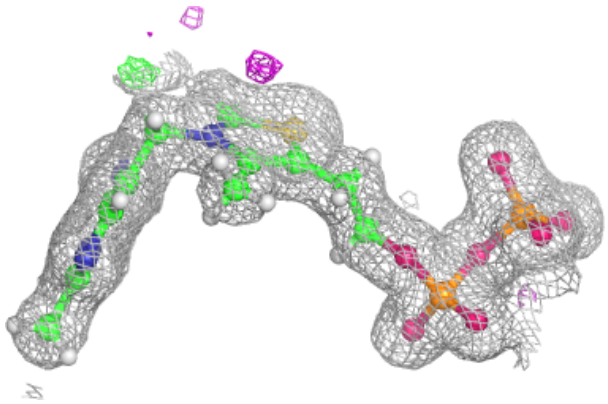


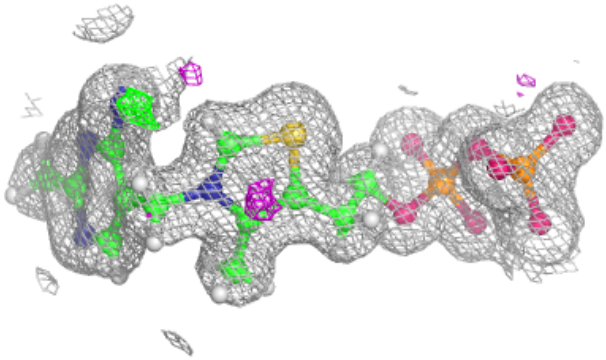


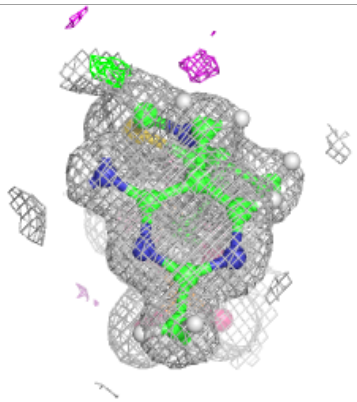


Electron density around TPP A 701:

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

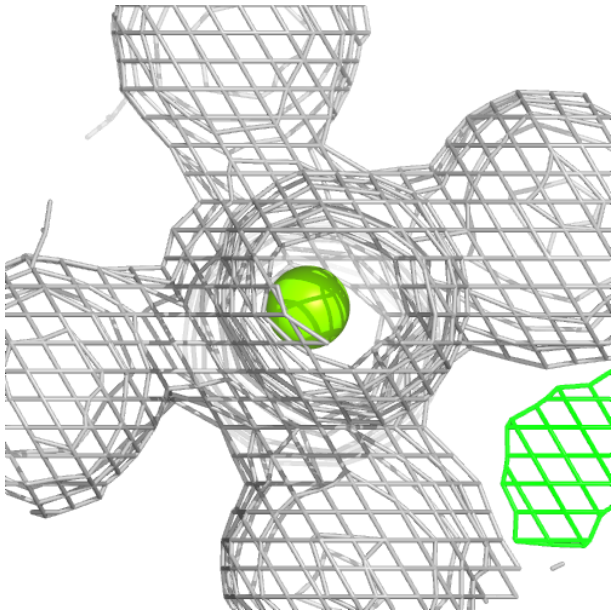


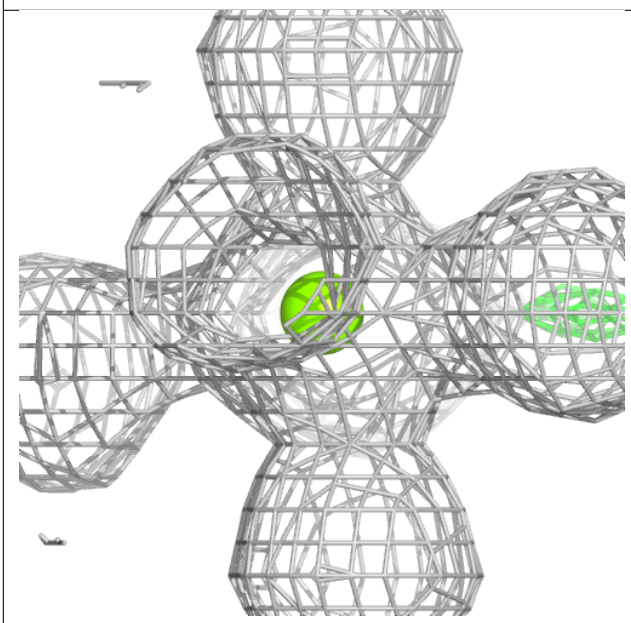


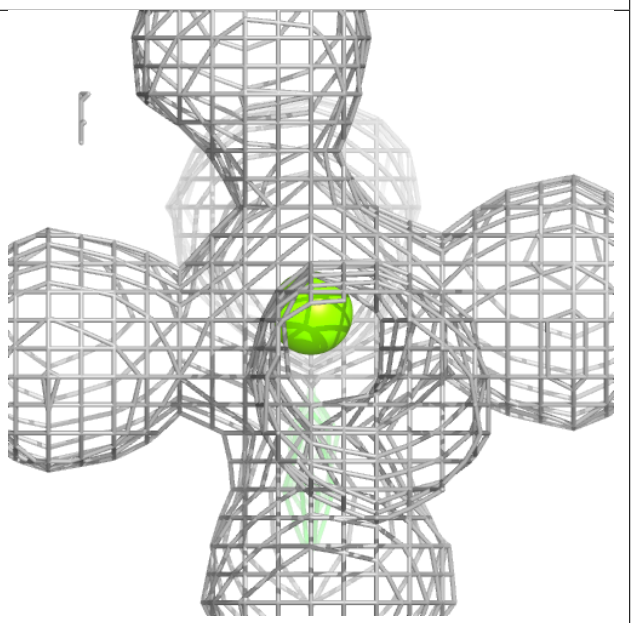


Electron density around MG A 716:

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

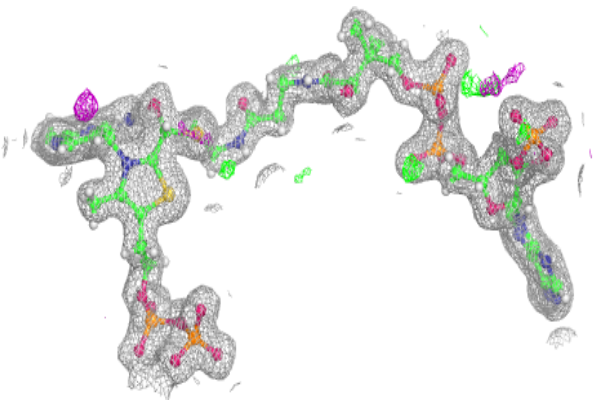


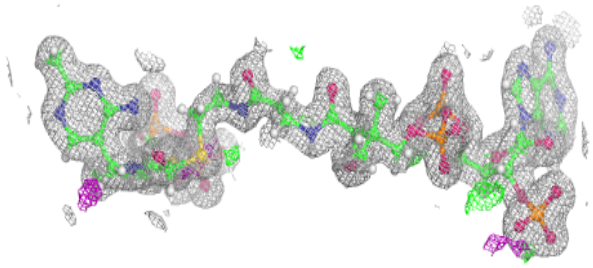


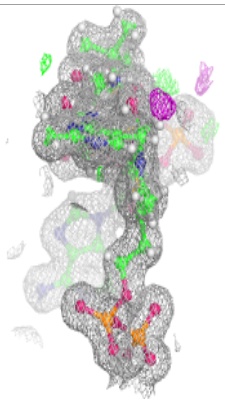


Electron density around OXT B 701:

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

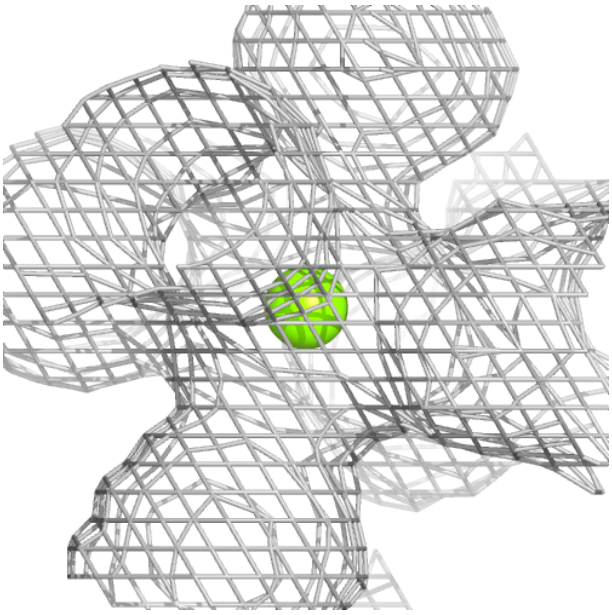


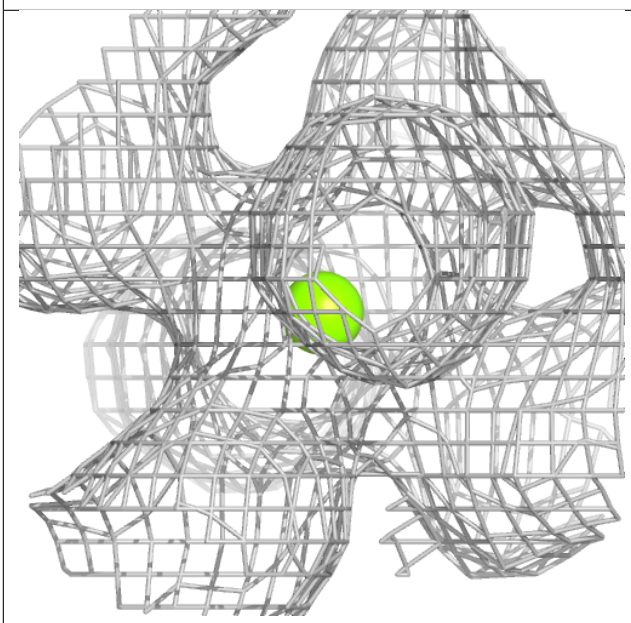


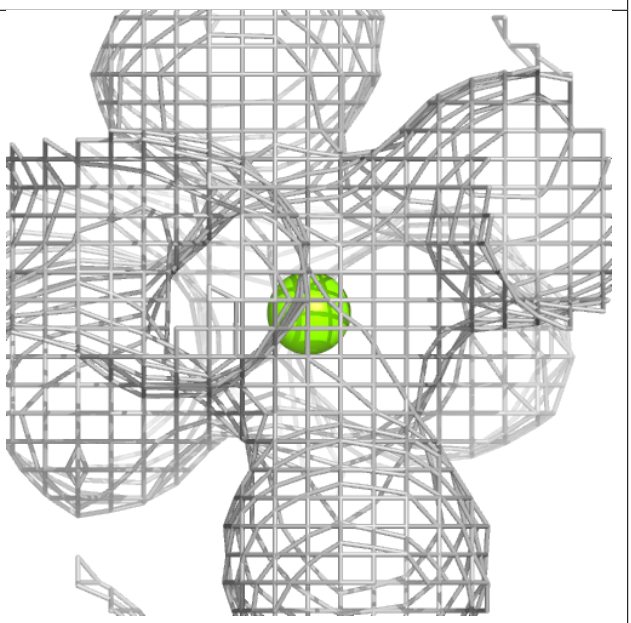


Electron density around MG B 709:

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

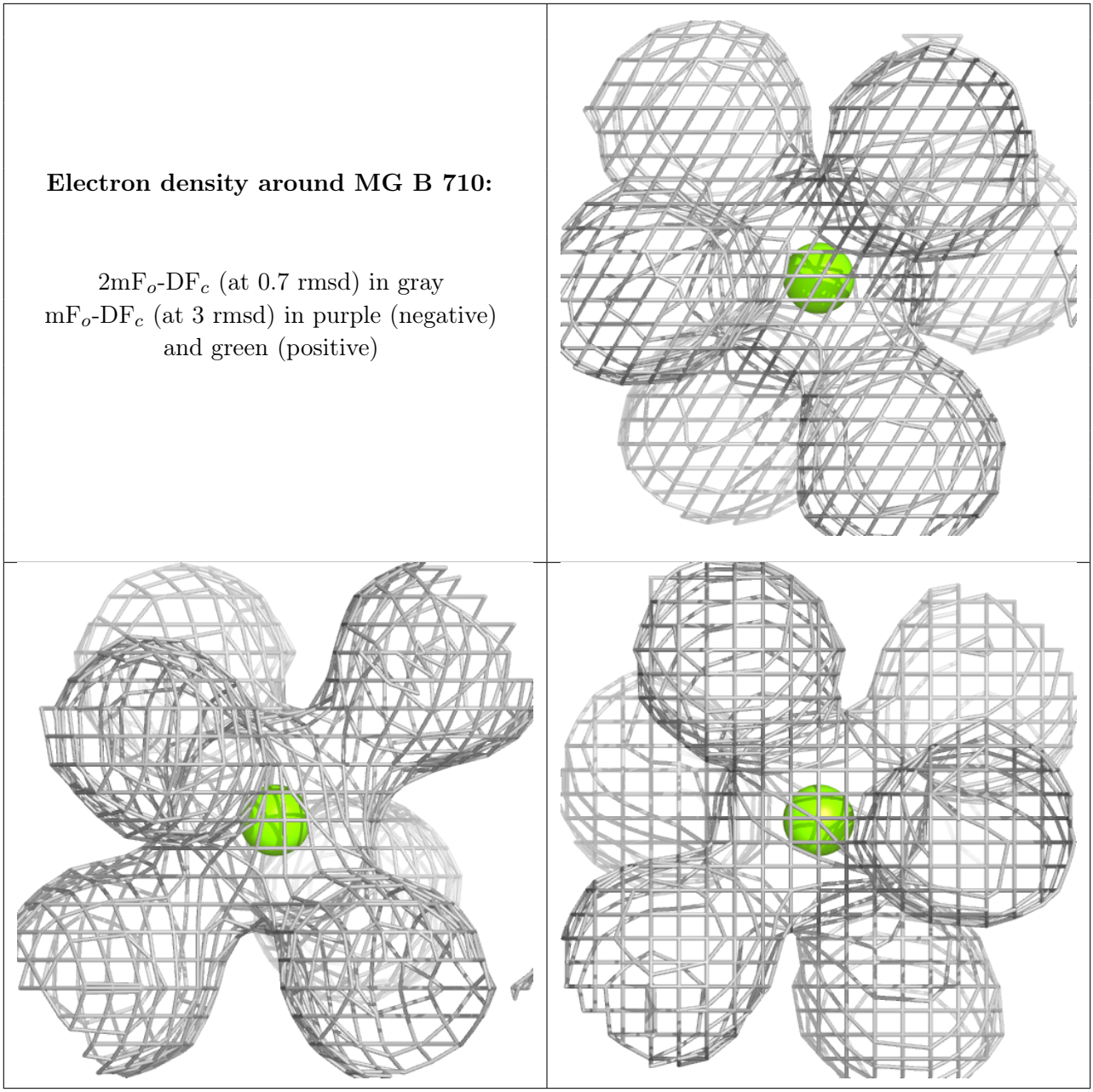






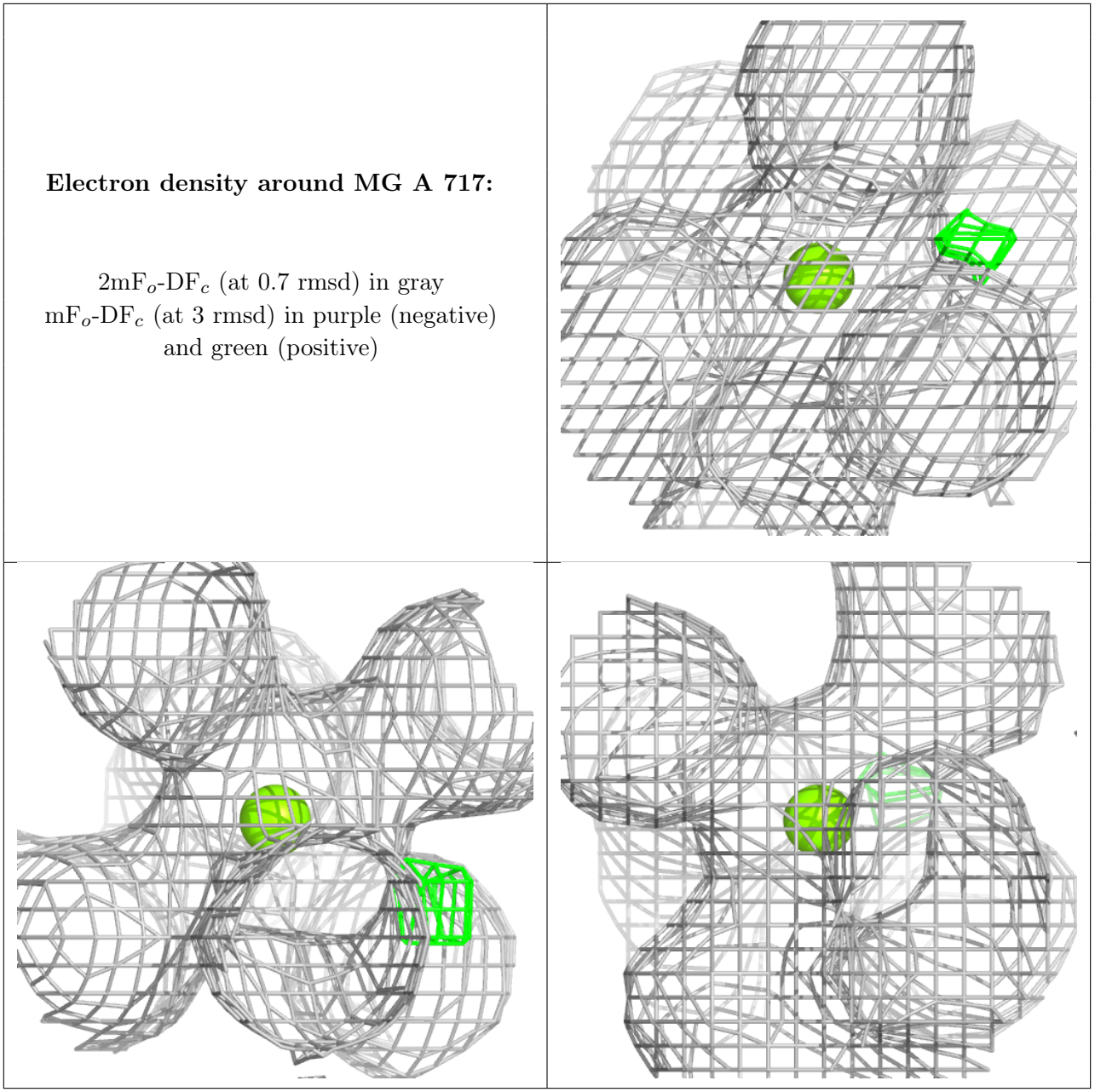
Electron density around MG B 710:

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



Electron density around MG A 717:

$2mF_o$-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.