wwPDB EM Validation Summary Report ⓘ

Oct 14, 2025 – 06:33 AM JST

PDB ID	:	9JPB / pdb_00009jpb
EMDB ID	:	EMD-61695
Title	:	Cryo-EM structure of a tri-heme cytochrome-associated RC-LH1 complex from a marine photoheterotrophic bacterium, purified with EDTA-containing solutions
Authors	:	Chen, J.H.; Zheng, Q.; Zhang, X.; Wang, W.; Liu, Y.; Gu, J.
Deposited on	:	2024-09-25
Resolution	:	2.80 Å(reported)

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

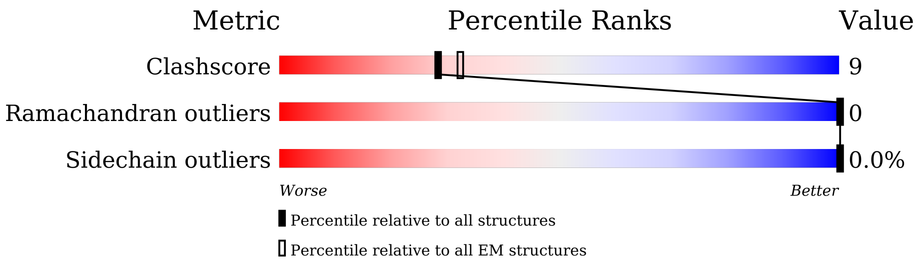
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

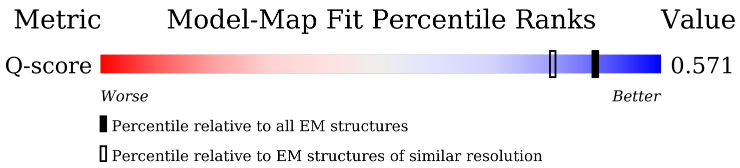
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 2.80 Å.

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





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	11806 (2.30 - 3.30)

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

Mol	Chain	Length	Quality of chain
1	1	53	
1	A	53	
1	B	53	
1	D	53	

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Mol	Chain	Length	Quality of chain
1	E	53	70% 26% •
1	F	53	83% 13% •
1	G	53	81% 15% •
1	I	53	85% 11% •
1	J	53	79% 15% 6%
1	K	53	87% 9% •
1	N	53	81% 15% •
1	P	53	75% 21% •
1	Q	53	79% 17% •
1	R	53	74% 23% •
1	S	53	81% 15% •
1	T	53	77% 19% •
1	V	53	91% 6% •
2	O	239	20% • 78%
3	2	49	82% 8% 10%
3	a	49	69% 20% 10%
3	b	49	82% 8% 10%
3	d	49	71% 18% 10%
3	e	49	80% 10% 10%
3	f	49	76% 14% 10%
3	g	49	76% 14% 10%
3	i	49	71% 16% 12%
3	j	49	76% 12% 12%
3	k	49	73% 14% 12%
3	n	49	73% 16% 10%

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Mol	Chain	Length	Quality of chain
3	p	49	
3	q	49	
3	r	49	
3	s	49	
3	t	49	
3	v	49	
4	M	330	
5	L	279	
6	H	256	
7	C	360	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
9	SPN	2	102	-	X	-	-
9	SPN	2	103	-	X	-	-
9	SPN	D	102	-	X	-	-
9	SPN	D	103	-	X	-	-
9	SPN	E	102	-	X	-	-
9	SPN	F	102	-	X	-	-
9	SPN	G	103	-	X	-	-
9	SPN	G	104	-	X	-	-
9	SPN	I	101	-	X	-	-
9	SPN	K	102	-	X	-	-
9	SPN	M	404	-	X	-	-
9	SPN	Q	102	-	X	-	-
9	SPN	R	102	-	X	-	-
9	SPN	S	101	-	X	-	-
9	SPN	S	102	-	X	-	-
9	SPN	V	102	-	X	-	-
9	SPN	a	101	-	X	-	-
9	SPN	a	103	-	X	-	-
9	SPN	a	104	-	X	-	-
9	SPN	b	102	-	X	-	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
9	SPN	e	102	-	X	-	-
9	SPN	f	102	-	X	-	-
9	SPN	i	101	-	X	-	-
9	SPN	i	103	-	X	-	-
9	SPN	j	102	-	X	-	-
9	SPN	k	101	-	X	-	-
9	SPN	k	103	-	X	-	-
9	SPN	n	102	-	X	-	-
9	SPN	p	101	-	X	-	-
9	SPN	p	102	-	X	-	-
9	SPN	q	101	-	X	-	-
9	SPN	r	101	-	X	-	-
9	SPN	r	103	-	X	-	-
9	SPN	t	102	-	X	-	-
9	SPN	v	102	-	X	-	-

2 Entry composition

There are 16 unique types of molecules in this entry. The entry contains 28258 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Antenna pigment protein alpha chain.

Mol	Chain	Residues	Atoms	AltConf	Trace
1	P	51	Total C N O S 425 291 68 64 2	0	0
1	V	51	Total C N O S 422 289 68 64 1	0	0
1	S	51	Total C N O S 422 289 68 64 1	0	0
1	T	51	Total C N O S 422 289 68 64 1	0	0
1	Q	51	Total C N O S 422 289 68 64 1	0	0
1	R	51	Total C N O S 422 289 68 64 1	0	0
1	1	50	Total C N O S 417 286 67 63 1	0	0
1	N	51	Total C N O S 422 289 68 64 1	0	0
1	K	51	Total C N O S 422 289 68 64 1	0	0
1	J	50	Total C N O S 417 286 67 63 1	0	0
1	I	51	Total C N O S 422 289 68 64 1	0	0
1	G	51	Total C N O S 422 289 68 64 1	0	0
1	F	51	Total C N O S 422 289 68 64 1	0	0
1	E	51	Total C N O S 422 289 68 64 1	0	0
1	D	51	Total C N O S 422 289 68 64 1	0	0
1	B	51	Total C N O S 422 289 68 64 1	0	0
1	A	51	Total C N O S 422 289 68 64 1	0	0

- Molecule 2 is a protein called Reaction center protein O chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	O	52	371	249	56	59	7	0	0

- Molecule 3 is a protein called Antenna pigment protein beta chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	v	40	321	215	52	53	1	0	0
3	t	43	346	233	55	57	1	0	0
3	s	44	354	237	56	60	1	0	0
3	r	43	350	235	55	59	1	0	0
3	q	44	354	237	56	60	1	0	0
3	p	44	354	237	56	60	1	0	0
3	2	44	354	237	56	60	1	0	0
3	n	44	354	237	56	60	1	0	0
3	k	43	346	233	55	57	1	0	0
3	j	43	346	233	55	57	1	0	0
3	i	43	346	233	55	57	1	0	0
3	g	44	354	237	56	60	1	0	0
3	f	44	354	237	56	60	1	0	0
3	e	44	354	237	56	60	1	0	0
3	d	44	354	237	56	60	1	0	0
3	b	44	358	239	56	62	1	0	0
3	a	44	358	239	56	62	1	0	0

- Molecule 4 is a protein called Reaction center protein M chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	M	325	Total 2633	C 1752	N 421	O 452	S 8	0	0

- Molecule 5 is a protein called Reaction center protein L chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	L	274	Total 2178	C 1469	N 346	O 354	S 9	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	278	ASP	GLY	conflict	UNP A8LQ16
L	279	CYS	LEU	conflict	UNP A8LQ16

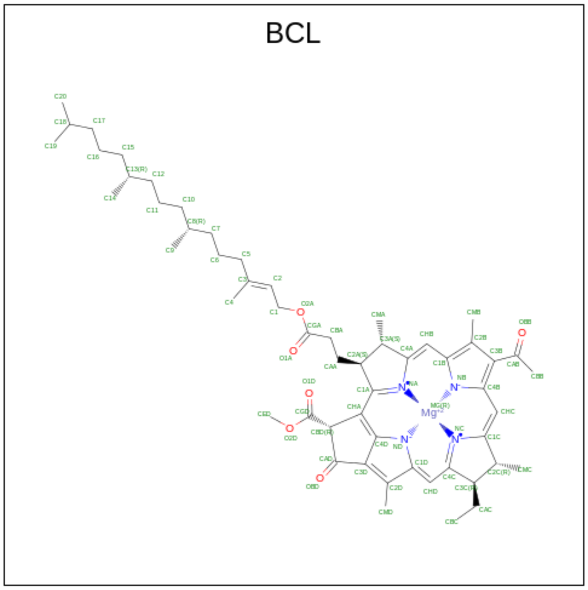
- Molecule 6 is a protein called Reaction center protein H chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	H	256	Total 2022	C 1283	N 345	O 385	S 9	0	0

- Molecule 7 is a protein called Photosynthetic reaction center cytochrome c subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	C	352	Total 2740	C 1731	N 455	O 540	S 14	0	0

- Molecule 8 is BACTERIOCHLOROPHYLL A (CCD ID: BCL) (formula: $C_{55}H_{74}MgN_4O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
8	P	1	Total C Mg N O 66 55 1 4 6	0
8	V	1	Total C Mg N O 66 55 1 4 6	0
8	v	1	Total C Mg N O 66 55 1 4 6	0
8	t	1	Total C Mg N O 66 55 1 4 6	0
8	T	1	Total C Mg N O 66 55 1 4 6	0
8	s	1	Total C Mg N O 66 55 1 4 6	0
8	Q	1	Total C Mg N O 66 55 1 4 6	0
8	r	1	Total C Mg N O 66 55 1 4 6	0
8	R	1	Total C Mg N O 66 55 1 4 6	0
8	R	1	Total C Mg N O 66 55 1 4 6	0
8	q	1	Total C Mg N O 66 55 1 4 6	0
8	p	1	Total C Mg N O 66 55 1 4 6	0
8	2	1	Total C Mg N O 66 55 1 4 6	0
8	1	1	Total C Mg N O 66 55 1 4 6	0

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Mol	Chain	Residues	Atoms	AltConf
8	n	1	Total C Mg N O 66 55 1 4 6	0
8	N	1	Total C Mg N O 66 55 1 4 6	0
8	k	1	Total C Mg N O 66 55 1 4 6	0
8	K	1	Total C Mg N O 66 55 1 4 6	0
8	j	1	Total C Mg N O 66 55 1 4 6	0
8	J	1	Total C Mg N O 66 55 1 4 6	0
8	i	1	Total C Mg N O 66 55 1 4 6	0
8	I	1	Total C Mg N O 66 55 1 4 6	0
8	G	1	Total C Mg N O 66 55 1 4 6	0
8	G	1	Total C Mg N O 66 55 1 4 6	0
8	f	1	Total C Mg N O 66 55 1 4 6	0
8	F	1	Total C Mg N O 66 55 1 4 6	0
8	e	1	Total C Mg N O 66 55 1 4 6	0
8	E	1	Total C Mg N O 66 55 1 4 6	0
8	d	1	Total C Mg N O 66 55 1 4 6	0
8	D	1	Total C Mg N O 66 55 1 4 6	0
8	b	1	Total C Mg N O 66 55 1 4 6	0
8	B	1	Total C Mg N O 66 55 1 4 6	0
8	a	1	Total C Mg N O 66 55 1 4 6	0
8	A	1	Total C Mg N O 66 55 1 4 6	0
8	M	1	Total C Mg N O 66 55 1 4 6	0

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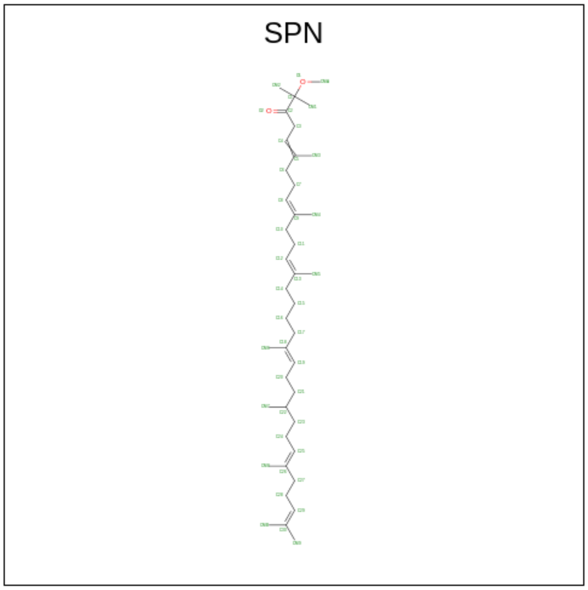
Mol	Chain	Residues	Atoms	AltConf
8	M	1	Total C Mg N O 66 55 1 4 6	0
8	L	1	Total C Mg N O 66 55 1 4 6	0
8	L	1	Total C Mg N O 66 55 1 4 6	0

- Molecule 9 is SPEROIDENONE (CCD ID: SPN) (formula: $C_{41}H_{70}O_2$).



Mol	Chain	Residues	Atoms	AltConf
9	V	1	Total C O 43 41 2	0
9	v	1	Total C O 43 41 2	0
9	S	1	Total C O 43 41 2	0
9	S	1	Total C O 43 41 2	0
9	t	1	Total C O 43 41 2	0
9	Q	1	Total C O 43 41 2	0
9	r	1	Total C O 43 41 2	0
9	r	1	Total C O 43 41 2	0

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Mol	Chain	Residues	Atoms	AltConf
9	R	1	Total C O 43 41 2	0
9	q	1	Total C O 43 41 2	0
9	p	1	Total C O 43 41 2	0
9	p	1	Total C O 43 41 2	0
9	2	1	Total C O 43 41 2	0
9	2	1	Total C O 43 41 2	0
9	n	1	Total C O 43 41 2	0
9	k	1	Total C O 43 41 2	0
9	k	1	Total C O 43 41 2	0
9	K	1	Total C O 43 41 2	0
9	j	1	Total C O 43 41 2	0
9	i	1	Total C O 43 41 2	0
9	i	1	Total C O 43 41 2	0
9	I	1	Total C O 43 41 2	0
9	G	1	Total C O 43 41 2	0
9	G	1	Total C O 43 41 2	0
9	f	1	Total C O 43 41 2	0
9	F	1	Total C O 43 41 2	0
9	e	1	Total C O 43 41 2	0
9	E	1	Total C O 43 41 2	0
9	D	1	Total C O 43 41 2	0

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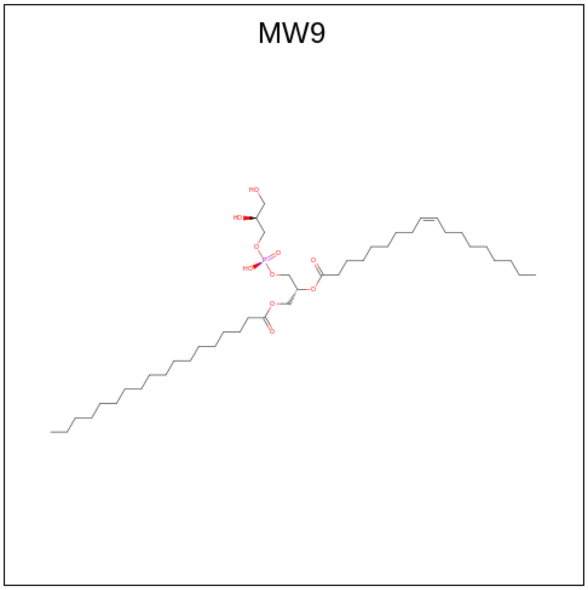
Mol	Chain	Residues	Atoms			AltConf
9	D	1	Total 43	C 41	O 2	0
9	b	1	Total 43	C 41	O 2	0
9	a	1	Total 43	C 41	O 2	0
9	a	1	Total 43	C 41	O 2	0
9	a	1	Total 43	C 41	O 2	0
9	M	1	Total 43	C 41	O 2	0

- Molecule 10 is (21R,24R,27S)-24,27,28-trihydroxy-18,24-dioxo-19,23,25-trioxa-24lambda 5 -phosphaoctacosan-21-yl (9Z)-octadec-9-enoate (CCD ID: MW9) (formula: $C_{42}H_{81}O_{10}P$).



Mol	Chain	Residues	Atoms				AltConf
10	Q	1	Total 45	C 34	O 10	P 1	0
10	I	1	Total 40	C 29	O 10	P 1	0
10	G	1	Total 49	C 38	O 10	P 1	0
10	F	1	Total 43	C 32	O 10	P 1	0
10	F	1	Total 48	C 37	O 10	P 1	0

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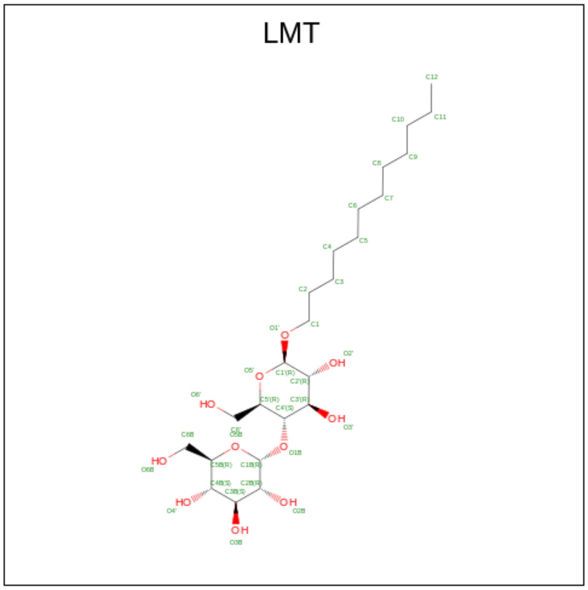
Mol	Chain	Residues	Atoms	AltConf
10	D	1	Total C O 27 22 5	0
10	B	1	Total C O P 53 42 10 1	0
10	M	1	Total C O P 49 38 10 1	0
10	M	1	Total C O P 53 42 10 1	0
10	L	1	Total C O P 37 26 10 1	0
10	L	1	Total C O P 36 25 10 1	0
10	H	1	Total C O P 37 28 8 1	0

- Molecule 11 is DODECYL-BETA-D-MALTOSIDE (CCD ID: LMT) (formula: $C_{24}H_{46}O_{11}$).



Mol	Chain	Residues	Atoms	AltConf
11	E	1	Total C O 35 24 11	0
11	L	1	Total C O 24 18 6	0
11	L	1	Total C O 24 19 5	0
11	H	1	Total C O 24 18 6	0

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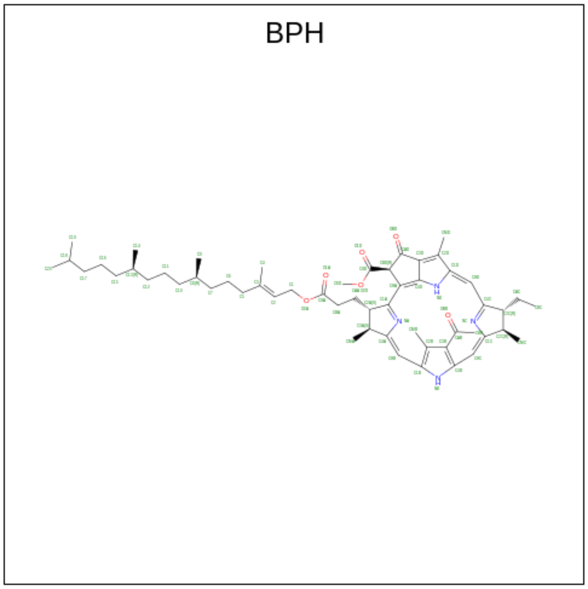
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
11	C	1	24	18	6	0

- Molecule 12 is FE (III) ION (CCD ID: FE) (formula: Fe).

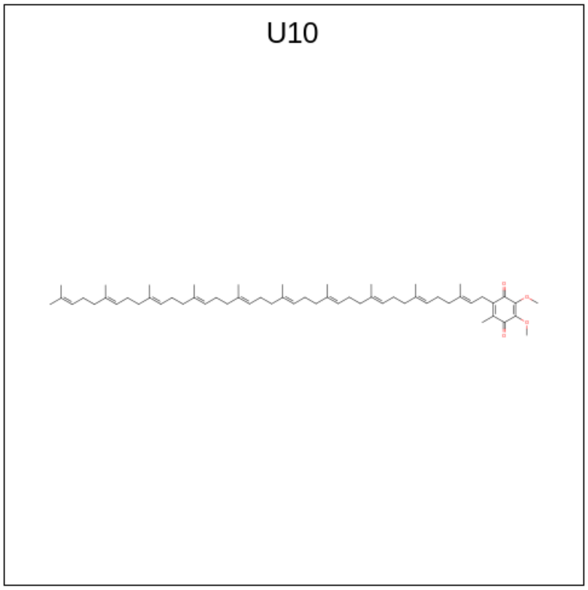
Mol	Chain	Residues	Atoms		AltConf
			Total	Fe	
12	M	1	1	1	0

- Molecule 13 is BACTERIOPHEOPHYTIN A (CCD ID: BPH) (formula: $C_{55}H_{76}N_4O_6$).



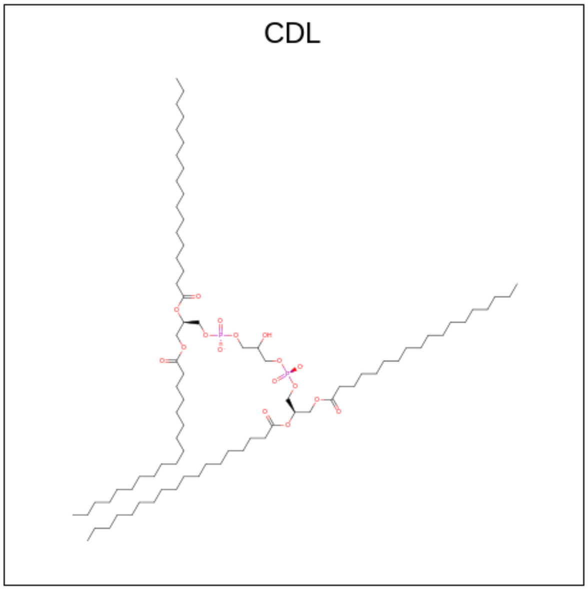
Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
13	M	1	65	55	4	6	0
13	L	1	65	55	4	6	0

- Molecule 14 is UBIQUINONE-10 (CCD ID: U10) (formula: $C_{59}H_{90}O_4$).



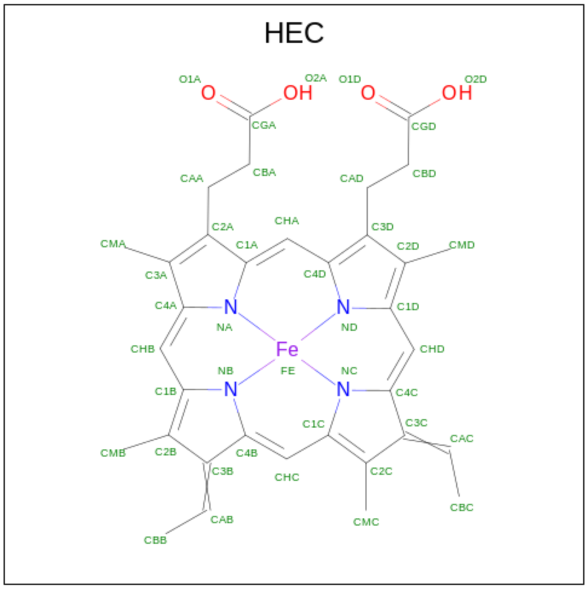
Mol	Chain	Residues	Atoms			AltConf
14	M	1	Total 63	C 59	O 4	0
14	L	1	Total 48	C 44	O 4	0

- Molecule 15 is CARDIOLIPIN (CCD ID: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



Mol	Chain	Residues	Atoms				AltConf
15	H	1	Total 91	C 72	O 17	P 2	0
15	H	1	Total 67	C 48	O 17	P 2	0

- Molecule 16 is HEME C (CCD ID: HEC) (formula: $C_{34}H_{34}FeN_4O_4$) (labeled as "Ligand of Interest" by depositor).



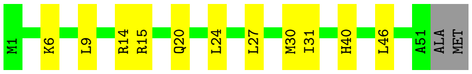
Mol	Chain	Residues	Atoms					AltConf
16	C	1	Total 43	C 34	Fe 1	N 4	O 4	0
16	C	1	Total 43	C 34	Fe 1	N 4	O 4	0
16	C	1	Total 43	C 34	Fe 1	N 4	O 4	0

3 Residue-property plots ⓘ

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

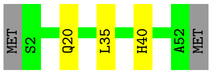
- Molecule 1: Antenna pigment protein alpha chain

Chain P:



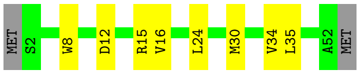
- Molecule 1: Antenna pigment protein alpha chain

Chain V:



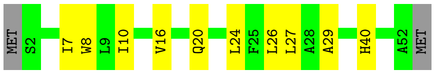
- Molecule 1: Antenna pigment protein alpha chain

Chain S:



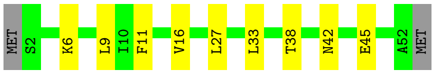
- Molecule 1: Antenna pigment protein alpha chain

Chain T:



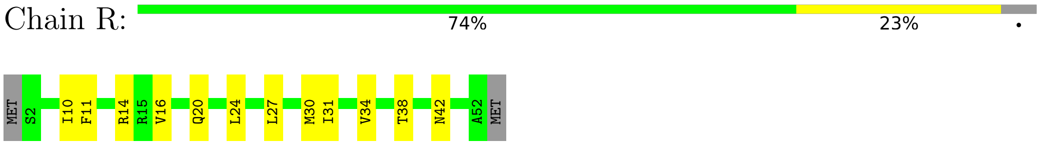
- Molecule 1: Antenna pigment protein alpha chain

Chain Q:



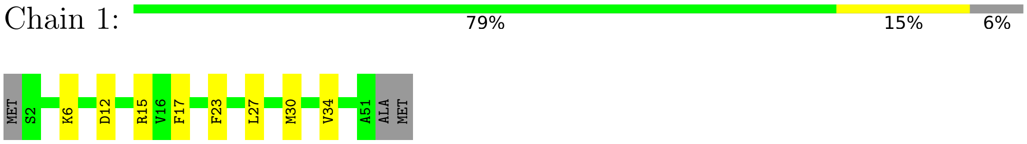
- Molecule 1: Antenna pigment protein alpha chain

Chain R:



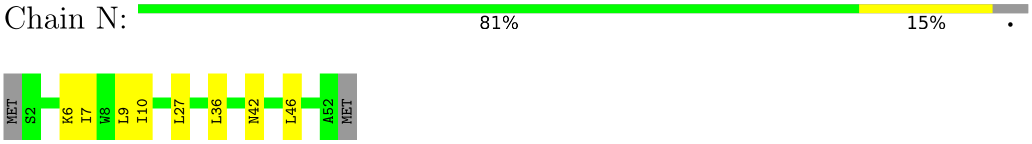
- Molecule 1: Antenna pigment protein alpha chain

Chain 1:



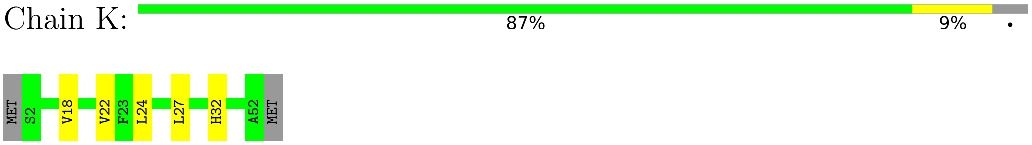
- Molecule 1: Antenna pigment protein alpha chain

Chain N:



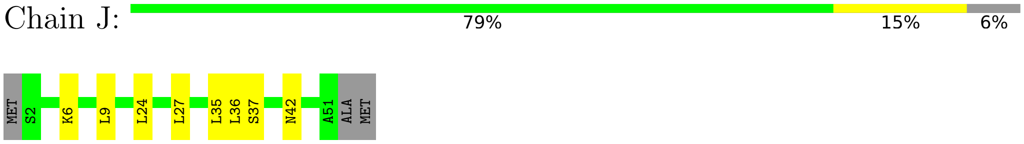
- Molecule 1: Antenna pigment protein alpha chain

Chain K:



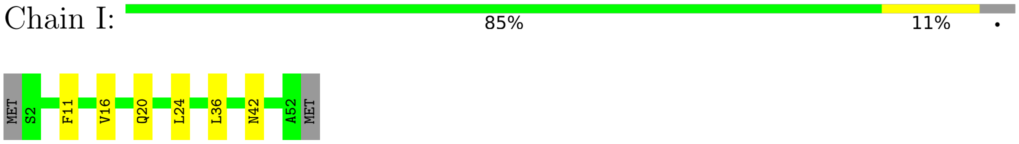
- Molecule 1: Antenna pigment protein alpha chain

Chain J:



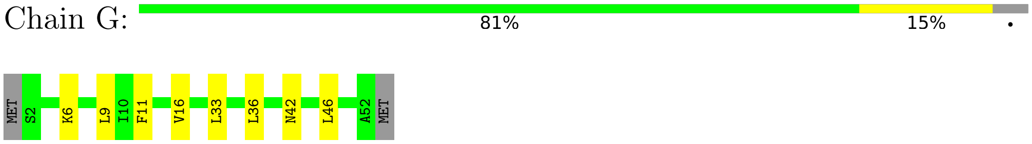
- Molecule 1: Antenna pigment protein alpha chain

Chain I:

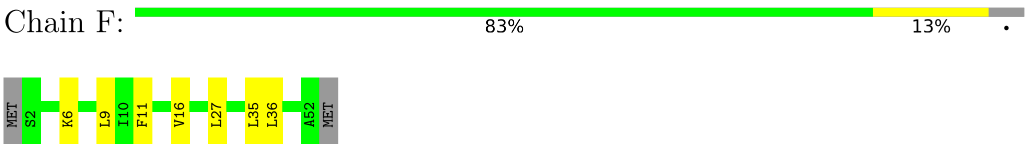


- Molecule 1: Antenna pigment protein alpha chain

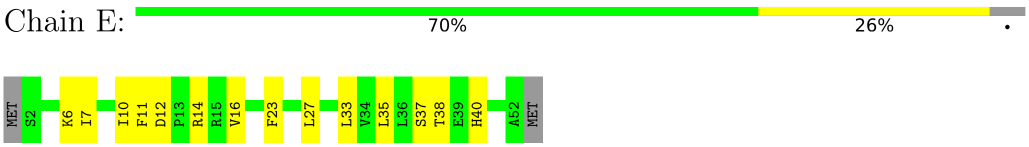
Chain G:



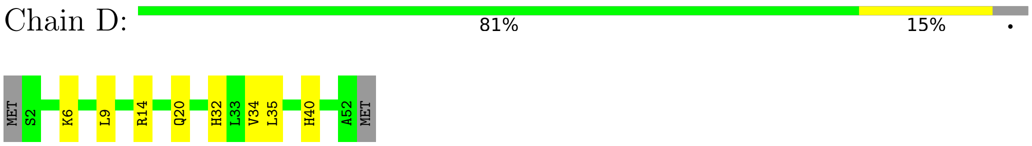
- Molecule 1: Antenna pigment protein alpha chain



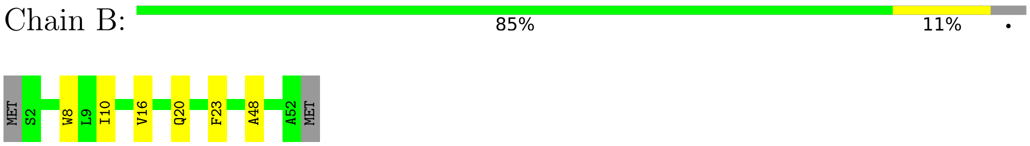
- Molecule 1: Antenna pigment protein alpha chain



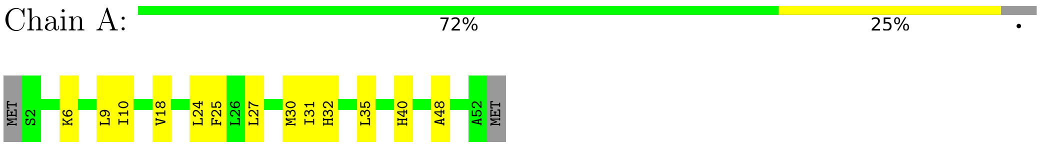
- Molecule 1: Antenna pigment protein alpha chain



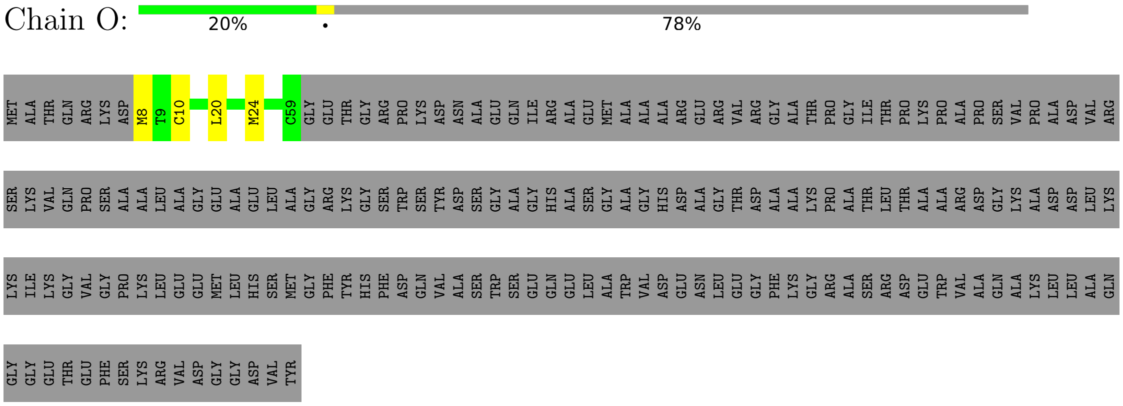
- Molecule 1: Antenna pigment protein alpha chain



- Molecule 1: Antenna pigment protein alpha chain

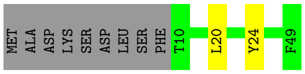


- Molecule 2: Reaction center protein O chain



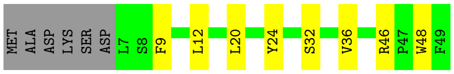
- Molecule 3: Antenna pigment protein beta chain

Chain v:



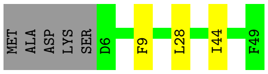
- Molecule 3: Antenna pigment protein beta chain

Chain t:



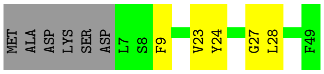
- Molecule 3: Antenna pigment protein beta chain

Chain s:



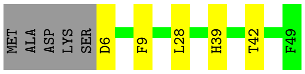
- Molecule 3: Antenna pigment protein beta chain

Chain r:



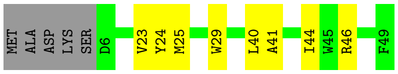
- Molecule 3: Antenna pigment protein beta chain

Chain q:



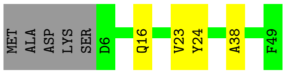
- Molecule 3: Antenna pigment protein beta chain

Chain p:



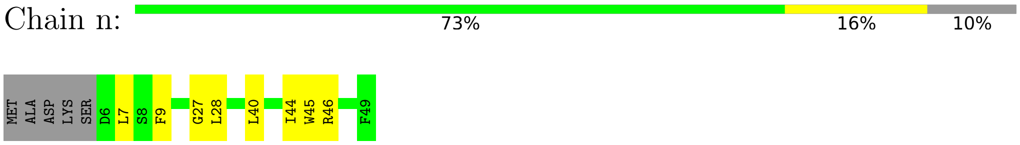
- Molecule 3: Antenna pigment protein beta chain

Chain 2:



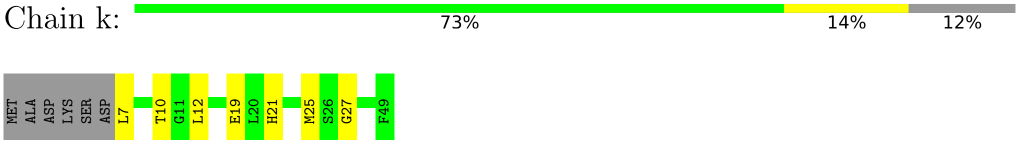
- Molecule 3: Antenna pigment protein beta chain

Chain n:



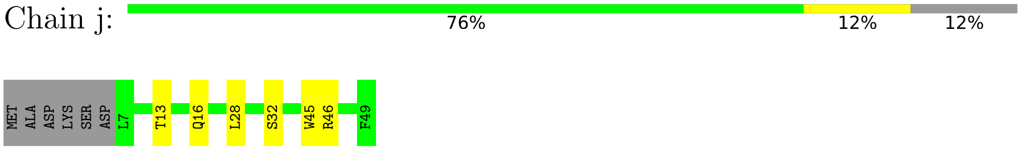
- Molecule 3: Antenna pigment protein beta chain

Chain k:



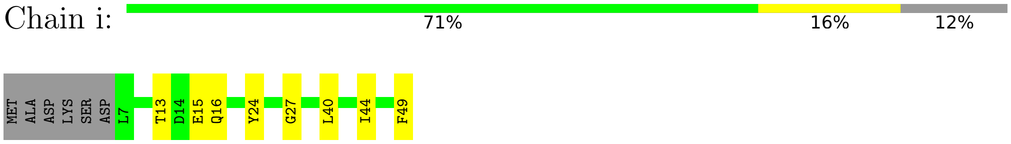
- Molecule 3: Antenna pigment protein beta chain

Chain j:



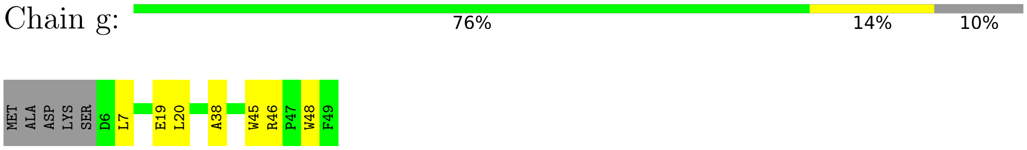
- Molecule 3: Antenna pigment protein beta chain

Chain i:



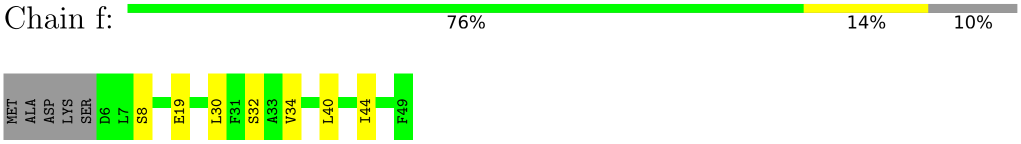
- Molecule 3: Antenna pigment protein beta chain

Chain g:



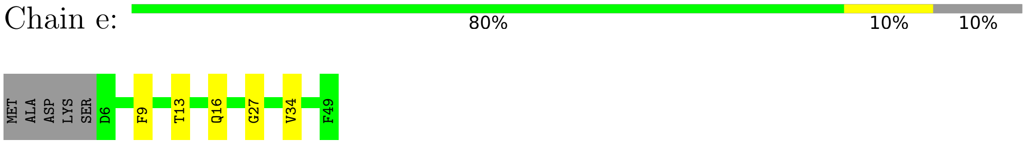
- Molecule 3: Antenna pigment protein beta chain

Chain f:

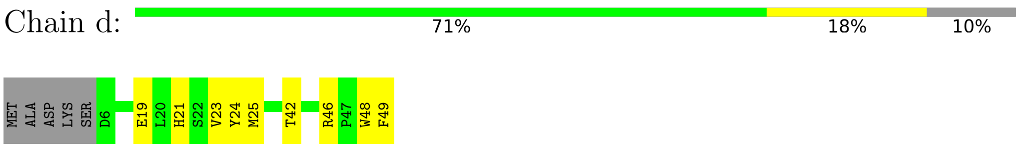


- Molecule 3: Antenna pigment protein beta chain

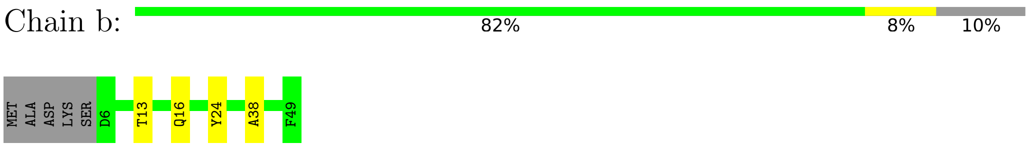
Chain e:



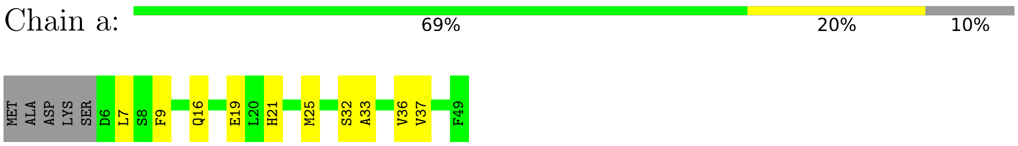
- Molecule 3: Antenna pigment protein beta chain



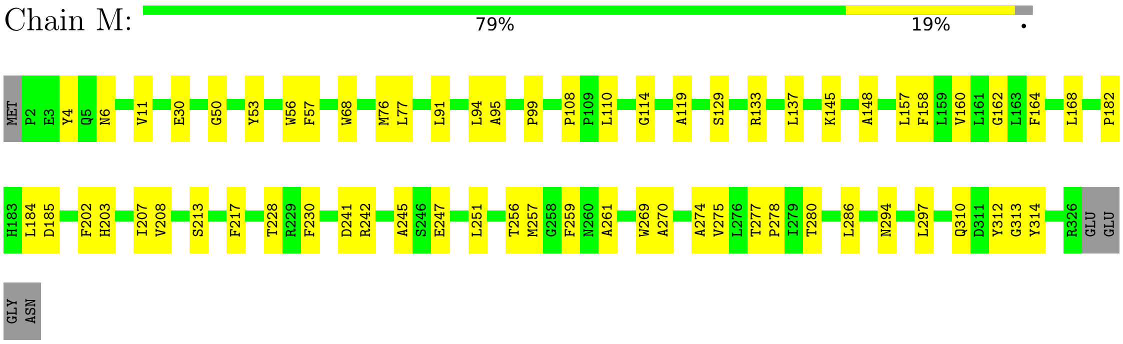
- Molecule 3: Antenna pigment protein beta chain



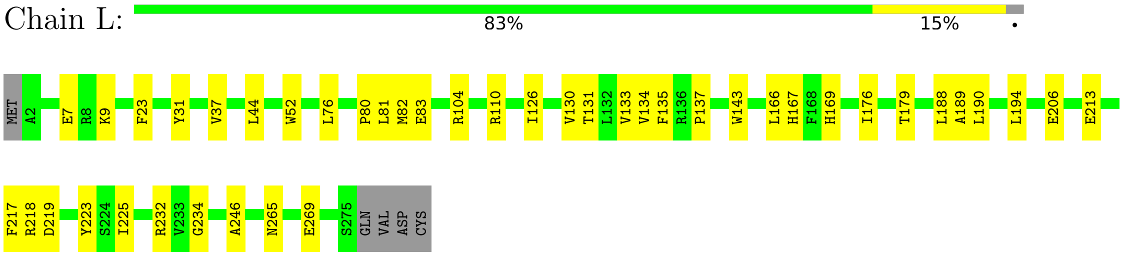
- Molecule 3: Antenna pigment protein beta chain



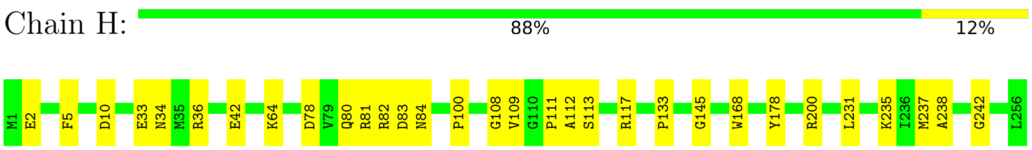
- Molecule 4: Reaction center protein M chain



- Molecule 5: Reaction center protein L chain

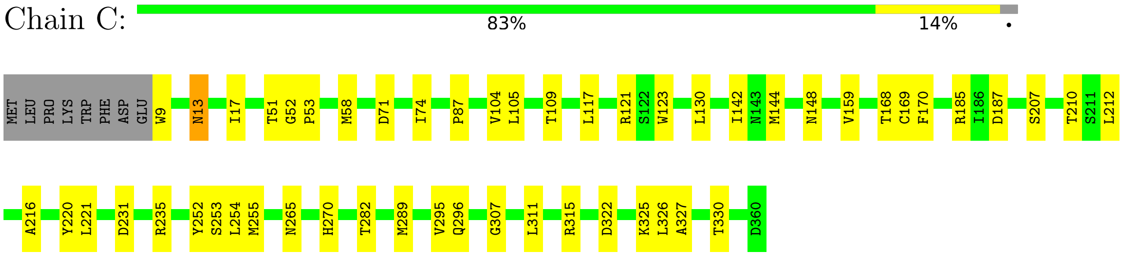


- Molecule 6: Reaction center protein H chain



- Molecule 7: Photosynthetic reaction center cytochrome c subunit

Chain C:


83%
14%
•
MET
LEU
PRO
LYS
TRP
PHE
ASP
GLU
W9
N13
I17
T51
G52
P53
M58
D71
I74
P87
V104
L105
T109
L117
R121
S122
W123
L130
I142
N143
M144
N148
V159
T168
C169
F170
R185
I186
D187
S207
T210
S211
L212
A216
Y220
L221
D231
R235
Y252
S253
L254
M255
N265
H270
T282
M289
V295
Q296
G307
L311
R315
D322
K325
L326
A327
T330
D360

4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	230375	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{Å}^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.280	Depositor
Minimum map value	-0.705	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.042	Depositor
Recommended contour level	0.103	Depositor
Map size (Å)	307.2, 307.2, 307.2	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.2, 1.2, 1.2	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: HEC, LMT, BPH, MW9, U10, FE, BCL, CDL, SPN

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	1	0.15	0/431	0.37	0/585
1	A	0.13	0/436	0.27	0/592
1	B	0.12	0/436	0.23	0/592
1	D	0.15	0/436	0.33	0/592
1	E	0.16	0/436	0.29	0/592
1	F	0.17	0/436	0.30	0/592
1	G	0.15	0/436	0.30	0/592
1	I	0.14	0/436	0.28	0/592
1	J	0.13	0/431	0.29	0/585
1	K	0.13	0/436	0.29	0/592
1	N	0.15	0/436	0.32	0/592
1	P	0.14	0/439	0.31	0/595
1	Q	0.13	0/436	0.29	0/592
1	R	0.14	0/436	0.24	0/592
1	S	0.15	0/436	0.32	0/592
1	T	0.12	0/436	0.27	0/592
1	V	0.12	0/436	0.28	0/592
2	O	0.13	0/378	0.26	0/516
3	2	0.10	0/367	0.21	0/503
3	a	0.14	0/371	0.31	0/508
3	b	0.12	0/371	0.24	0/508
3	d	0.15	0/367	0.28	0/503
3	e	0.13	0/367	0.21	0/503
3	f	0.13	0/367	0.21	0/503
3	g	0.14	0/367	0.22	0/503
3	i	0.13	0/359	0.21	0/492
3	j	0.12	0/359	0.29	0/492
3	k	0.14	0/359	0.28	0/492
3	n	0.13	0/367	0.26	0/503
3	p	0.13	0/367	0.27	0/503
3	q	0.11	0/367	0.21	0/503
3	r	0.11	0/363	0.20	0/497

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
3	s	0.12	0/367	0.25	0/503
3	t	0.12	0/359	0.23	0/492
3	v	0.11	0/333	0.23	0/457
4	M	0.16	0/2731	0.30	0/3735
5	L	0.17	0/2267	0.34	0/3105
6	H	0.13	0/2072	0.24	0/2804
7	C	0.14	0/2818	0.30	0/3868
All	All	0.14	0/23848	0.28	0/32546

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	1	417	0	421	8	0
1	A	422	0	426	17	0
1	B	422	0	426	7	0
1	D	422	0	426	7	0
1	E	422	0	426	13	0
1	F	422	0	426	8	0
1	G	422	0	426	7	0
1	I	422	0	426	5	0
1	J	417	0	421	9	0
1	K	422	0	426	4	0
1	N	422	0	426	8	0
1	P	425	0	433	9	0
1	Q	422	0	426	9	0
1	R	422	0	426	9	0
1	S	422	0	426	5	0
1	T	422	0	426	9	0
1	V	422	0	426	3	0
2	O	371	0	393	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	2	354	0	334	5	0
3	a	358	0	338	7	0
3	b	358	0	338	3	0
3	d	354	0	334	9	0
3	e	354	0	334	4	0
3	f	354	0	334	6	0
3	g	354	0	334	7	0
3	i	346	0	330	7	0
3	j	346	0	330	5	0
3	k	346	0	330	5	0
3	n	354	0	334	10	0
3	p	354	0	334	9	0
3	q	354	0	334	4	0
3	r	350	0	334	5	0
3	s	354	0	334	3	0
3	t	346	0	330	9	0
3	v	321	0	305	3	0
4	M	2633	0	2524	61	0
5	L	2178	0	2118	45	0
6	H	2022	0	1971	23	0
7	C	2740	0	2581	45	0
8	1	66	0	74	3	0
8	2	66	0	74	2	0
8	A	66	0	74	6	0
8	B	66	0	74	3	0
8	D	66	0	74	2	0
8	E	66	0	74	4	0
8	F	66	0	74	4	0
8	G	132	0	146	8	0
8	I	66	0	74	7	0
8	J	66	0	74	7	0
8	K	66	0	74	4	0
8	L	132	0	144	9	0
8	M	132	0	144	7	0
8	N	66	0	74	4	0
8	P	66	0	74	4	0
8	Q	66	0	74	5	0
8	R	132	0	145	6	0
8	T	66	0	74	5	0
8	V	66	0	72	5	0
8	a	66	0	74	3	0
8	b	66	0	74	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	d	66	0	74	8	0
8	e	66	0	74	7	0
8	f	66	0	74	9	0
8	i	66	0	74	6	0
8	j	66	0	74	10	0
8	k	66	0	74	4	0
8	n	66	0	74	3	0
8	p	66	0	74	2	0
8	q	66	0	74	5	0
8	r	66	0	74	4	0
8	s	66	0	74	2	0
8	t	66	0	73	9	0
8	v	66	0	74	5	0
9	2	86	0	134	8	0
9	D	86	0	136	6	0
9	E	43	0	68	4	0
9	F	43	0	68	4	0
9	G	86	0	136	8	0
9	I	43	0	65	9	0
9	K	43	0	68	8	0
9	M	43	0	68	3	0
9	Q	43	0	68	3	0
9	R	43	0	68	10	0
9	S	86	0	131	10	0
9	V	43	0	68	9	0
9	a	129	0	197	11	0
9	b	43	0	66	12	0
9	e	43	0	65	4	0
9	f	43	0	68	1	0
9	i	86	0	133	8	0
9	j	43	0	68	4	0
9	k	86	0	131	3	0
9	n	43	0	68	8	0
9	p	86	0	132	15	0
9	q	43	0	65	2	0
9	r	86	0	134	5	0
9	t	43	0	63	3	0
9	v	43	0	68	6	0
10	B	53	0	0	0	0
10	D	27	0	0	0	0
10	F	91	0	0	0	0
10	G	49	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
10	H	37	0	0	0	0
10	I	40	0	0	0	0
10	L	73	0	0	0	0
10	M	102	0	0	0	0
10	Q	45	0	0	0	0
11	C	24	0	34	0	0
11	E	35	0	46	4	0
11	H	24	0	34	0	0
11	L	48	0	65	1	0
12	M	1	0	0	0	0
13	L	65	0	76	2	0
13	M	65	0	73	2	0
14	L	48	0	63	7	0
14	M	63	0	90	6	0
15	H	158	0	213	6	0
16	C	129	0	89	10	0
All	All	28258	0	28382	526	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 9.

The worst 5 of 526 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)
7:C:144:MET:SD	16:C:401:HEC:NC	2.17	1.18
7:C:144:MET:SD	16:C:401:HEC:FE	1.52	1.00
7:C:144:MET:SD	16:C:401:HEC:NB	2.51	0.84
5:L:131:THR:HA	5:L:135:PHE:HB2	1.61	0.83
4:M:270:ALA:HB1	5:L:188:LEU:HD11	1.61	0.82

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 PDB entries followed by that with respect to all EM entries.

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	1	48/53 (91%)	46 (96%)	2 (4%)	0	100	100
1	A	49/53 (92%)	49 (100%)	0	0	100	100
1	B	49/53 (92%)	49 (100%)	0	0	100	100
1	D	49/53 (92%)	48 (98%)	1 (2%)	0	100	100
1	E	49/53 (92%)	49 (100%)	0	0	100	100
1	F	49/53 (92%)	49 (100%)	0	0	100	100
1	G	49/53 (92%)	49 (100%)	0	0	100	100
1	I	49/53 (92%)	49 (100%)	0	0	100	100
1	J	48/53 (91%)	48 (100%)	0	0	100	100
1	K	49/53 (92%)	49 (100%)	0	0	100	100
1	N	49/53 (92%)	48 (98%)	1 (2%)	0	100	100
1	P	49/53 (92%)	49 (100%)	0	0	100	100
1	Q	49/53 (92%)	48 (98%)	1 (2%)	0	100	100
1	R	49/53 (92%)	49 (100%)	0	0	100	100
1	S	49/53 (92%)	49 (100%)	0	0	100	100
1	T	49/53 (92%)	49 (100%)	0	0	100	100
1	V	49/53 (92%)	49 (100%)	0	0	100	100
2	O	50/239 (21%)	48 (96%)	2 (4%)	0	100	100
3	2	42/49 (86%)	42 (100%)	0	0	100	100
3	a	42/49 (86%)	41 (98%)	1 (2%)	0	100	100
3	b	42/49 (86%)	42 (100%)	0	0	100	100
3	d	42/49 (86%)	41 (98%)	1 (2%)	0	100	100
3	e	42/49 (86%)	42 (100%)	0	0	100	100
3	f	42/49 (86%)	42 (100%)	0	0	100	100
3	g	42/49 (86%)	42 (100%)	0	0	100	100
3	i	41/49 (84%)	41 (100%)	0	0	100	100
3	j	41/49 (84%)	41 (100%)	0	0	100	100
3	k	41/49 (84%)	41 (100%)	0	0	100	100
3	n	42/49 (86%)	41 (98%)	1 (2%)	0	100	100
3	p	42/49 (86%)	41 (98%)	1 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	q	42/49 (86%)	42 (100%)	0	0	100	100
3	r	41/49 (84%)	41 (100%)	0	0	100	100
3	s	42/49 (86%)	42 (100%)	0	0	100	100
3	t	41/49 (84%)	41 (100%)	0	0	100	100
3	v	38/49 (78%)	38 (100%)	0	0	100	100
4	M	323/330 (98%)	313 (97%)	10 (3%)	0	100	100
5	L	272/279 (98%)	261 (96%)	11 (4%)	0	100	100
6	H	254/256 (99%)	246 (97%)	8 (3%)	0	100	100
7	C	350/360 (97%)	337 (96%)	13 (4%)	0	100	100
All	All	2785/3198 (87%)	2732 (98%)	53 (2%)	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 PDB entries followed by that with respect to all EM entries.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	1	42/44 (96%)	42 (100%)	0	100	100
1	A	42/44 (96%)	42 (100%)	0	100	100
1	B	42/44 (96%)	42 (100%)	0	100	100
1	D	42/44 (96%)	42 (100%)	0	100	100
1	E	42/44 (96%)	42 (100%)	0	100	100
1	F	42/44 (96%)	42 (100%)	0	100	100
1	G	42/44 (96%)	42 (100%)	0	100	100
1	I	42/44 (96%)	42 (100%)	0	100	100
1	J	42/44 (96%)	42 (100%)	0	100	100
1	K	42/44 (96%)	42 (100%)	0	100	100
1	N	42/44 (96%)	42 (100%)	0	100	100
1	P	43/44 (98%)	43 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	Q	42/44 (96%)	42 (100%)	0	100	100
1	R	42/44 (96%)	42 (100%)	0	100	100
1	S	42/44 (96%)	42 (100%)	0	100	100
1	T	42/44 (96%)	42 (100%)	0	100	100
1	V	42/44 (96%)	42 (100%)	0	100	100
2	O	39/174 (22%)	39 (100%)	0	100	100
3	2	36/41 (88%)	36 (100%)	0	100	100
3	a	37/41 (90%)	37 (100%)	0	100	100
3	b	37/41 (90%)	37 (100%)	0	100	100
3	d	36/41 (88%)	36 (100%)	0	100	100
3	e	36/41 (88%)	36 (100%)	0	100	100
3	f	36/41 (88%)	36 (100%)	0	100	100
3	g	36/41 (88%)	36 (100%)	0	100	100
3	i	35/41 (85%)	35 (100%)	0	100	100
3	j	35/41 (85%)	35 (100%)	0	100	100
3	k	35/41 (85%)	35 (100%)	0	100	100
3	n	36/41 (88%)	36 (100%)	0	100	100
3	p	36/41 (88%)	36 (100%)	0	100	100
3	q	36/41 (88%)	36 (100%)	0	100	100
3	r	36/41 (88%)	36 (100%)	0	100	100
3	s	36/41 (88%)	36 (100%)	0	100	100
3	t	35/41 (85%)	35 (100%)	0	100	100
3	v	32/41 (78%)	32 (100%)	0	100	100
4	M	266/270 (98%)	266 (100%)	0	100	100
5	L	218/223 (98%)	218 (100%)	0	100	100
6	H	214/214 (100%)	214 (100%)	0	100	100
7	C	298/307 (97%)	297 (100%)	1 (0%)	91	97
All	All	2356/2633 (90%)	2355 (100%)	1 (0%)	100	100

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

Mol	Chain	Res	Type
7	C	13	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 26 such sidechains are listed below:

Mol	Chain	Res	Type
4	M	260	ASN
6	H	34	ASN
7	C	148	ASN
5	L	265	ASN
6	H	67	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 100 ligands modelled in this entry, 1 is monoatomic - leaving 99 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	$\#\|Z\| > 2$
10	MW9	M	407	-	48,48,52	1.48	6 (12%)	51,54,58	1.51	3 (5%)
8	BCL	B	101	-	64,74,74	1.71	13 (20%)	78,115,115	2.26	26 (33%)
8	BCL	L	304	8	64,74,74	1.71	12 (18%)	78,115,115	2.37	29 (37%)
9	SPN	S	101	-	40,42,42	4.21	15 (37%)	50,52,52	4.61	25 (50%)
9	SPN	j	102	-	40,42,42	4.17	13 (32%)	50,52,52	4.61	25 (50%)
9	SPN	p	101	-	40,42,42	4.19	13 (32%)	50,52,52	4.54	25 (50%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
10	MW9	Q	103	-	44,44,52	1.47	5 (11%)	47,50,58	1.50	3 (6%)
9	SPN	2	102	-	40,42,42	4.17	13 (32%)	50,52,52	4.65	25 (50%)
9	SPN	a	104	-	40,42,42	4.17	13 (32%)	50,52,52	4.68	25 (50%)
9	SPN	G	103	-	40,42,42	4.17	13 (32%)	50,52,52	4.58	25 (50%)
9	SPN	r	103	-	40,42,42	4.18	13 (32%)	50,52,52	4.61	25 (50%)
9	SPN	V	102	-	40,42,42	4.19	13 (32%)	50,52,52	4.65	25 (50%)
9	SPN	k	101	-	40,42,42	4.17	13 (32%)	50,52,52	4.55	25 (50%)
9	SPN	I	101	-	40,42,42	4.18	13 (32%)	50,52,52	4.66	25 (50%)
8	BCL	b	101	-	64,74,74	1.72	11 (17%)	78,115,115	2.26	28 (35%)
8	BCL	M	405	-	64,74,74	1.71	11 (17%)	78,115,115	2.25	28 (35%)
9	SPN	q	101	-	40,42,42	4.16	13 (32%)	50,52,52	4.63	25 (50%)
8	BCL	I	102	-	64,74,74	1.73	12 (18%)	78,115,115	2.34	27 (34%)
13	BPH	M	403	8	51,70,70	1.00	2 (3%)	52,101,101	0.70	2 (3%)
10	MW9	G	105	-	48,48,52	1.49	6 (12%)	51,54,58	1.48	4 (7%)
8	BCL	d	101	-	64,74,74	1.74	11 (17%)	78,115,115	2.28	25 (32%)
10	MW9	L	308	-	35,35,52	1.24	3 (8%)	38,41,58	1.12	2 (5%)
8	BCL	f	101	-	64,74,74	1.72	12 (18%)	78,115,115	2.26	25 (32%)
8	BCL	i	102	-	64,74,74	1.73	11 (17%)	78,115,115	2.33	27 (34%)
8	BCL	V	101	8	64,74,74	1.69	11 (17%)	78,115,115	2.28	29 (37%)
8	BCL	a	102	-	64,74,74	1.72	11 (17%)	78,115,115	2.28	27 (34%)
8	BCL	G	101	-	64,74,74	1.71	10 (15%)	78,115,115	2.25	27 (34%)
9	SPN	n	102	-	40,42,42	4.16	14 (35%)	50,52,52	4.49	25 (50%)
10	MW9	F	103	-	42,42,52	1.43	6 (14%)	45,48,58	1.47	3 (6%)
9	SPN	r	101	-	40,42,42	4.16	14 (35%)	50,52,52	4.60	25 (50%)
8	BCL	L	301	8	64,74,74	1.71	13 (20%)	78,115,115	2.37	29 (37%)
10	MW9	M	408	-	52,52,52	1.45	6 (11%)	55,58,58	1.47	3 (5%)
10	MW9	F	104	-	47,47,52	1.39	6 (12%)	50,53,58	1.43	3 (6%)
10	MW9	I	103	-	39,39,52	1.42	5 (12%)	42,45,58	1.18	3 (7%)
13	BPH	L	302	-	51,70,70	0.55	1 (1%)	52,101,101	0.72	1 (1%)
8	BCL	j	101	-	64,74,74	1.72	11 (17%)	78,115,115	2.29	28 (35%)
8	BCL	T	101	-	64,74,74	1.72	11 (17%)	78,115,115	2.28	26 (33%)
9	SPN	M	404	-	40,42,42	4.15	13 (32%)	50,52,52	4.60	25 (50%)
9	SPN	p	102	-	40,42,42	4.17	13 (32%)	50,52,52	4.63	25 (50%)
8	BCL	p	103	-	64,74,74	1.73	12 (18%)	78,115,115	2.24	25 (32%)
8	BCL	M	402	13	64,74,74	1.72	12 (18%)	78,115,115	2.27	24 (30%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
8	BCL	D	101	-	64,74,74	1.71	11 (17%)	78,115,115	2.26	26 (33%)
9	SPN	S	102	9	40,42,42	4.19	14 (35%)	50,52,52	4.63	24 (48%)
15	CDL	H	304	-	66,66,99	1.05	8 (12%)	72,78,111	1.15	4 (5%)
11	LMT	C	404	-	24,24,36	1.02	2 (8%)	29,29,47	1.06	1 (3%)
9	SPN	a	103	-	40,42,42	4.20	15 (37%)	50,52,52	4.52	25 (50%)
11	LMT	L	306	-	24,24,36	1.04	2 (8%)	29,29,47	1.18	2 (6%)
8	BCL	k	102	-	64,74,74	1.73	11 (17%)	78,115,115	2.28	28 (35%)
15	CDL	H	303	-	90,90,99	0.91	8 (8%)	96,102,111	1.13	4 (4%)
8	BCL	K	101	-	64,74,74	1.72	13 (20%)	78,115,115	2.29	25 (32%)
8	BCL	n	101	-	64,74,74	1.73	12 (18%)	78,115,115	2.22	26 (33%)
8	BCL	F	101	-	64,74,74	1.72	11 (17%)	78,115,115	2.31	28 (35%)
8	BCL	J	101	-	64,74,74	1.73	12 (18%)	78,115,115	2.31	27 (34%)
11	LMT	E	103	-	36,36,36	1.15	5 (13%)	47,47,47	0.98	1 (2%)
9	SPN	R	102	-	40,42,42	4.18	14 (35%)	50,52,52	4.59	25 (50%)
14	U10	M	406	-	63,63,63	0.15	0	76,79,79	0.40	1 (1%)
16	HEC	C	401	7	32,50,50	2.02	4 (12%)	24,82,82	2.30	12 (50%)
9	SPN	F	102	-	40,42,42	4.17	14 (35%)	50,52,52	4.58	25 (50%)
8	BCL	R	103	-	64,74,74	1.72	11 (17%)	78,115,115	2.25	27 (34%)
9	SPN	i	103	-	40,42,42	4.15	14 (35%)	50,52,52	4.64	25 (50%)
8	BCL	G	102	-	64,74,74	1.73	12 (18%)	78,115,115	2.32	27 (34%)
16	HEC	C	403	7	32,50,50	2.04	4 (12%)	24,82,82	2.31	12 (50%)
10	MW9	L	307	-	36,36,52	1.47	5 (13%)	39,42,58	1.54	3 (7%)
9	SPN	e	102	-	40,42,42	4.16	14 (35%)	50,52,52	4.64	25 (50%)
9	SPN	E	102	-	40,42,42	4.17	14 (35%)	50,52,52	4.58	25 (50%)
14	U10	L	303	-	48,48,63	0.18	0	58,61,79	0.45	1 (1%)
8	BCL	r	102	-	64,74,74	1.72	13 (20%)	78,115,115	2.22	27 (34%)
8	BCL	N	101	-	64,74,74	1.72	12 (18%)	78,115,115	2.31	27 (34%)
9	SPN	K	102	-	40,42,42	4.17	13 (32%)	50,52,52	4.67	25 (50%)
8	BCL	2	101	-	64,74,74	1.72	12 (18%)	78,115,115	2.31	27 (34%)
9	SPN	f	102	-	40,42,42	4.15	13 (32%)	50,52,52	4.64	25 (50%)
8	BCL	P	101	-	64,74,74	1.71	11 (17%)	78,115,115	2.25	26 (33%)
9	SPN	b	102	-	40,42,42	4.20	15 (37%)	50,52,52	4.59	24 (48%)
10	MW9	D	104	-	26,26,52	1.41	4 (15%)	28,28,58	1.29	2 (7%)
9	SPN	i	101	-	40,42,42	4.17	14 (35%)	50,52,52	4.70	25 (50%)
8	BCL	1	101	-	64,74,74	1.72	12 (18%)	78,115,115	2.32	27 (34%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
9	SPN	G	104	-	40,42,42	4.15	13 (32%)	50,52,52	4.69	25 (50%)
8	BCL	e	101	-	64,74,74	1.72	10 (15%)	78,115,115	2.25	26 (33%)
8	BCL	v	101	-	64,74,74	1.72	14 (21%)	78,115,115	2.25	26 (33%)
8	BCL	s	101	-	64,74,74	1.72	11 (17%)	78,115,115	2.26	27 (34%)
8	BCL	Q	101	-	64,74,74	1.72	12 (18%)	78,115,115	2.24	26 (33%)
9	SPN	a	101	-	40,42,42	4.16	13 (32%)	50,52,52	4.64	25 (50%)
8	BCL	q	102	-	64,74,74	1.72	12 (18%)	78,115,115	2.27	29 (37%)
10	MW9	H	302	-	36,36,52	1.57	7 (19%)	39,41,58	1.86	3 (7%)
9	SPN	2	103	-	40,42,42	4.17	13 (32%)	50,52,52	4.60	25 (50%)
9	SPN	v	102	-	40,42,42	4.20	14 (35%)	50,52,52	4.59	25 (50%)
8	BCL	R	101	-	64,74,74	1.71	12 (18%)	78,115,115	2.24	26 (33%)
11	LMT	L	305	-	24,24,36	1.04	2 (8%)	29,29,47	1.10	2 (6%)
9	SPN	t	102	9	40,42,42	4.18	14 (35%)	50,52,52	4.62	25 (50%)
8	BCL	A	101	-	64,74,74	1.73	12 (18%)	78,115,115	2.20	26 (33%)
10	MW9	B	102	-	52,52,52	1.45	6 (11%)	55,58,58	1.45	4 (7%)
9	SPN	D	102	-	40,42,42	4.18	14 (35%)	50,52,52	4.52	25 (50%)
9	SPN	k	103	-	40,42,42	4.16	14 (35%)	50,52,52	4.61	25 (50%)
9	SPN	Q	102	-	40,42,42	4.17	14 (35%)	50,52,52	4.65	25 (50%)
9	SPN	D	103	-	40,42,42	4.18	14 (35%)	50,52,52	4.55	25 (50%)
11	LMT	H	301	-	24,24,36	1.03	2 (8%)	29,29,47	1.06	1 (3%)
8	BCL	t	101	8	64,74,74	1.76	13 (20%)	78,115,115	2.10	25 (32%)
16	HEC	C	402	7	32,50,50	2.00	4 (12%)	24,82,82	2.30	11 (45%)
8	BCL	E	101	-	64,74,74	1.72	12 (18%)	78,115,115	2.32	28 (35%)

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
10	MW9	M	407	-	-	27/53/53/57	-
8	BCL	B	101	-	-	17/37/137/137	-
8	BCL	L	304	8	-	18/37/137/137	-
9	SPN	S	101	-	-	24/50/51/51	-
9	SPN	j	102	-	-	29/50/51/51	-
9	SPN	p	101	-	-	32/50/51/51	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	MW9	Q	103	-	-	31/49/49/57	-
9	SPN	2	102	-	-	29/50/51/51	-
9	SPN	a	104	-	-	28/50/51/51	-
9	SPN	G	103	-	-	29/50/51/51	-
9	SPN	r	103	-	-	36/50/51/51	-
9	SPN	V	102	-	-	30/50/51/51	-
9	SPN	k	101	-	-	32/50/51/51	-
9	SPN	I	101	-	-	27/50/51/51	-
8	BCL	b	101	-	-	9/37/137/137	-
8	BCL	M	405	-	-	13/37/137/137	-
9	SPN	q	101	-	-	28/50/51/51	-
8	BCL	I	102	-	-	17/37/137/137	-
13	BPH	M	403	8	-	14/37/105/105	0/5/6/6
10	MW9	G	105	-	-	26/53/53/57	-
8	BCL	d	101	-	-	19/37/137/137	-
10	MW9	L	308	-	-	17/40/40/57	-
8	BCL	f	101	-	-	17/37/137/137	-
8	BCL	i	102	-	-	18/37/137/137	-
8	BCL	V	101	8	-	11/37/137/137	-
8	BCL	a	102	-	-	17/37/137/137	-
8	BCL	G	101	-	-	16/37/137/137	-
9	SPN	n	102	-	-	24/50/51/51	-
10	MW9	F	103	-	-	29/47/47/57	-
9	SPN	r	101	-	-	27/50/51/51	-
8	BCL	L	301	8	-	14/37/137/137	-
10	MW9	M	408	-	-	39/57/57/57	-
10	MW9	F	104	-	-	28/52/52/57	-
10	MW9	I	103	-	-	31/44/44/57	-
13	BPH	L	302	-	-	10/37/105/105	0/5/6/6
8	BCL	j	101	-	-	13/37/137/137	-
8	BCL	T	101	-	-	10/37/137/137	-
9	SPN	M	404	-	-	28/50/51/51	-
9	SPN	p	102	-	-	27/50/51/51	-
8	BCL	p	103	-	-	16/37/137/137	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	BCL	M	402	13	-	17/37/137/137	-
8	BCL	D	101	-	-	12/37/137/137	-
9	SPN	S	102	9	-	30/50/51/51	-
15	CDL	H	304	-	-	43/77/77/110	-
11	LMT	C	404	-	-	4/15/35/61	0/1/1/2
9	SPN	a	103	-	-	30/50/51/51	-
11	LMT	L	306	-	-	7/15/35/61	0/1/1/2
8	BCL	k	102	-	-	11/37/137/137	-
15	CDL	H	303	-	-	44/101/101/110	-
8	BCL	K	101	-	-	9/37/137/137	-
8	BCL	n	101	-	-	9/37/137/137	-
8	BCL	F	101	-	-	9/37/137/137	-
8	BCL	J	101	-	-	10/37/137/137	-
11	LMT	E	103	-	-	8/21/61/61	0/2/2/2
9	SPN	R	102	-	-	31/50/51/51	-
14	U10	M	406	-	-	8/63/87/87	0/1/1/1
16	HEC	C	401	7	-	3/10/54/54	-
9	SPN	F	102	-	-	26/50/51/51	-
8	BCL	R	103	-	-	9/37/137/137	-
9	SPN	i	103	-	-	21/50/51/51	-
8	BCL	G	102	-	-	14/37/137/137	-
16	HEC	C	403	7	-	3/10/54/54	-
10	MW9	L	307	-	-	21/41/41/57	-
9	SPN	e	102	-	-	30/50/51/51	-
9	SPN	E	102	-	-	28/50/51/51	-
14	U10	L	303	-	-	10/45/69/87	0/1/1/1
8	BCL	r	102	-	-	11/37/137/137	-
8	BCL	N	101	-	-	13/37/137/137	-
9	SPN	K	102	-	-	23/50/51/51	-
8	BCL	2	101	-	-	18/37/137/137	-
9	SPN	f	102	-	-	26/50/51/51	-
8	BCL	P	101	-	-	12/37/137/137	-
9	SPN	b	102	-	-	27/50/51/51	-
10	MW9	D	104	-	-	13/28/28/57	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	SPN	i	101	-	-	25/50/51/51	-
8	BCL	1	101	-	-	12/37/137/137	-
9	SPN	G	104	-	-	26/50/51/51	-
8	BCL	e	101	-	-	10/37/137/137	-
8	BCL	v	101	-	-	20/37/137/137	-
8	BCL	s	101	-	-	17/37/137/137	-
8	BCL	Q	101	-	-	15/37/137/137	-
9	SPN	a	101	-	-	25/50/51/51	-
8	BCL	q	102	-	-	16/37/137/137	-
10	MW9	H	302	-	-	24/38/38/57	-
9	SPN	2	103	-	-	26/50/51/51	-
9	SPN	v	102	-	-	28/50/51/51	-
8	BCL	R	101	-	-	9/37/137/137	-
11	LMT	L	305	-	-	5/15/35/61	0/1/1/2
9	SPN	t	102	9	-	30/50/51/51	-
8	BCL	A	101	-	-	14/37/137/137	-
10	MW9	B	102	-	-	32/57/57/57	-
9	SPN	D	102	-	-	27/50/51/51	-
9	SPN	k	103	-	-	33/50/51/51	-
9	SPN	Q	102	-	-	29/50/51/51	-
9	SPN	D	103	-	-	29/50/51/51	-
11	LMT	H	301	-	-	6/15/35/61	0/1/1/2
8	BCL	t	101	8	-	10/37/137/137	-
16	HEC	C	402	7	-	2/10/54/54	-
8	BCL	E	101	-	-	9/37/137/137	-

The worst 5 of 1030 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	q	101	SPN	C3-C4	-11.22	1.34	1.50
9	G	103	SPN	C3-C4	-11.18	1.34	1.50
9	p	101	SPN	C3-C4	-11.17	1.34	1.50
9	v	102	SPN	C3-C4	-11.11	1.34	1.50
9	S	102	SPN	C3-C4	-11.10	1.34	1.50

The worst 5 of 1981 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	K	102	SPN	C3-C4-C5	16.39	154.07	126.79
9	V	102	SPN	C3-C4-C5	16.22	153.80	126.79
9	G	104	SPN	C3-C4-C5	16.13	153.65	126.79
9	i	103	SPN	C3-C4-C5	15.96	153.35	126.79
9	a	101	SPN	C3-C4-C5	15.83	153.15	126.79

There are no chirality outliers.

5 of 1976 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	P	101	BCL	C3A-C2A-CAA-CBA
8	P	101	BCL	C2C-C3C-CAC-CBC
8	P	101	BCL	C4C-C3C-CAC-CBC
8	V	101	BCL	C2C-C3C-CAC-CBC
8	V	101	BCL	C4C-C3C-CAC-CBC

There are no ring outliers.

84 monomers are involved in 316 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	B	101	BCL	3	0
8	L	304	BCL	7	0
9	S	101	SPN	6	0
9	j	102	SPN	4	0
9	p	101	SPN	10	0
9	2	102	SPN	2	0
9	a	104	SPN	7	0
9	G	103	SPN	5	0
9	r	103	SPN	1	0
9	V	102	SPN	9	0
9	k	101	SPN	1	0
9	I	101	SPN	9	0
8	b	101	BCL	3	0
8	M	405	BCL	4	0
9	q	101	SPN	2	0
8	I	102	BCL	7	0
13	M	403	BPH	2	0
8	d	101	BCL	8	0
8	f	101	BCL	9	0
8	i	102	BCL	6	0
8	V	101	BCL	5	0
8	a	102	BCL	3	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	G	101	BCL	6	0
9	n	102	SPN	8	0
9	r	101	SPN	4	0
8	L	301	BCL	3	0
13	L	302	BPH	2	0
8	j	101	BCL	10	0
8	T	101	BCL	5	0
9	M	404	SPN	3	0
9	p	102	SPN	5	0
8	p	103	BCL	2	0
8	M	402	BCL	4	0
8	D	101	BCL	2	0
9	S	102	SPN	4	0
15	H	304	CDL	2	0
9	a	103	SPN	2	0
8	k	102	BCL	4	0
15	H	303	CDL	4	0
8	K	101	BCL	4	0
8	n	101	BCL	3	0
8	F	101	BCL	4	0
8	J	101	BCL	7	0
11	E	103	LMT	4	0
9	R	102	SPN	10	0
14	M	406	U10	6	0
16	C	401	HEC	6	0
9	F	102	SPN	4	0
8	R	103	BCL	4	0
9	i	103	SPN	3	0
8	G	102	BCL	3	0
16	C	403	HEC	1	0
9	e	102	SPN	4	0
9	E	102	SPN	4	0
14	L	303	U10	7	0
8	r	102	BCL	4	0
8	N	101	BCL	4	0
9	K	102	SPN	8	0
8	2	101	BCL	2	0
9	f	102	SPN	1	0
8	P	101	BCL	4	0
9	b	102	SPN	12	0
9	i	101	SPN	5	0
8	1	101	BCL	3	0

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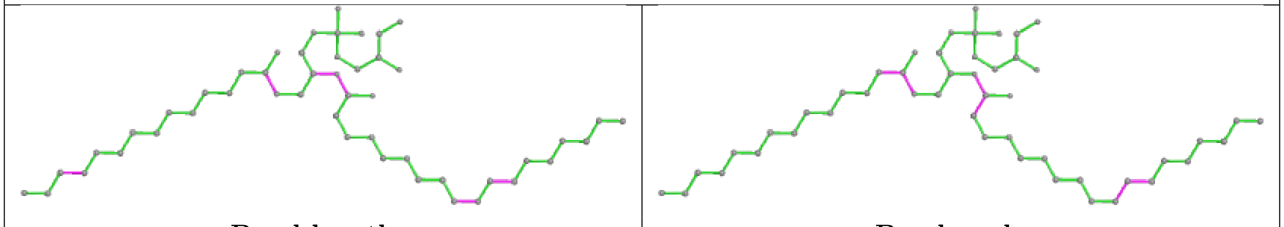
Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	G	104	SPN	3	0
8	e	101	BCL	7	0
8	v	101	BCL	5	0
8	s	101	BCL	2	0
8	Q	101	BCL	5	0
9	a	101	SPN	2	0
8	q	102	BCL	5	0
9	2	103	SPN	6	0
9	v	102	SPN	6	0
8	R	101	BCL	2	0
11	L	305	LMT	1	0
9	t	102	SPN	3	0
8	A	101	BCL	6	0
9	D	102	SPN	3	0
9	k	103	SPN	2	0
9	Q	102	SPN	3	0
9	D	103	SPN	3	0
8	t	101	BCL	9	0
16	C	402	HEC	3	0
8	E	101	BCL	4	0

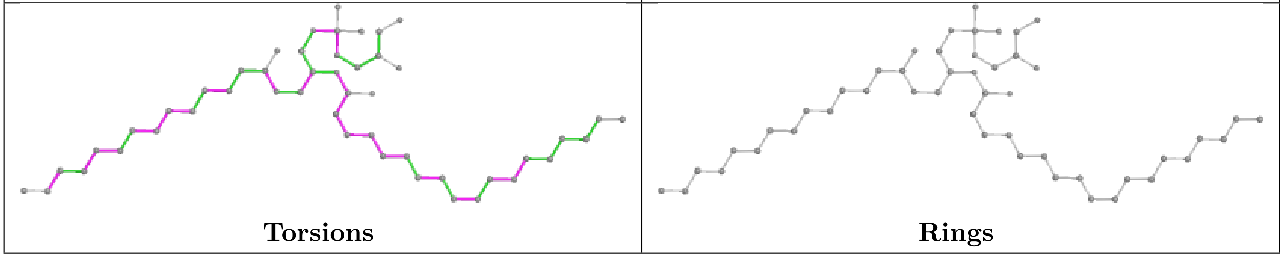
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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 MW9 M 407



Bond lengths

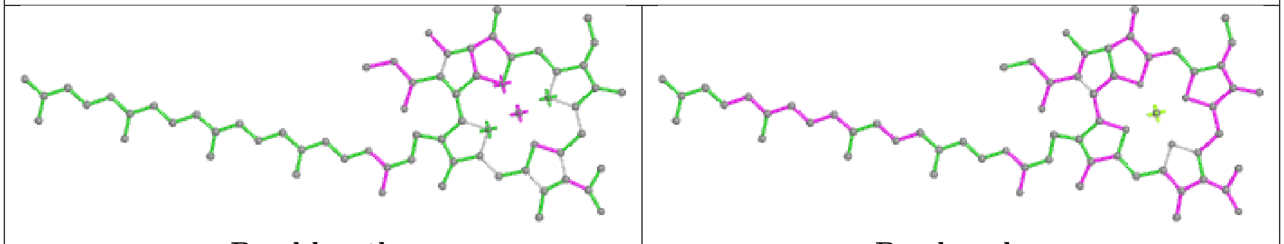
Bond angles



Torsions

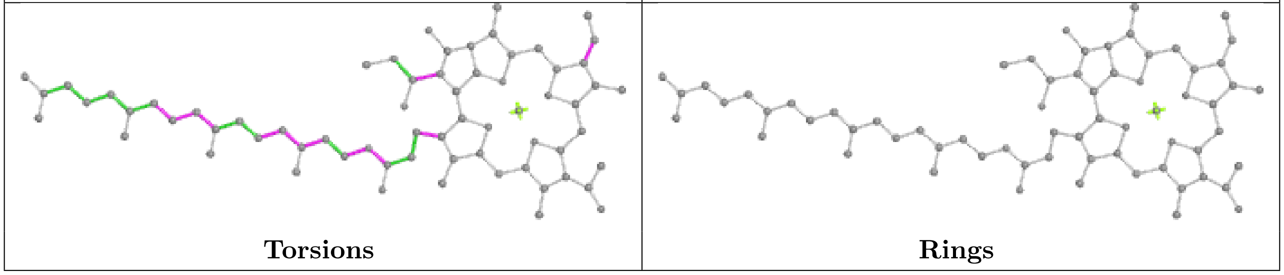
Rings

Ligand BCL B 101



Bond lengths

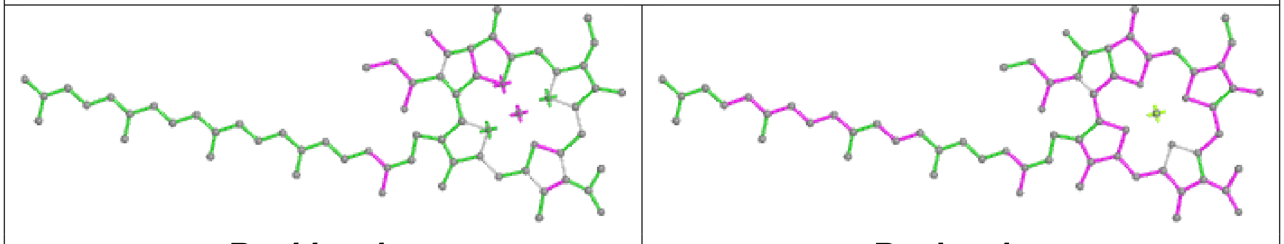
Bond angles



Torsions

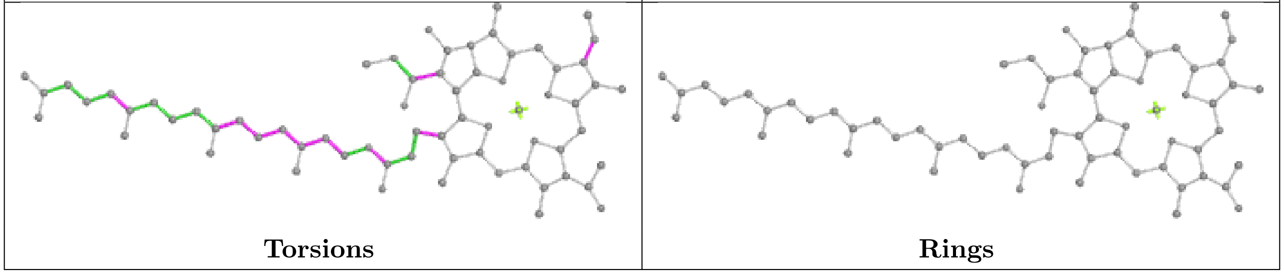
Rings

Ligand BCL L 304



Bond lengths

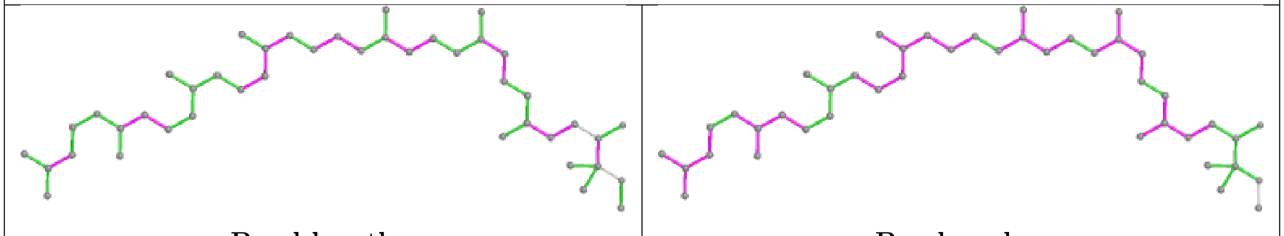
Bond angles



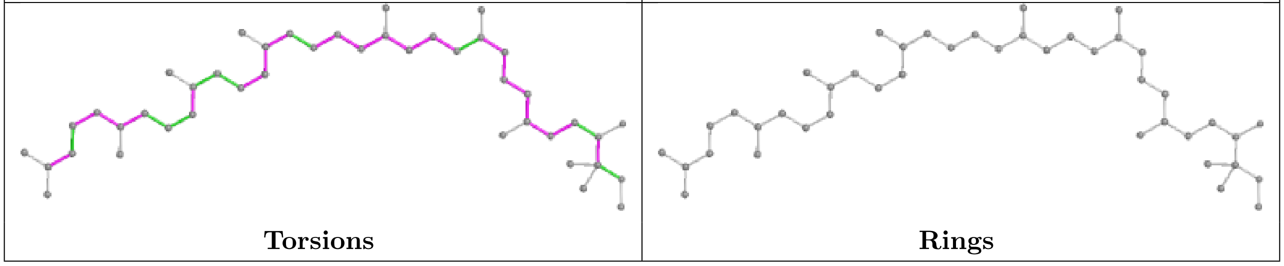
Torsions

Rings

Ligand SPN S 101

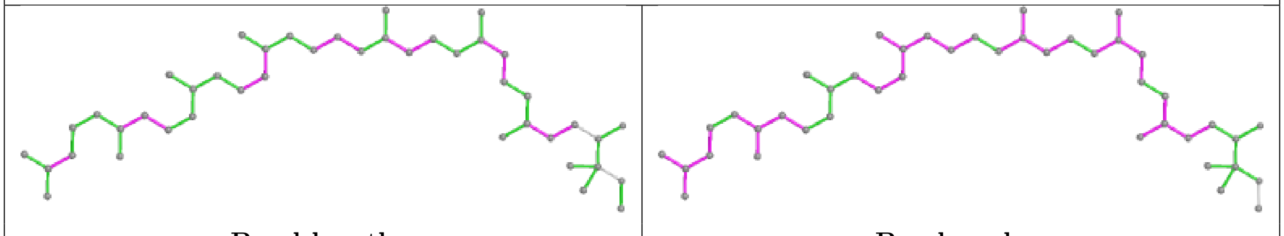


Bond lengths Bond angles

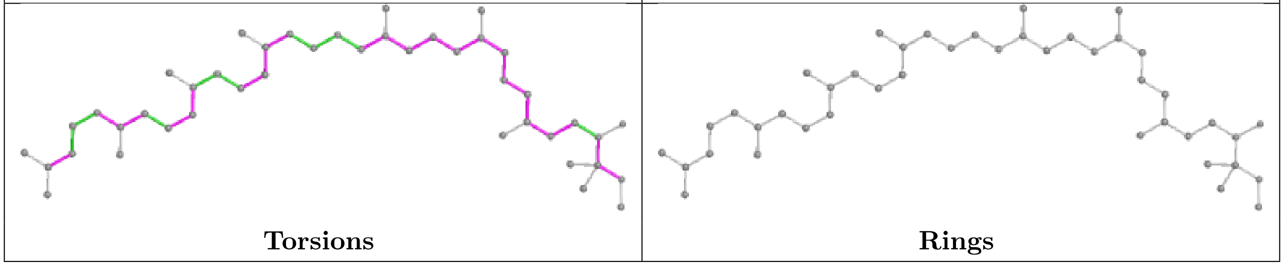


Torsions Rings

Ligand SPN j 102



Bond lengths Bond angles



Torsions Rings

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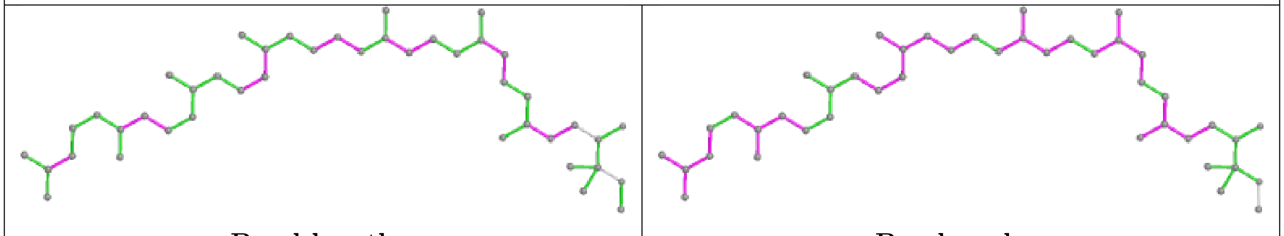
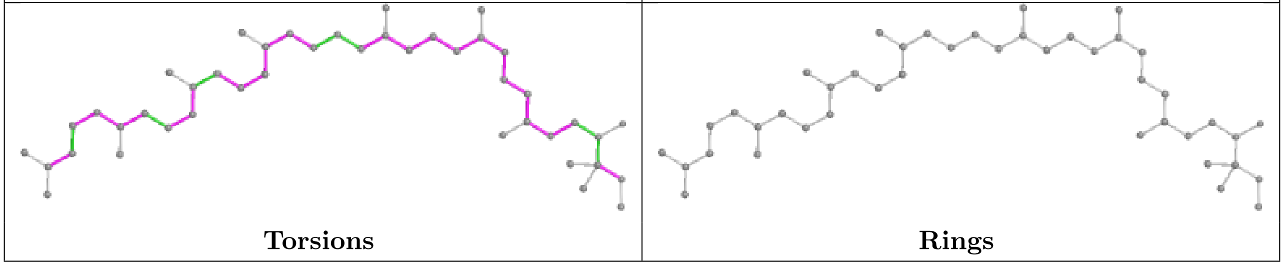
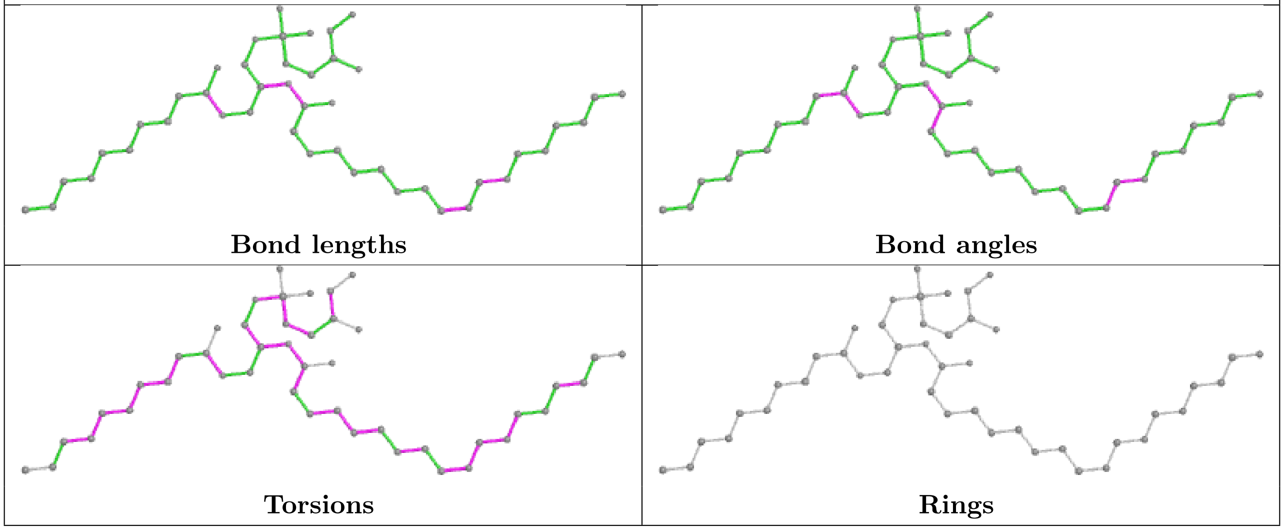


Bond lengths Bond angles



Torsions Rings

Ligand MW9 Q 103



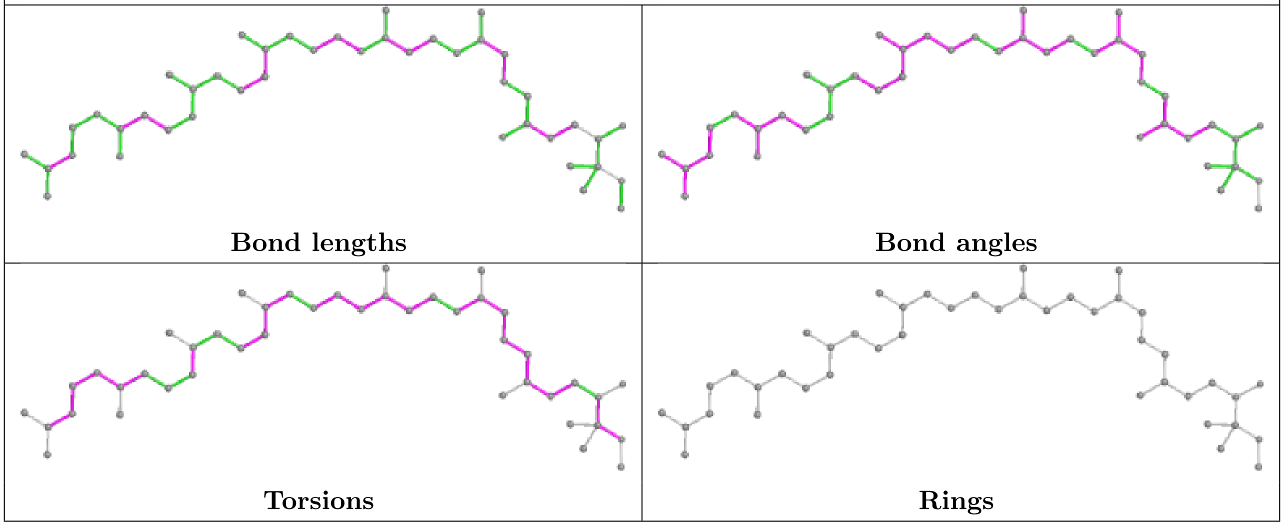
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN 2 102



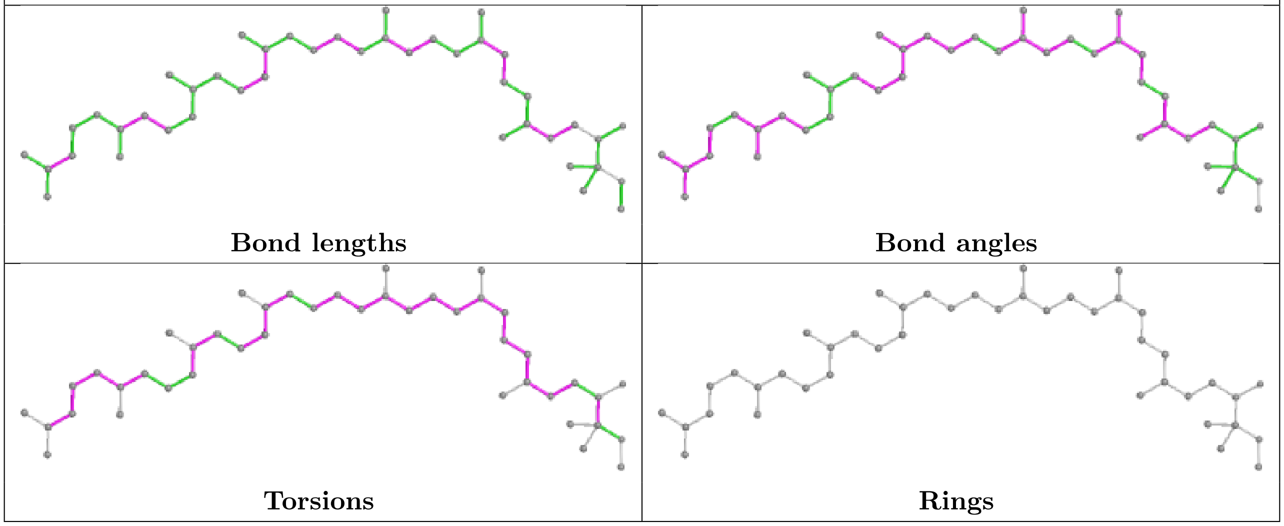
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN a 104



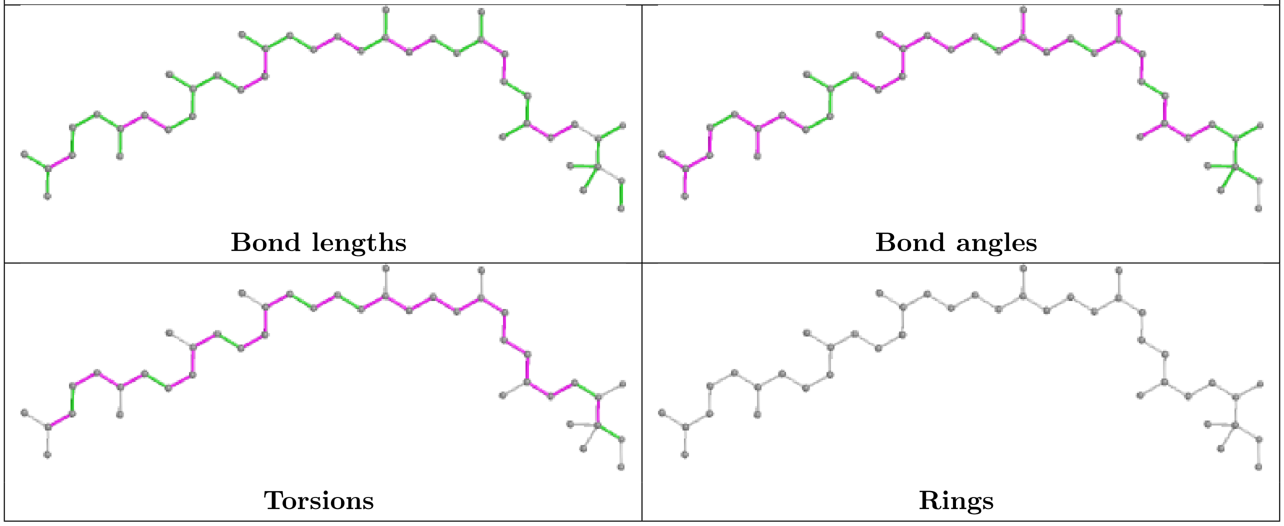
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN G 103



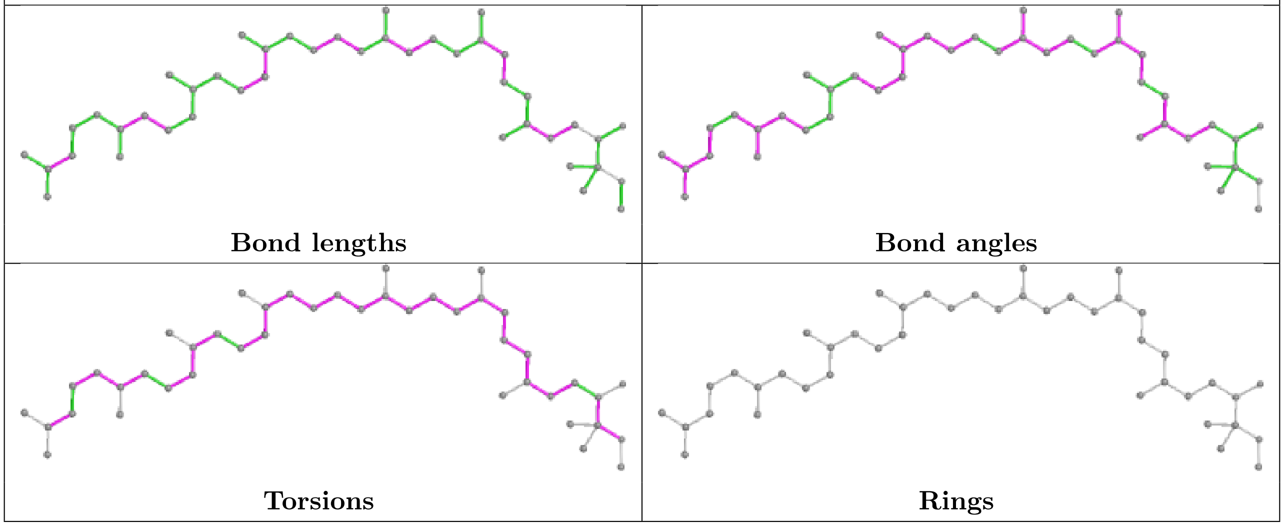
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN r 103



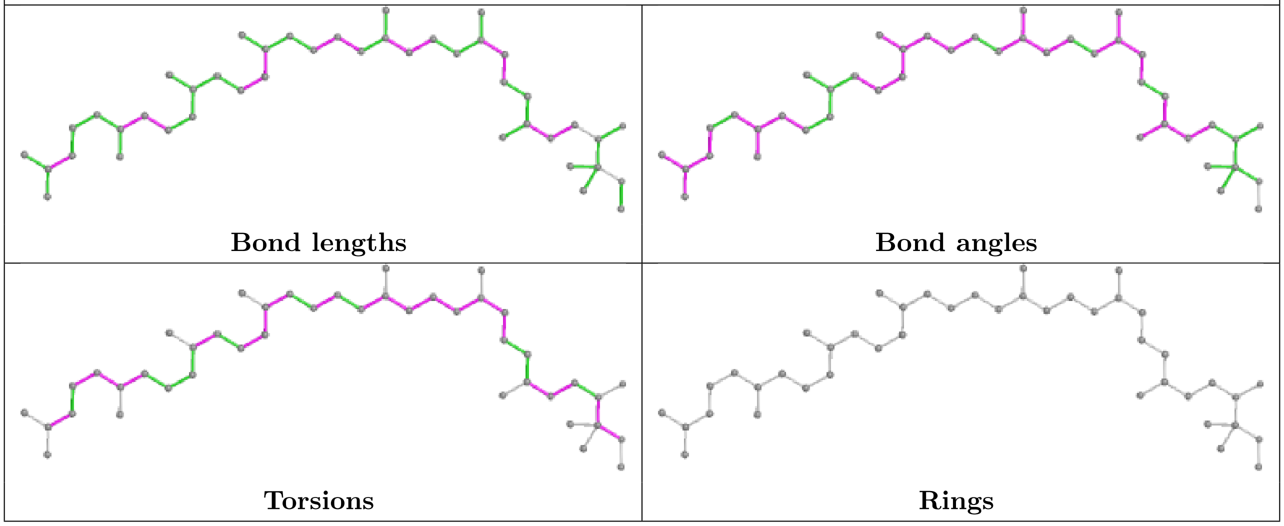
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN V 102



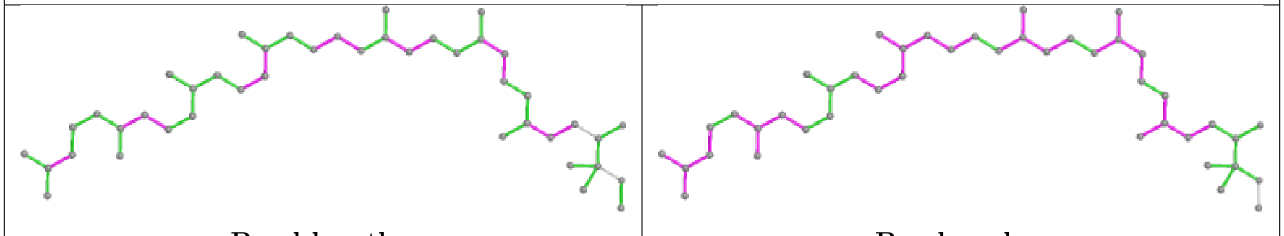
Bond lengths

Bond angles

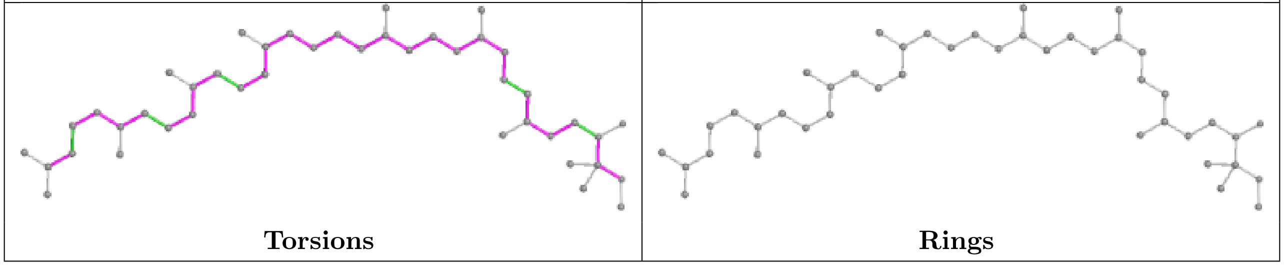
Torsions

Rings

Ligand SPN k 101

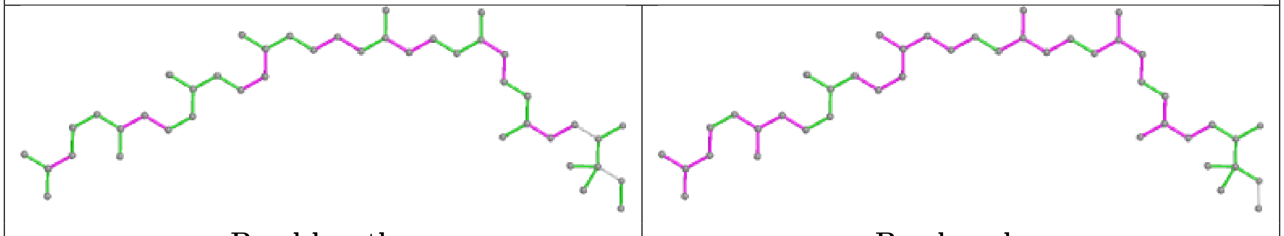


Bond lengths Bond angles

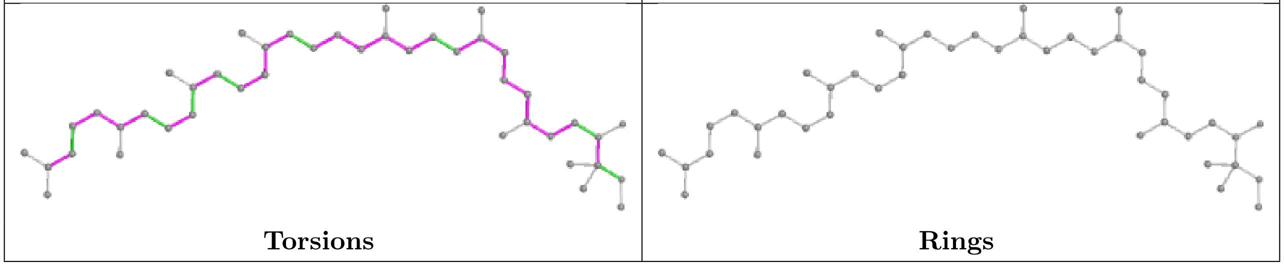


Torsions Rings

Ligand SPN I 101

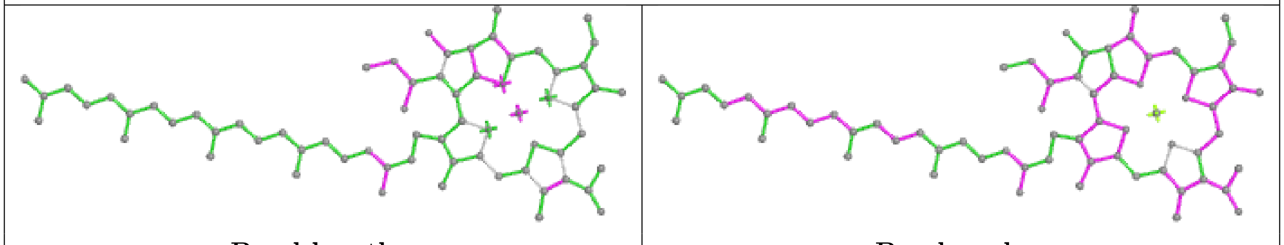


Bond lengths Bond angles

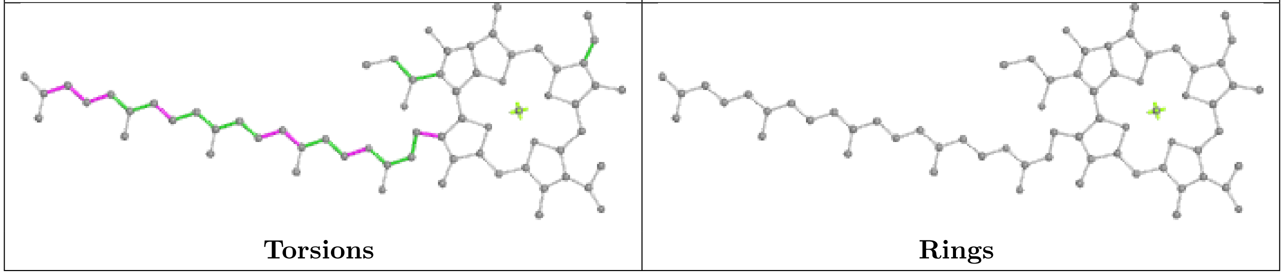


Torsions Rings

Ligand BCL b 101



Bond lengths Bond angles



Torsions Rings

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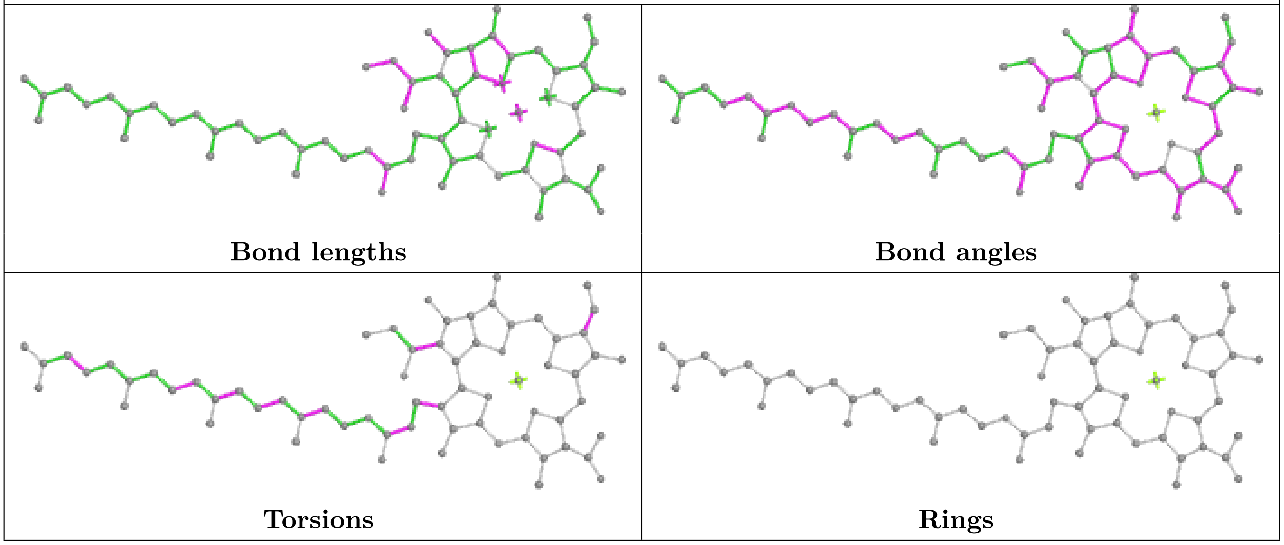

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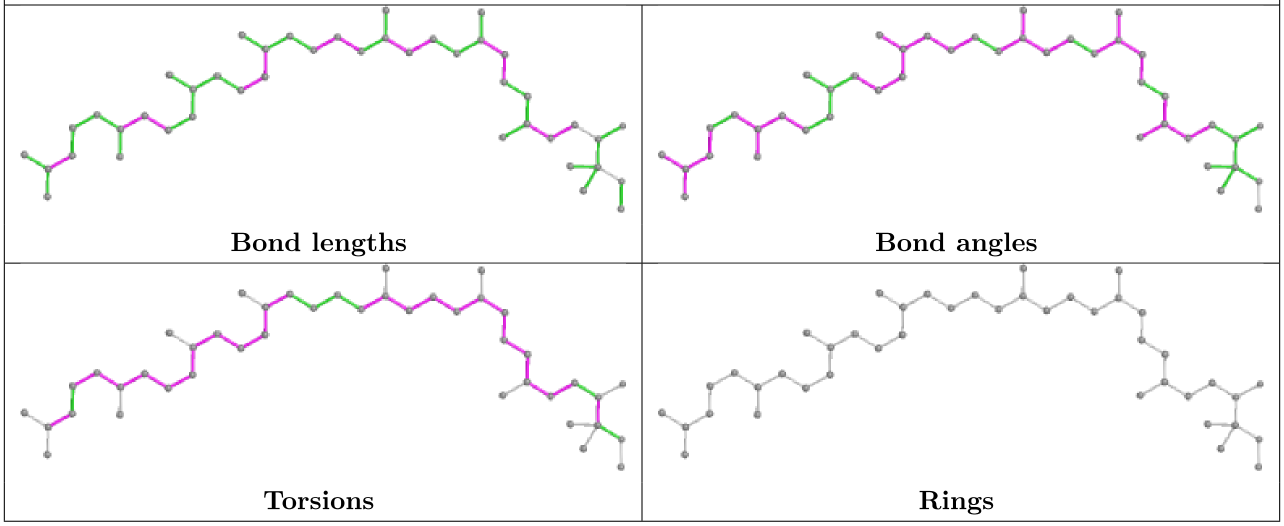
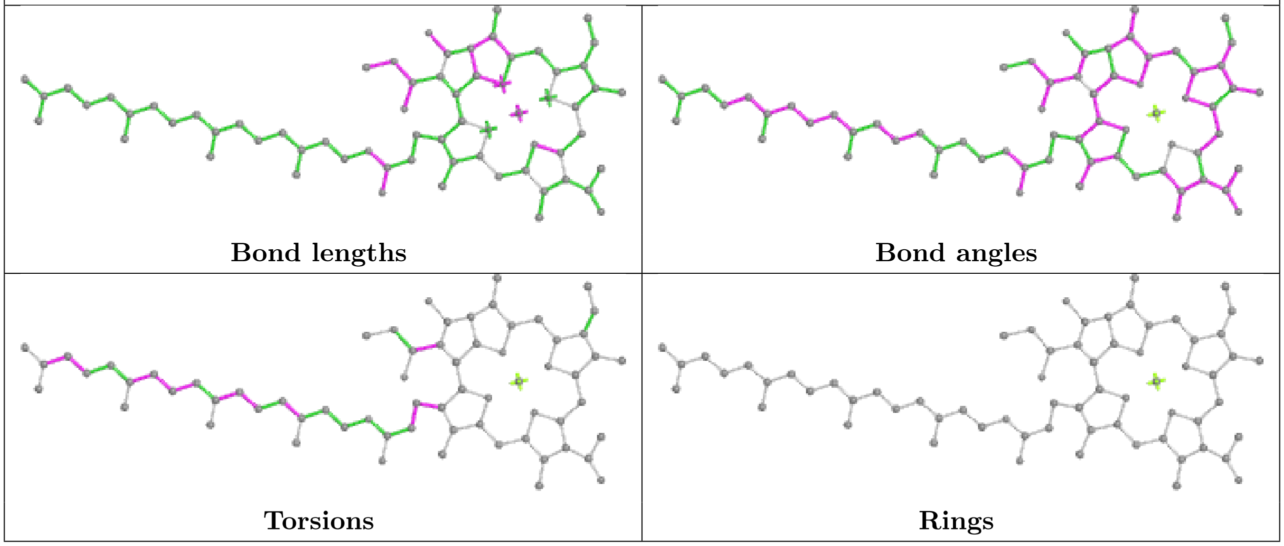


Ligand BCL I 102



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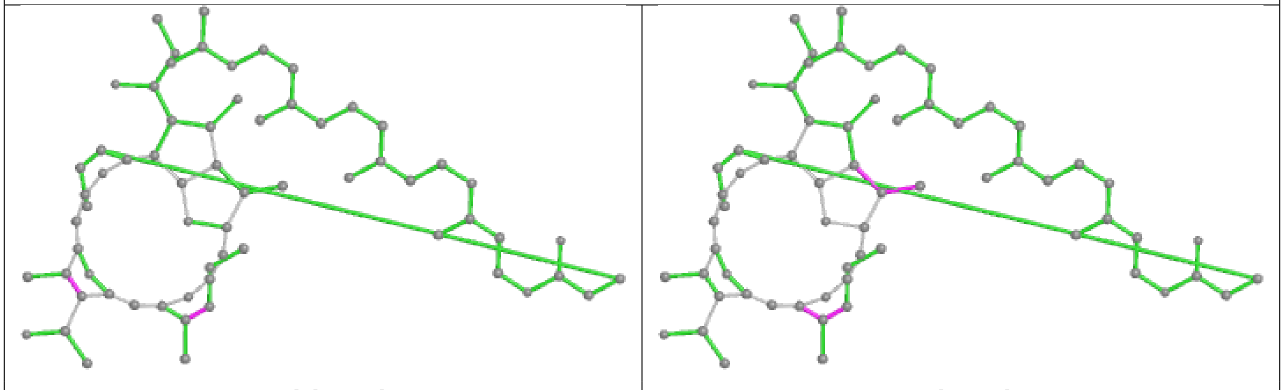
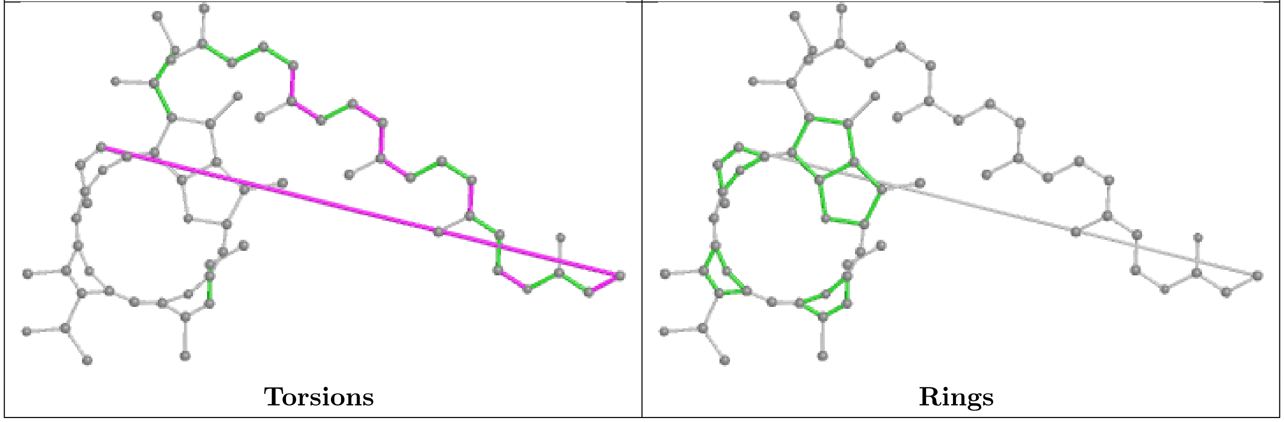
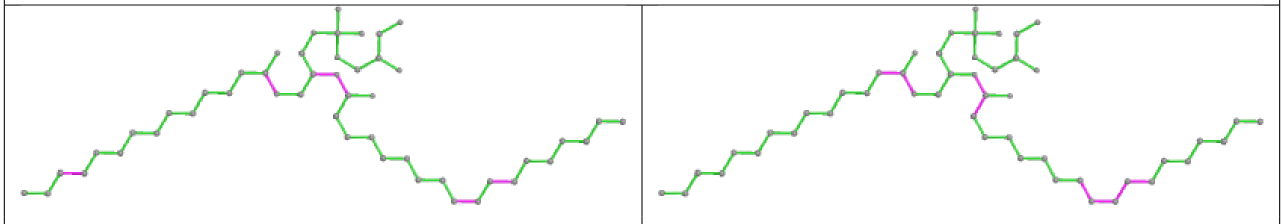


Bond lengths Bond angles

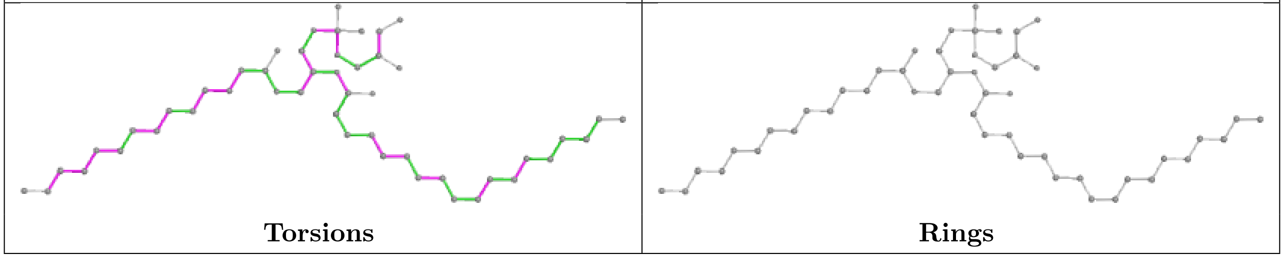


Torsions Rings

Ligand MW9 G 105

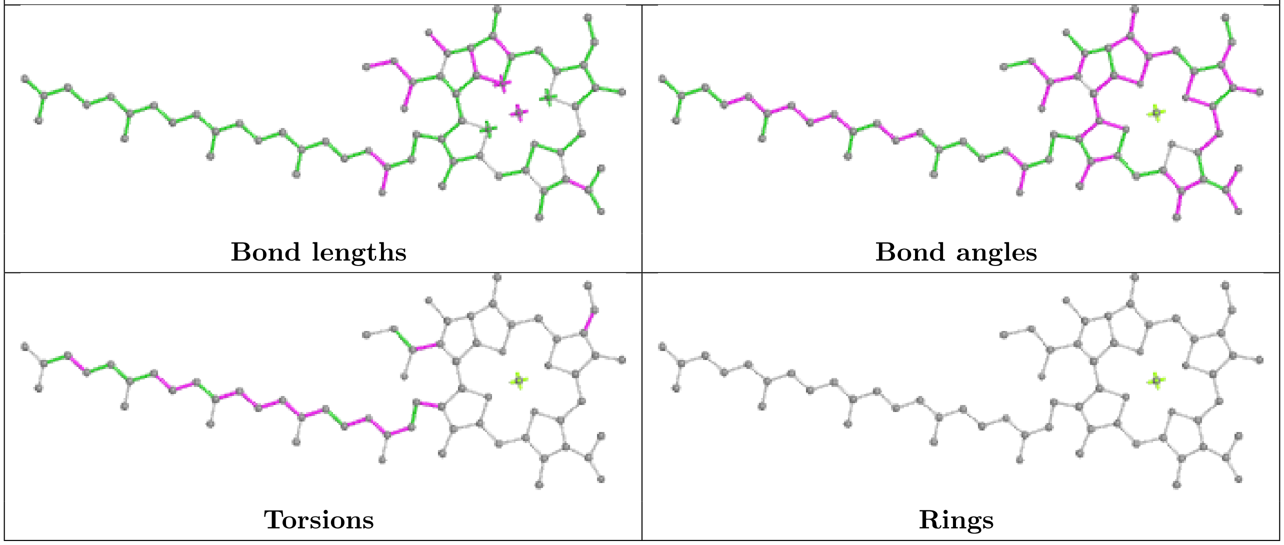


Bond lengths Bond angles



Torsions Rings

Ligand BCL d 101



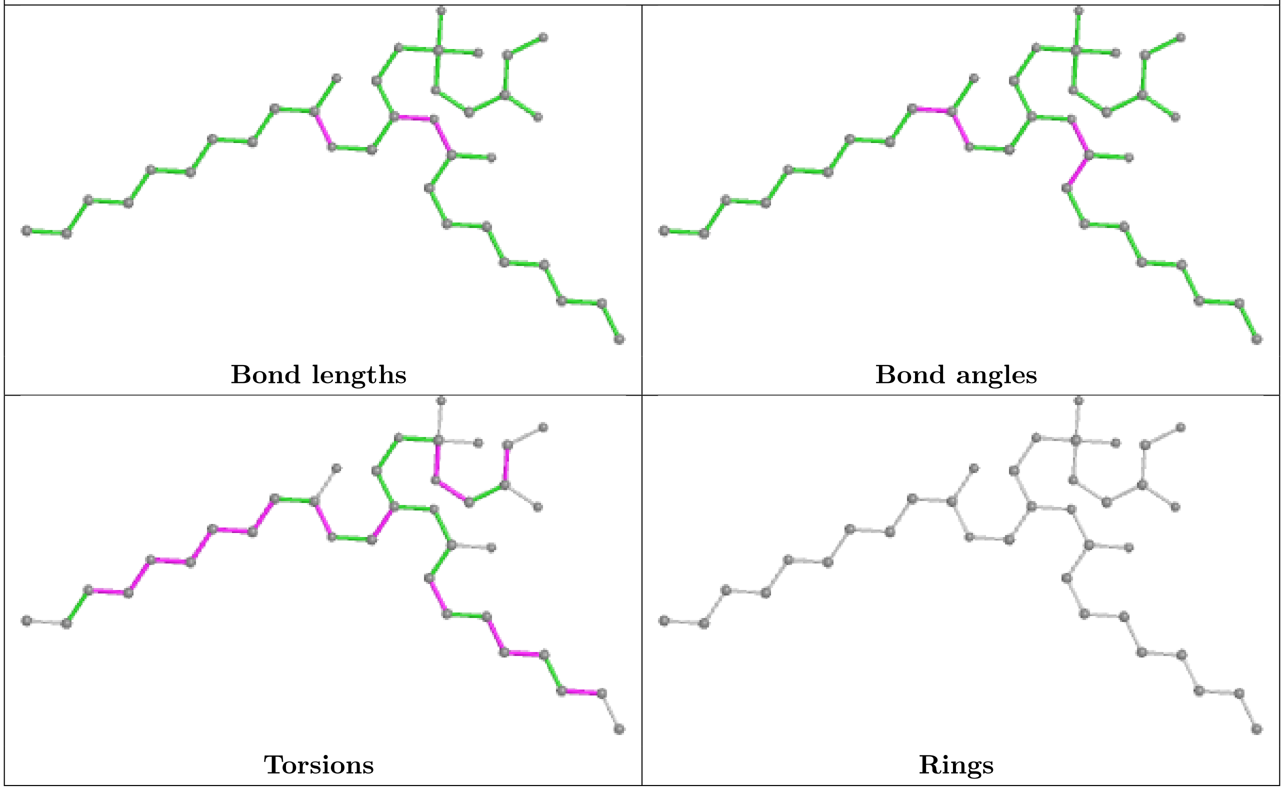
Bond lengths

Bond angles

Torsions

Rings

Ligand MW9 L 308



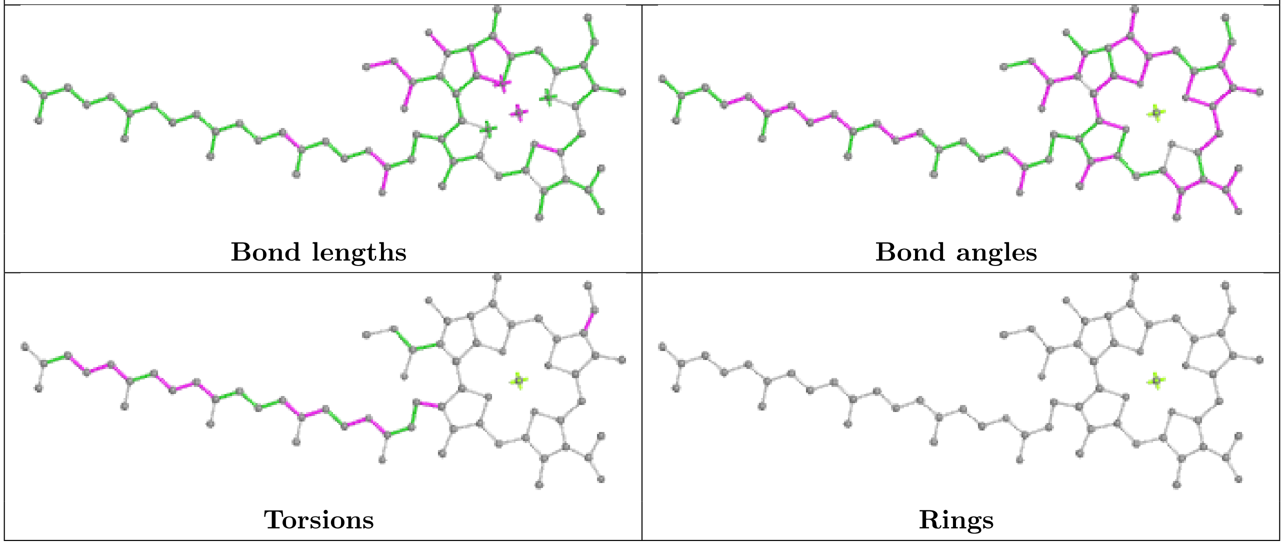
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL f 101



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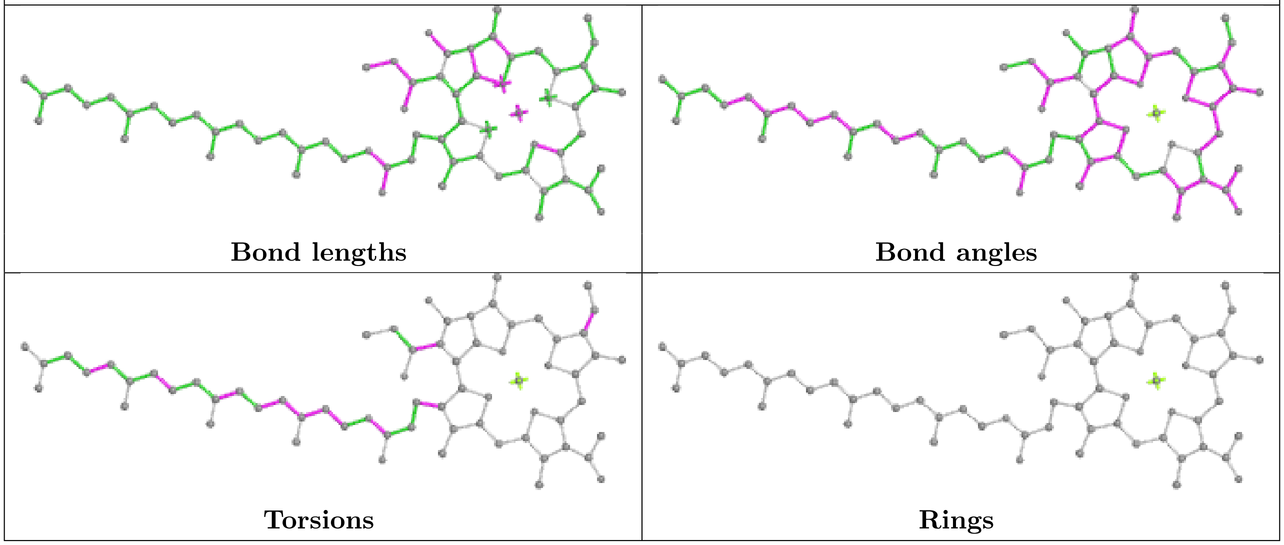

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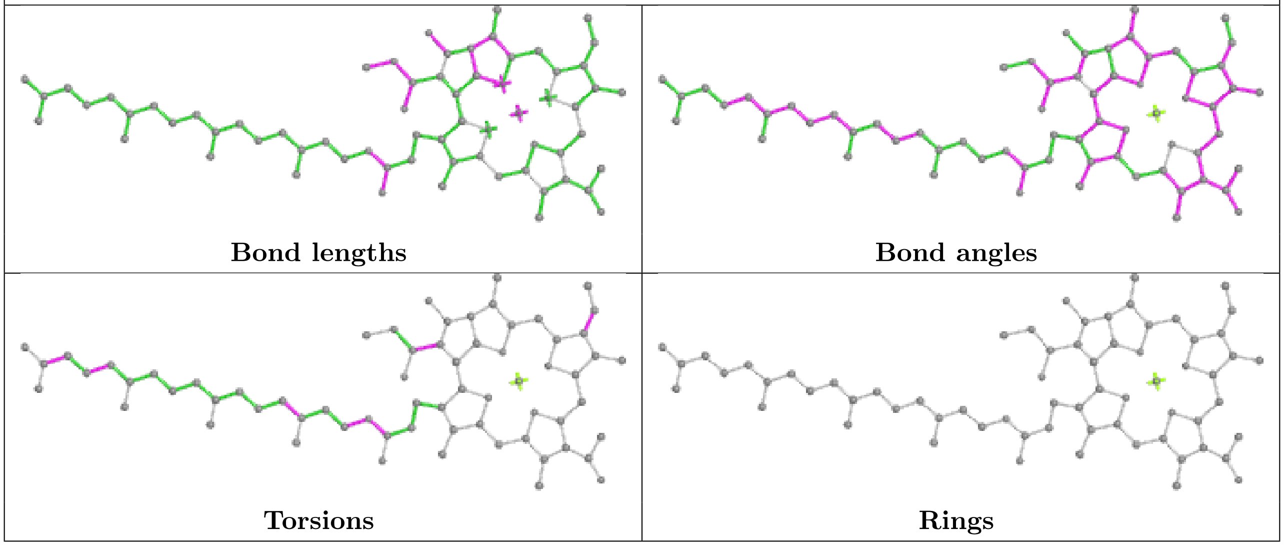
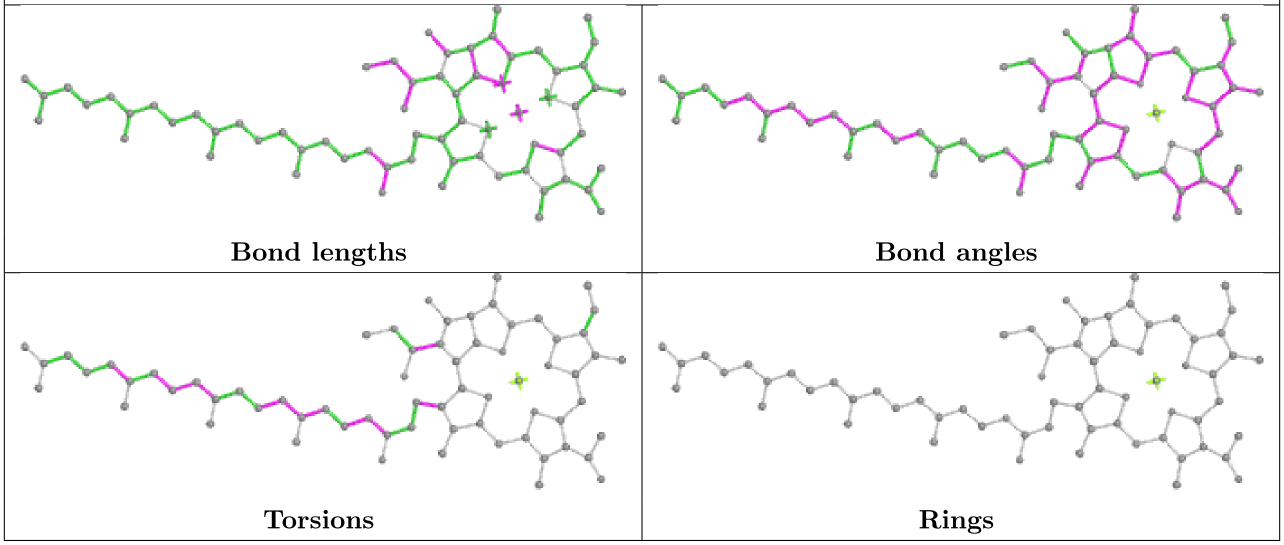


Ligand BCL a 102



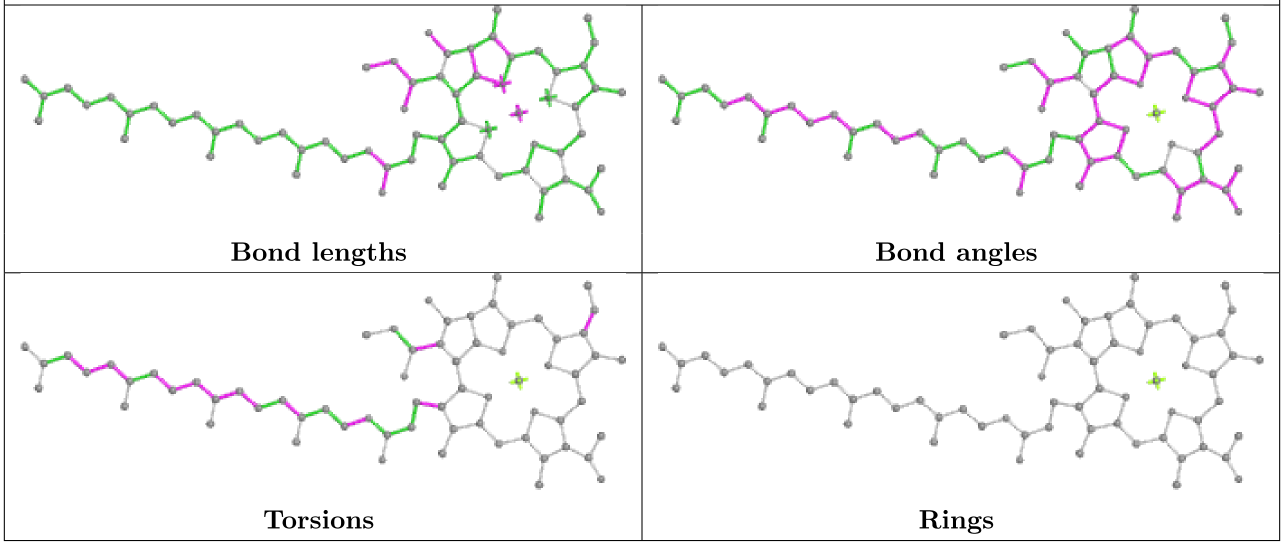
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL G 101



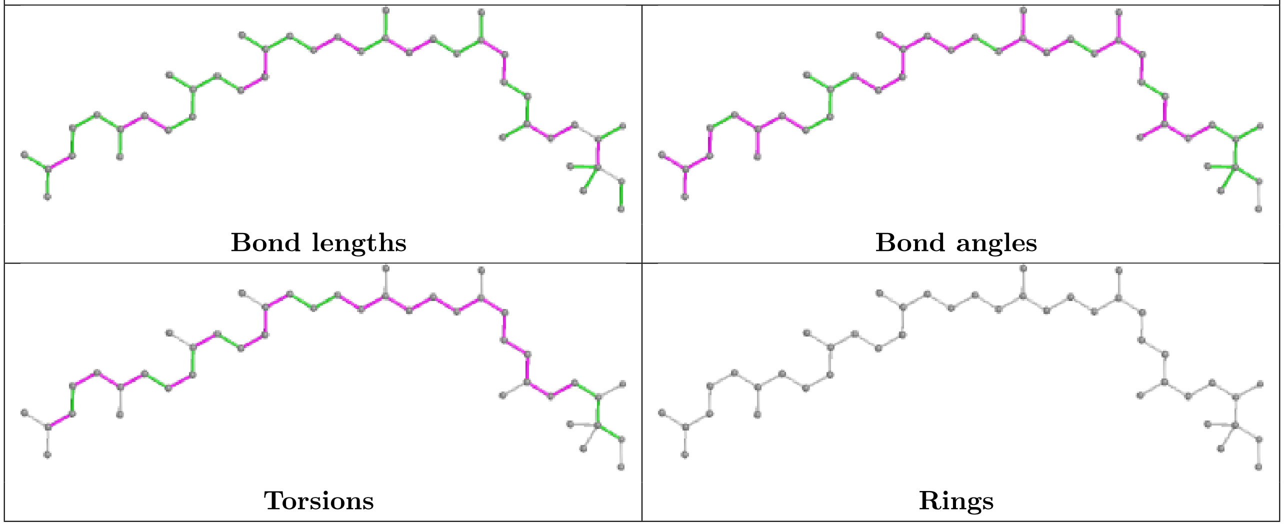
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN n 102



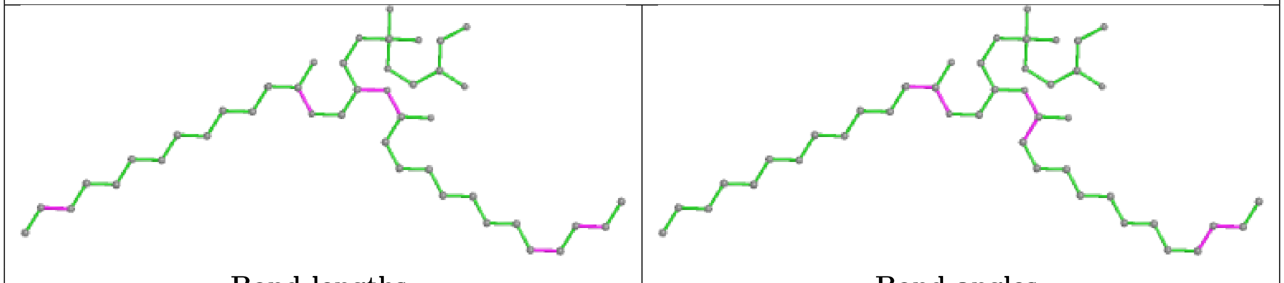
Bond lengths

Bond angles

Torsions

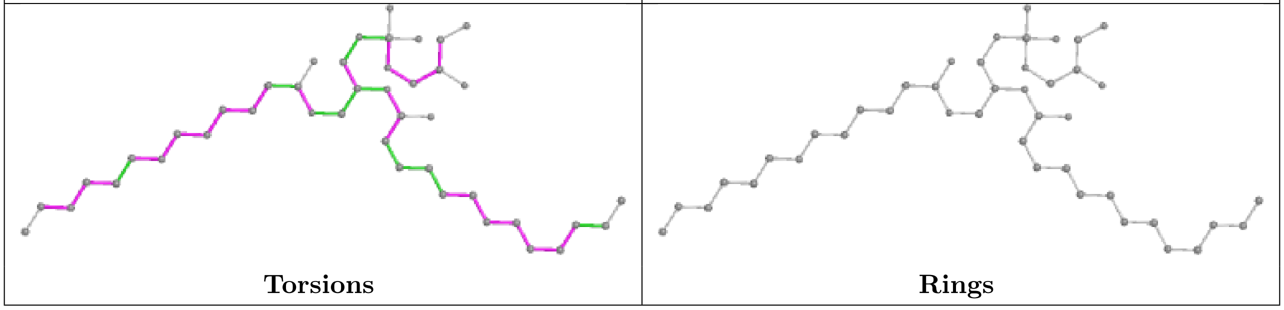
Rings

Ligand MW9 F 103



Bond lengths

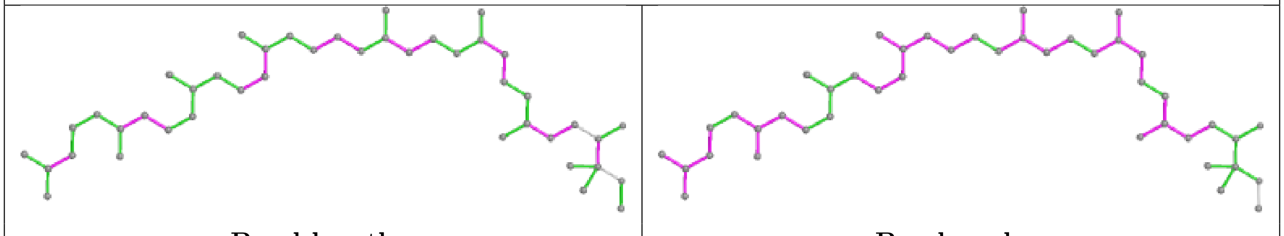
Bond angles



Torsions

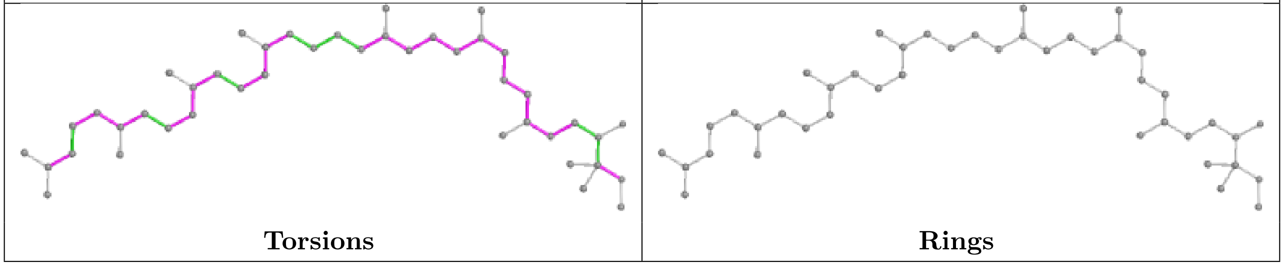
Rings

Ligand SPN r 101



Bond lengths

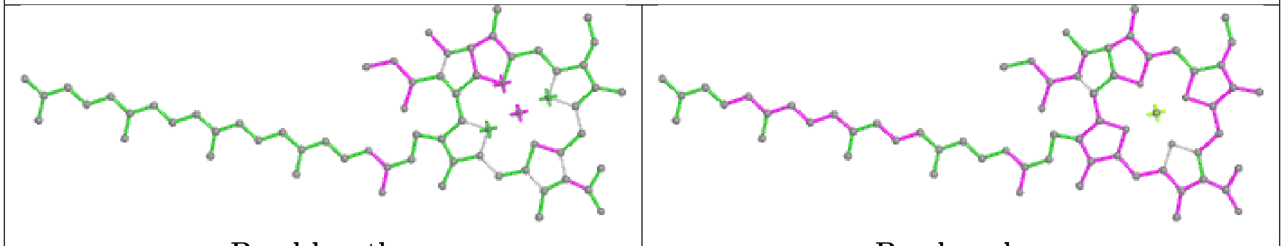
Bond angles



Torsions

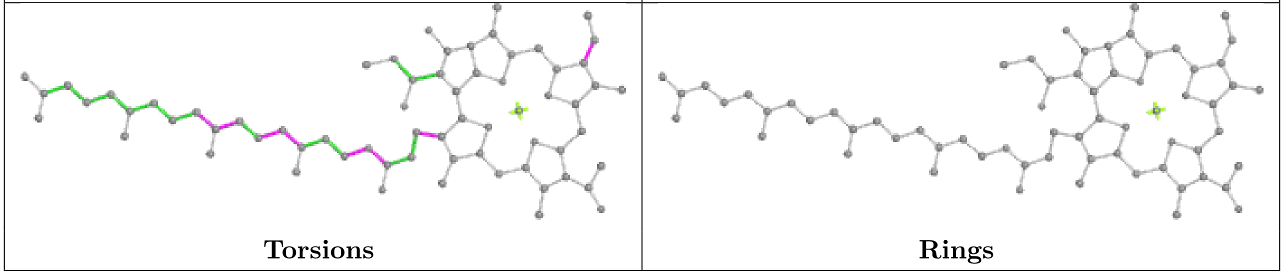
Rings

Ligand BCL L 301



Bond lengths

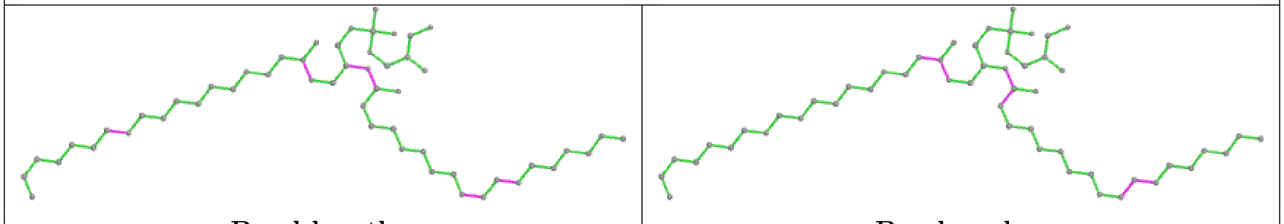
Bond angles



Torsions

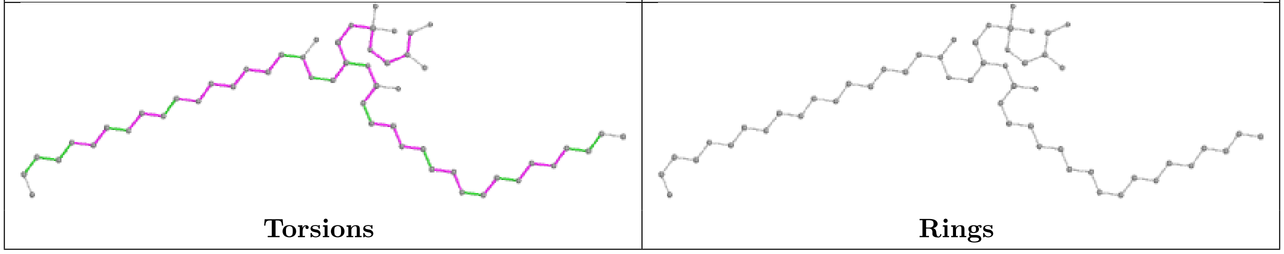
Rings

Ligand MW9 M 408



Bond lengths

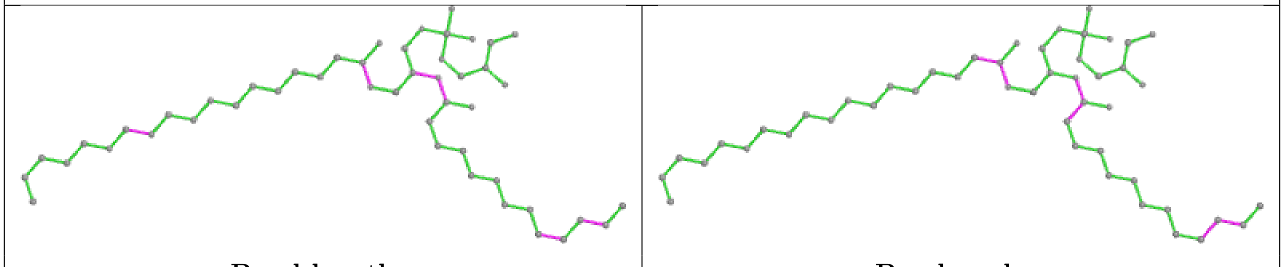
Bond angles



Torsions

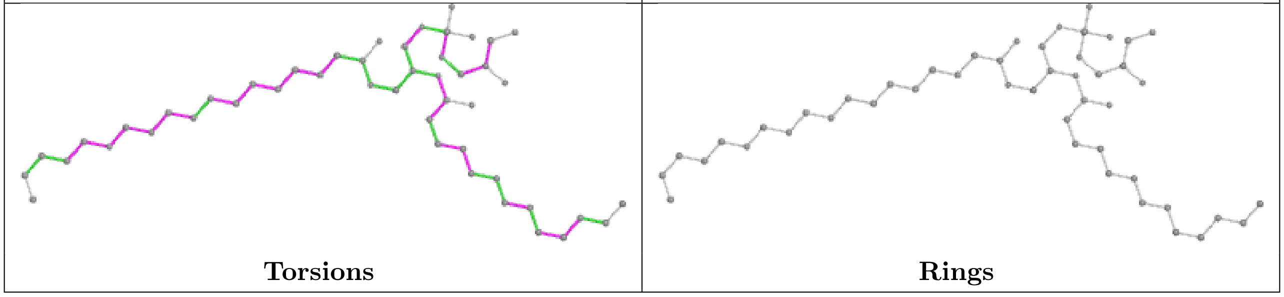
Rings

Ligand MW9 F 104



Bond lengths

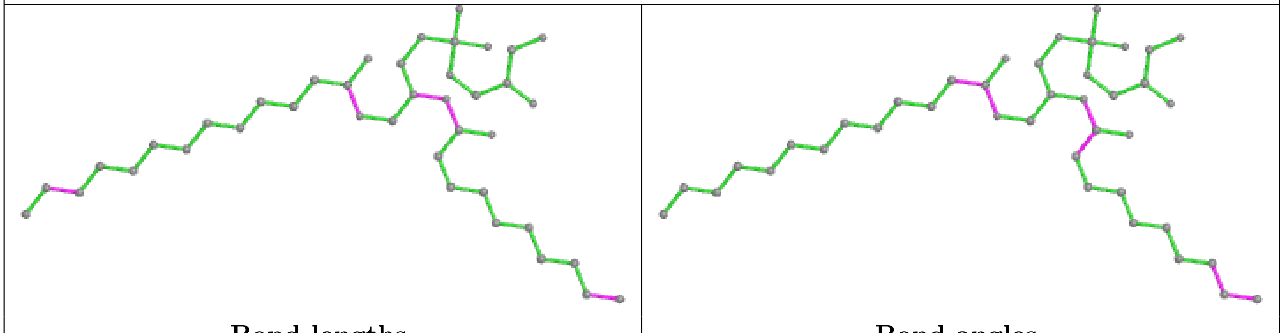
Bond angles



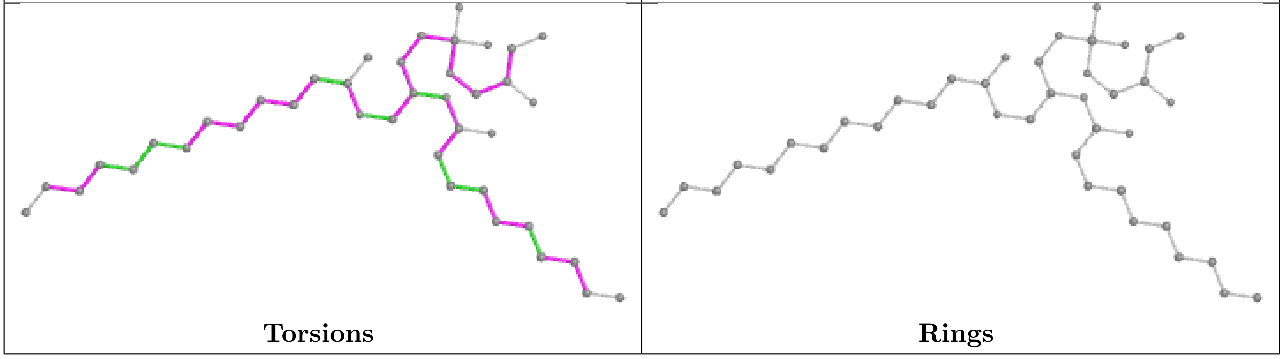
Torsions

Rings

Ligand MW9 I 103

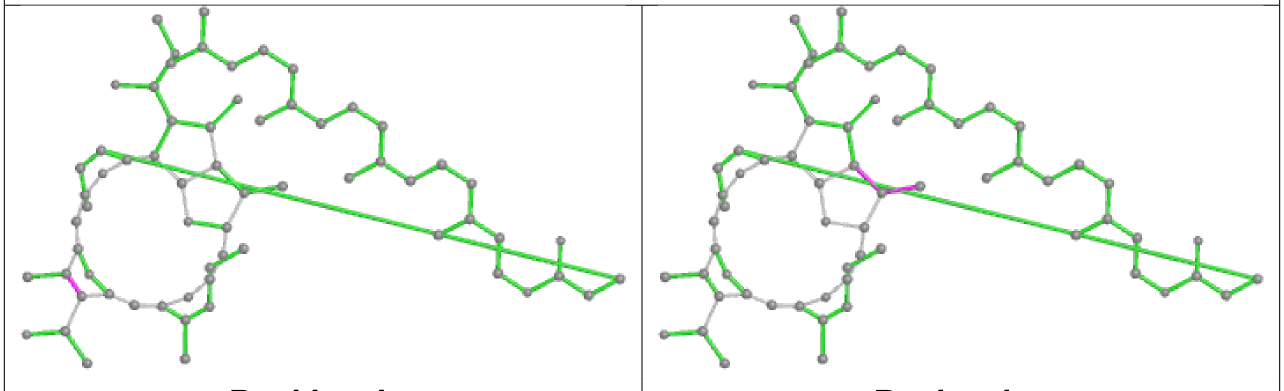


Bond lengths Bond angles

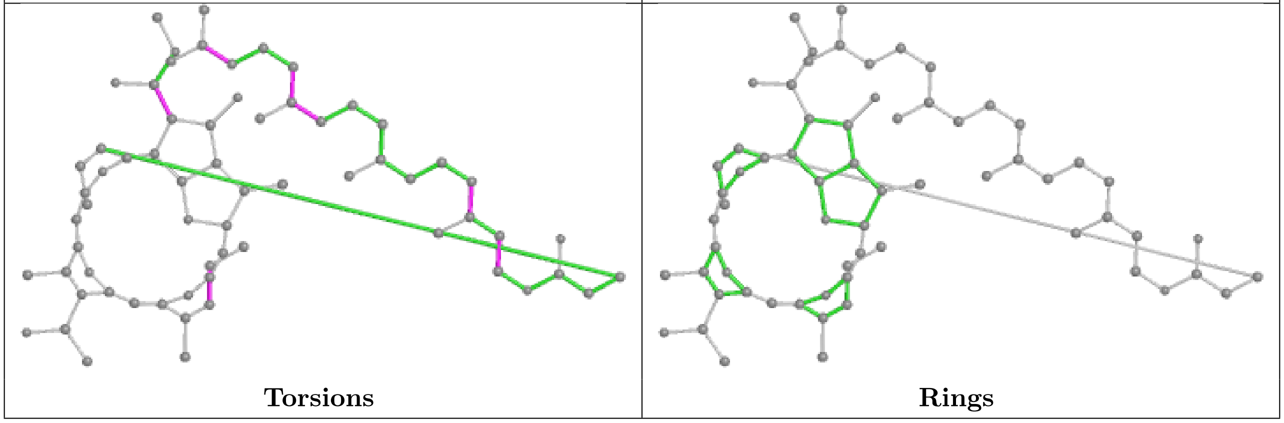


Torsions Rings

Ligand BPH L 302

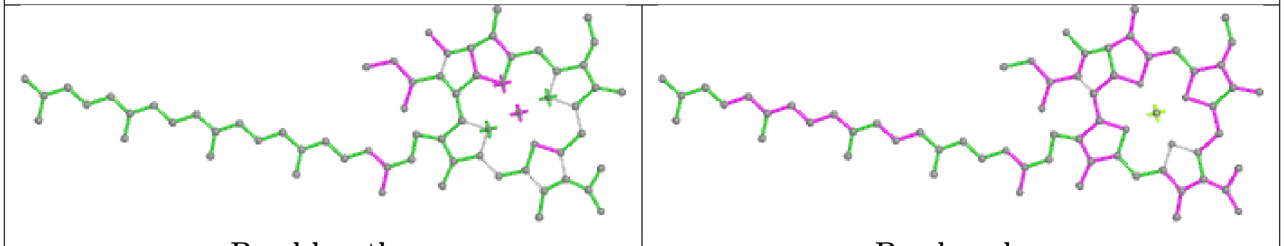


Bond lengths Bond angles



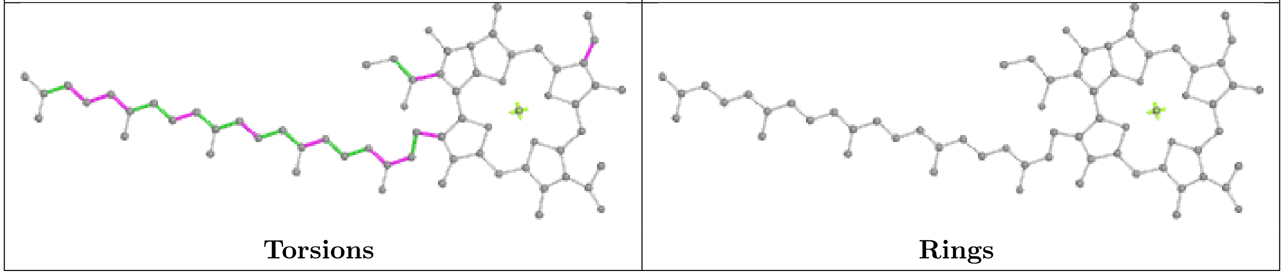
Torsions Rings

Ligand BCL j 101



Bond lengths

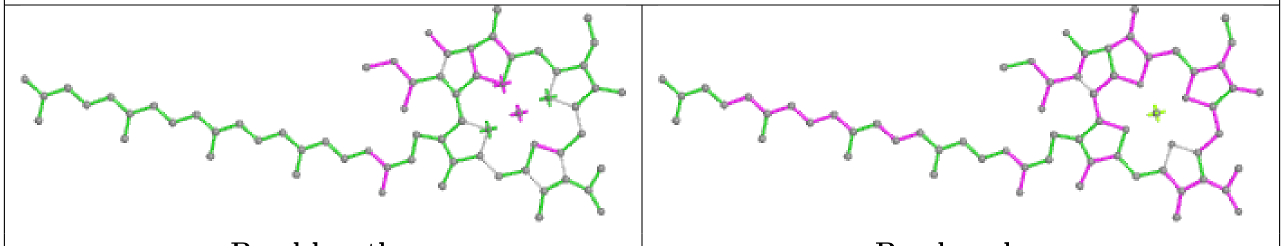
Bond angles



Torsions

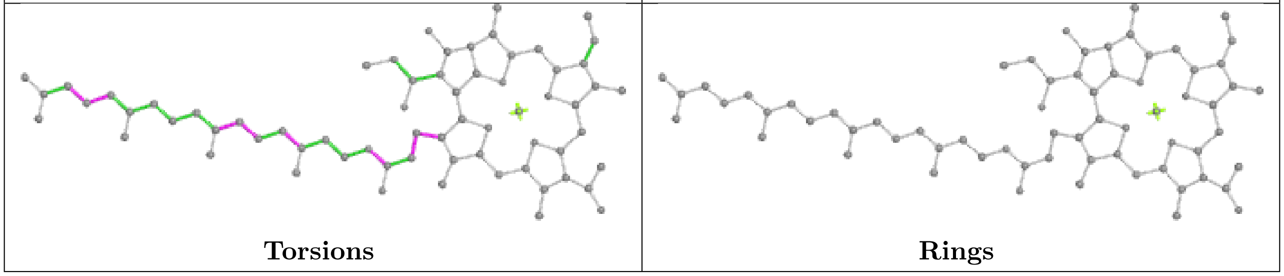
Rings

Ligand BCL T 101



Bond lengths

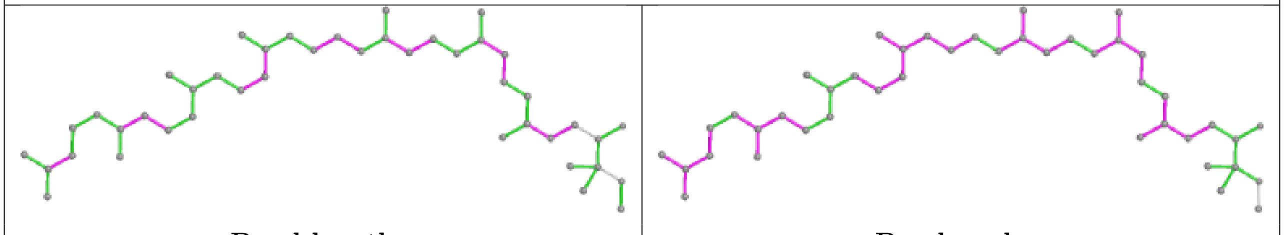
Bond angles



Torsions

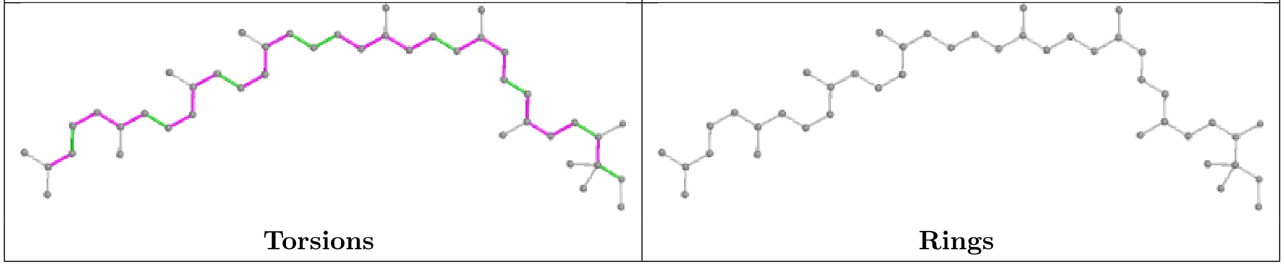
Rings

Ligand SPN M 404



Bond lengths

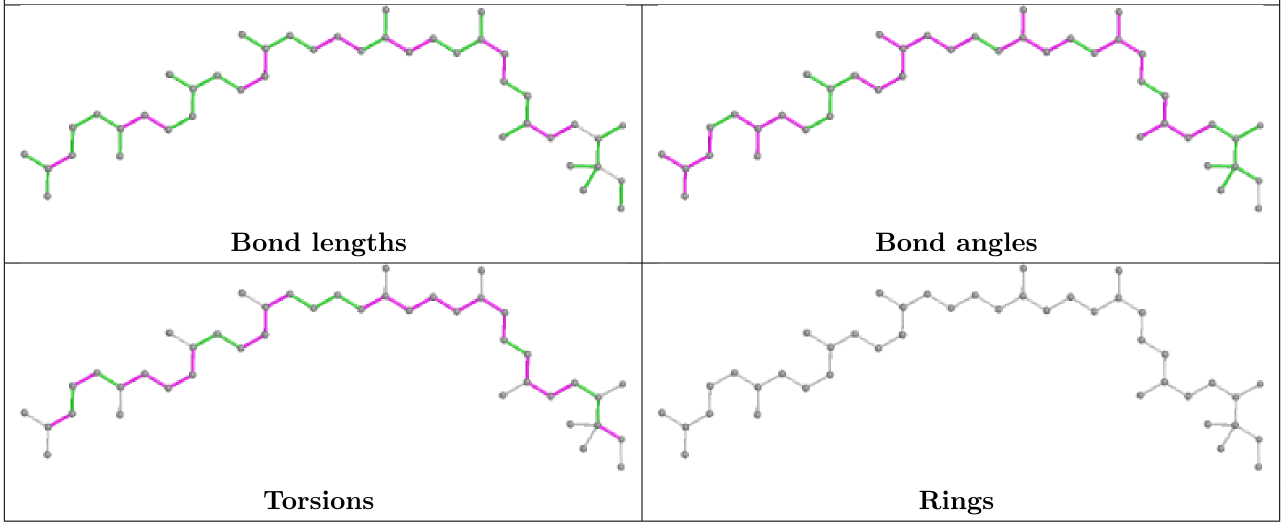
Bond angles



Torsions

Rings

Ligand SPN p 102



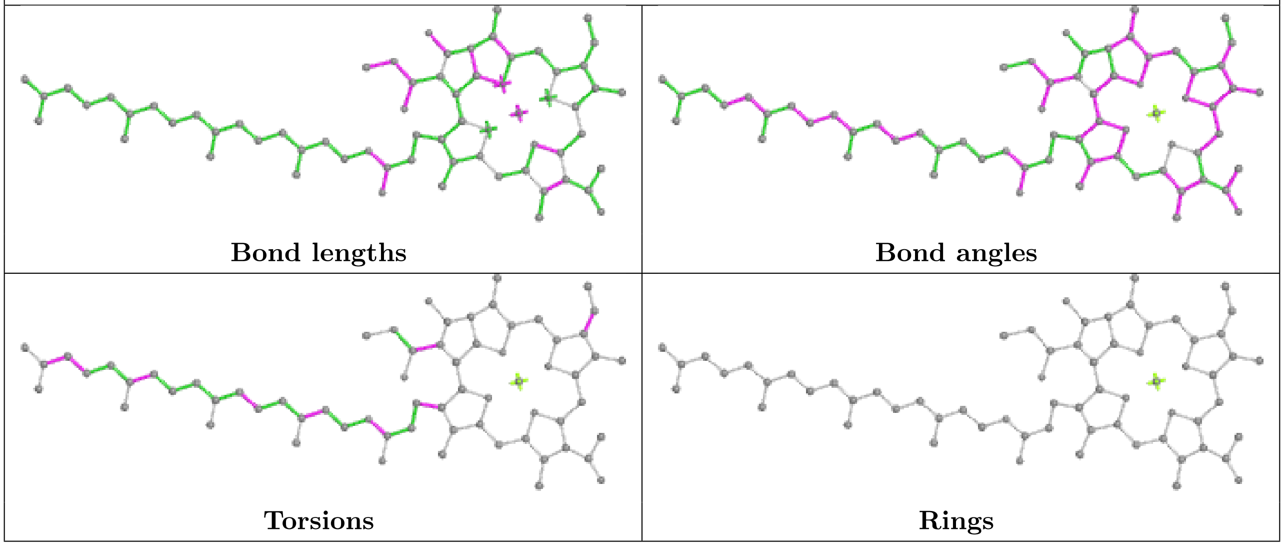
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL p 103



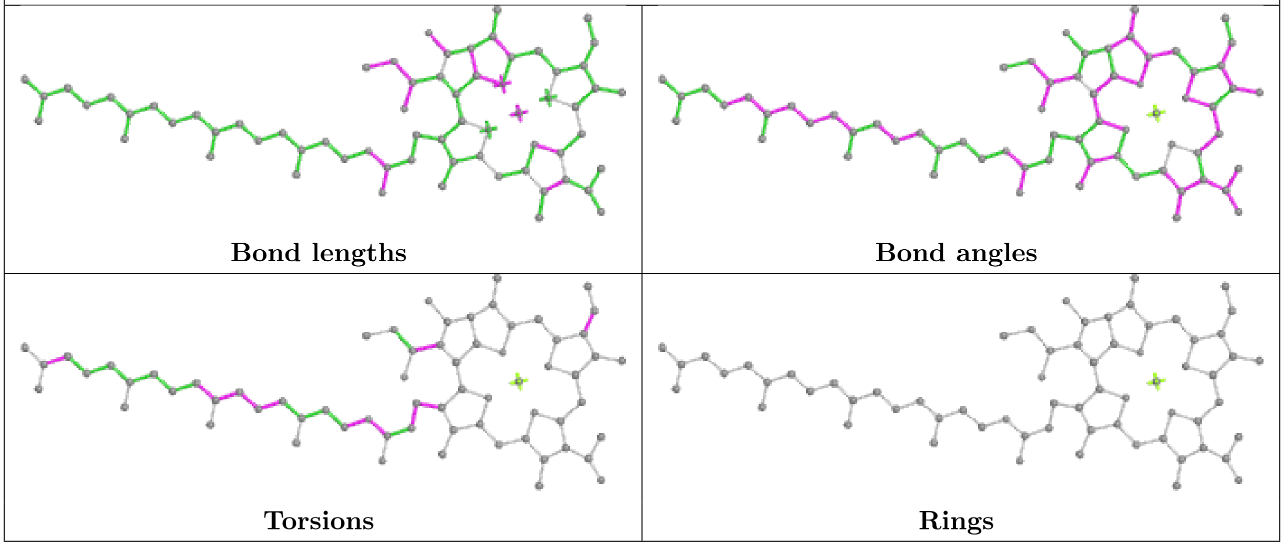
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL M 402



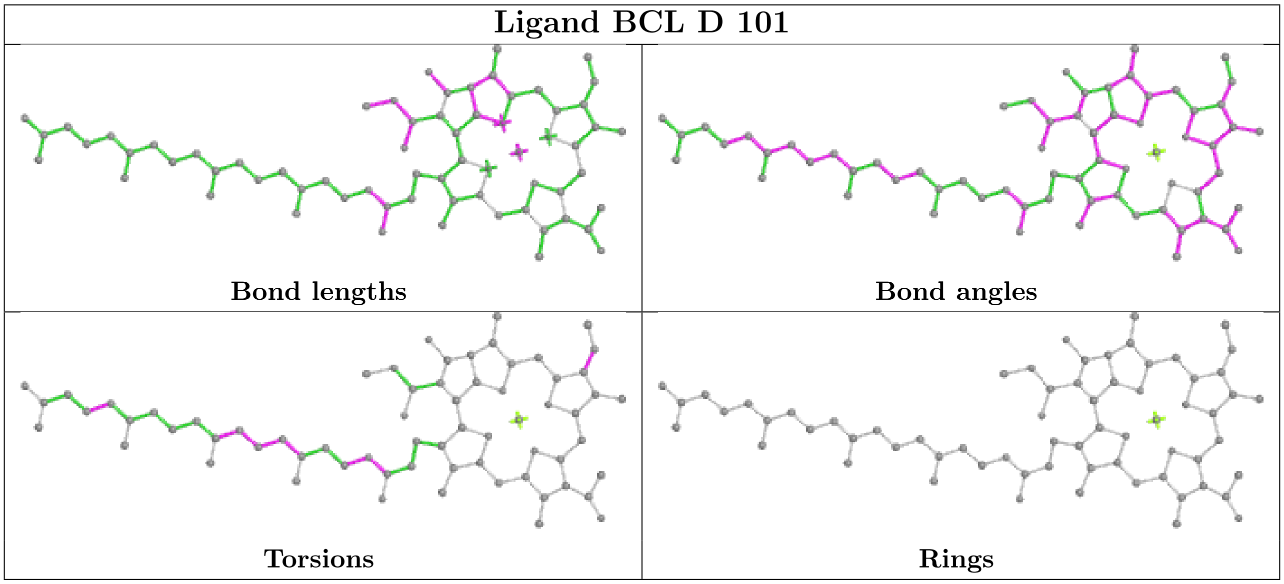
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL D 101



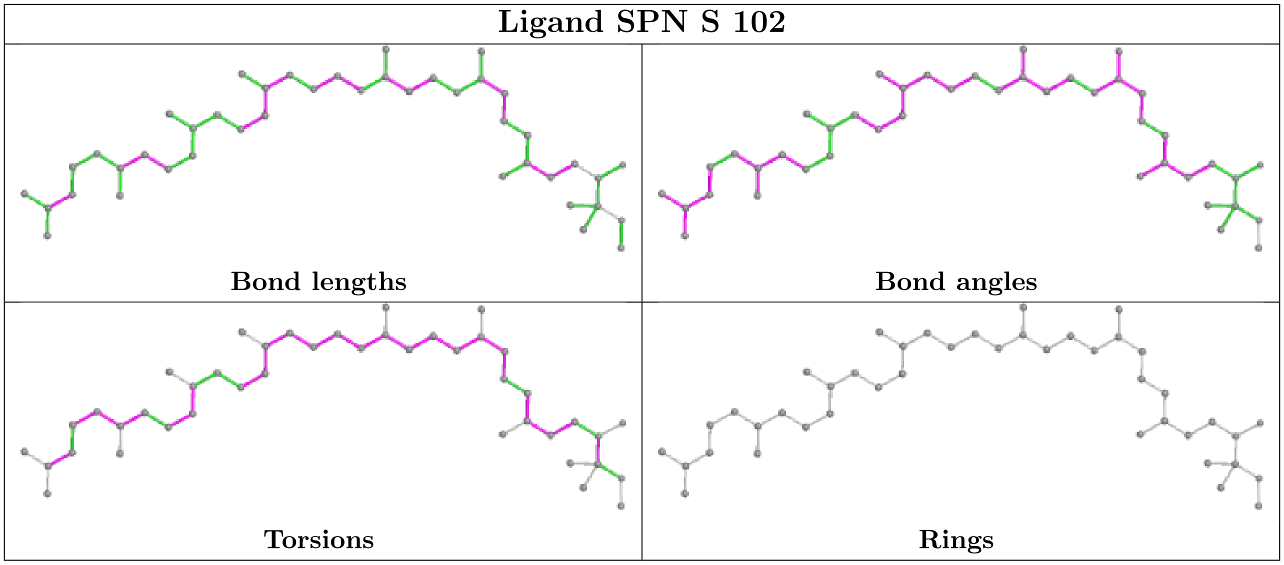
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN S 102



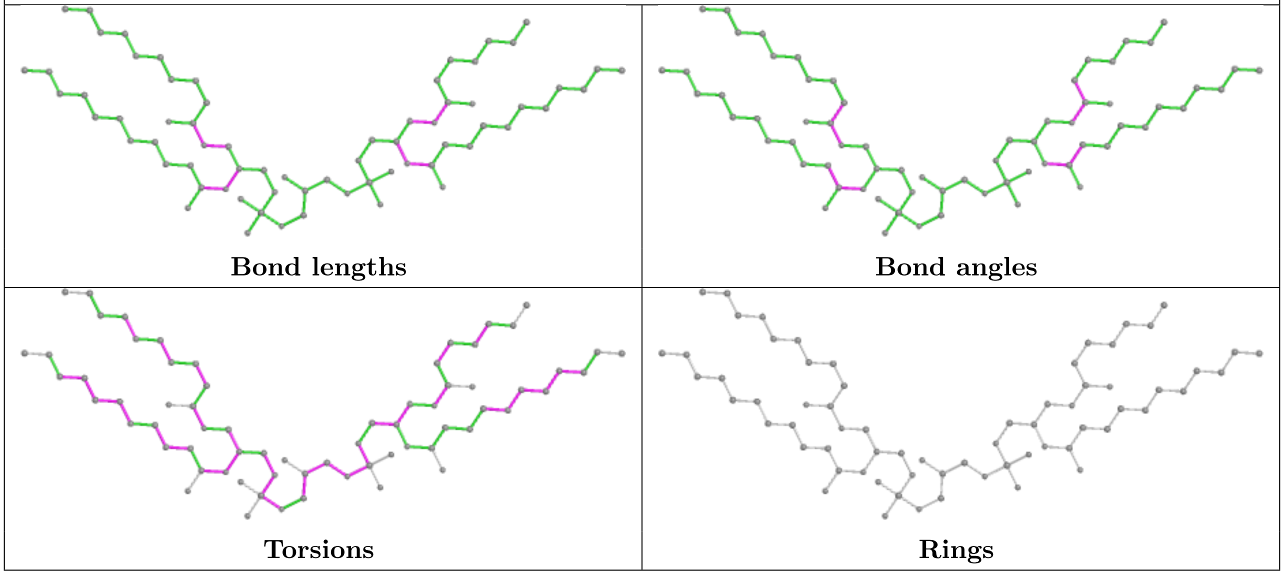
Bond lengths

Bond angles

Torsions

Rings

Ligand CDL H 304



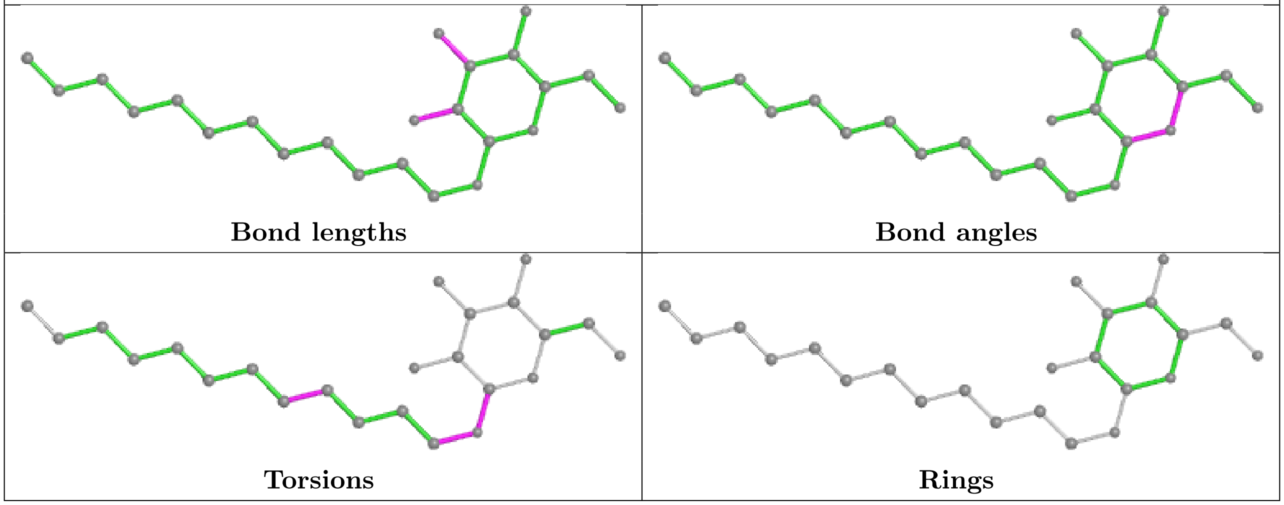
Bond lengths

Bond angles

Torsions

Rings

Ligand LMT C 404



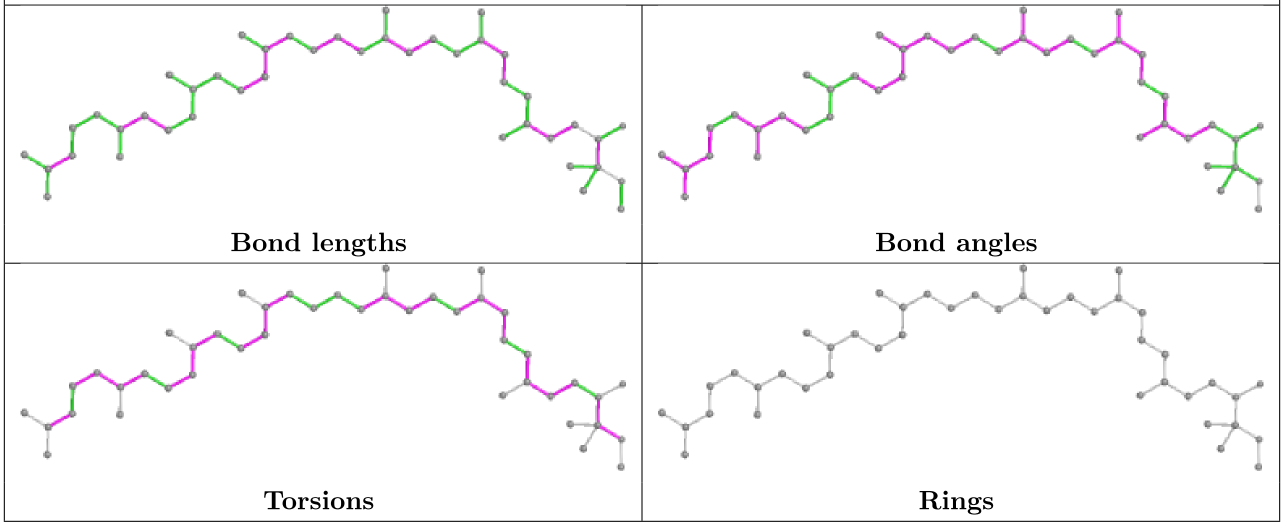
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN a 103



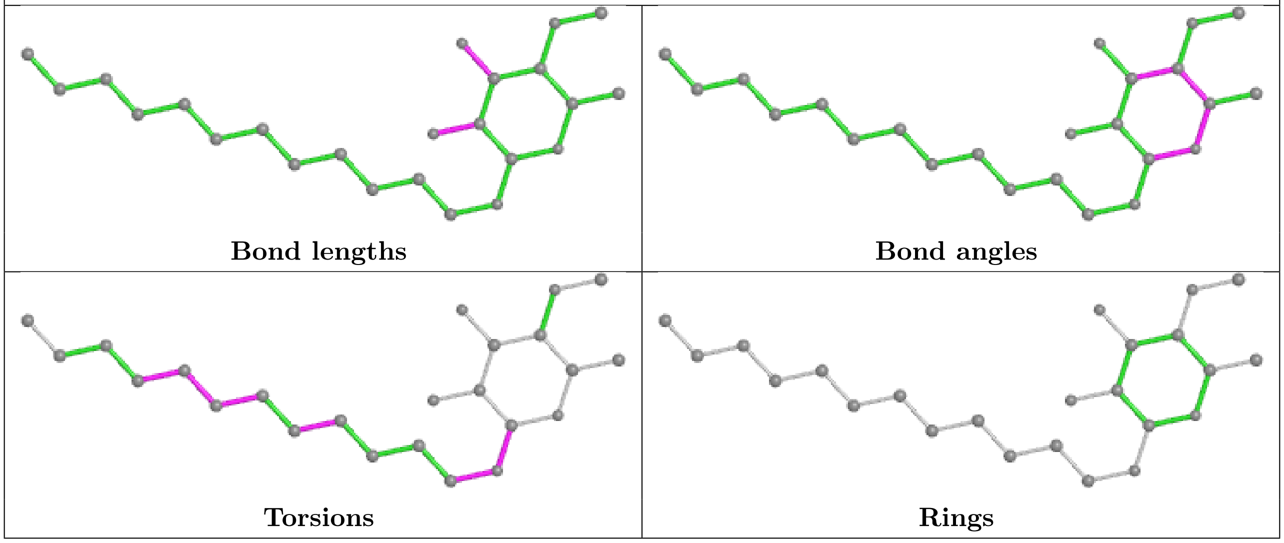
Bond lengths

Bond angles

Torsions

Rings

Ligand LMT L 306



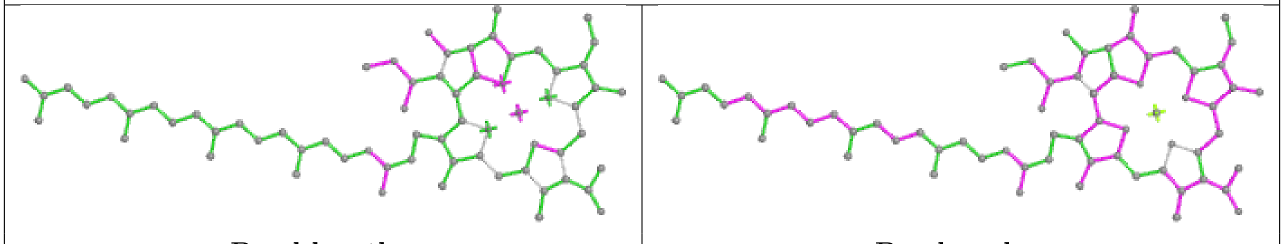
Bond lengths

Bond angles

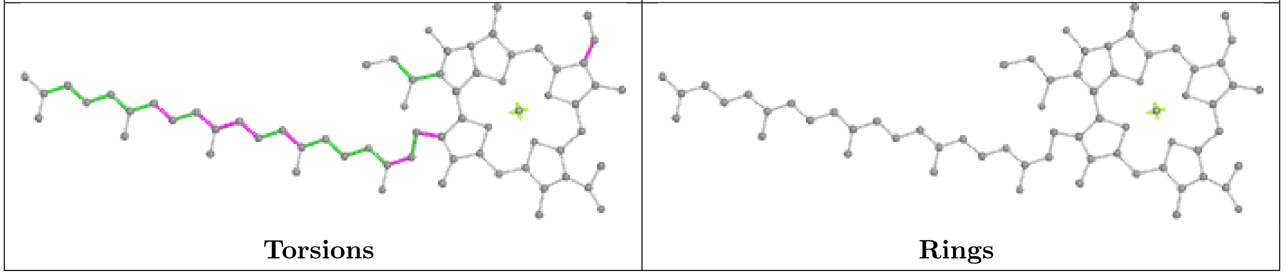
Torsions

Rings

Ligand BCL k 102

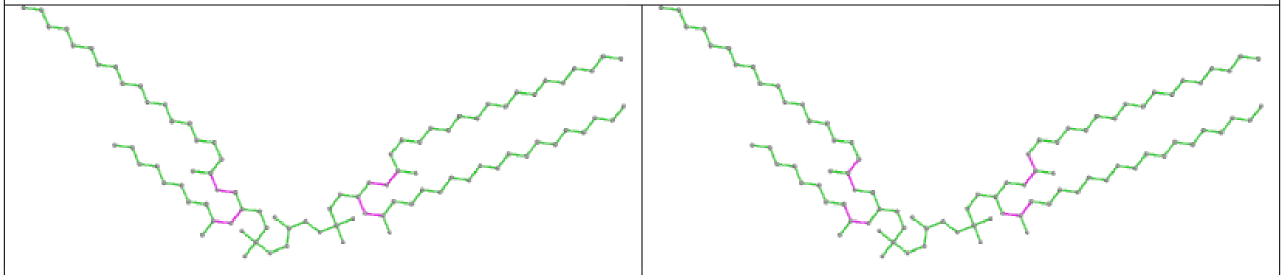


Bond lengths   Bond angles

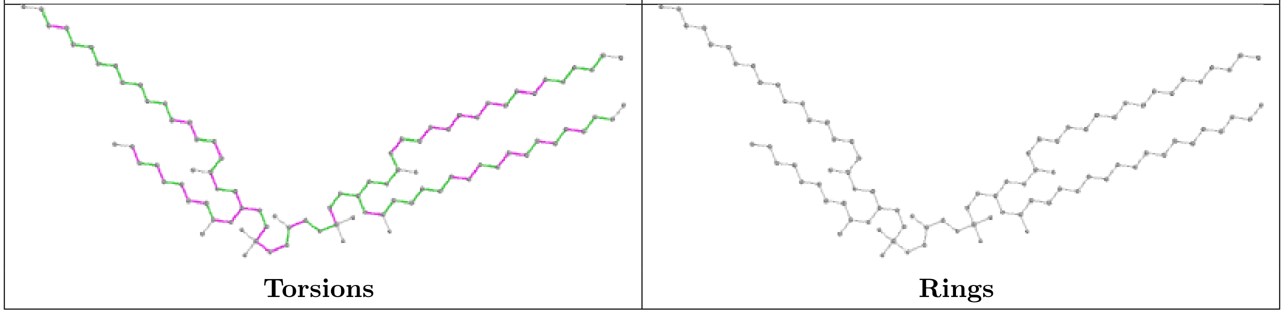


Torsions   Rings

Ligand CDL H 303

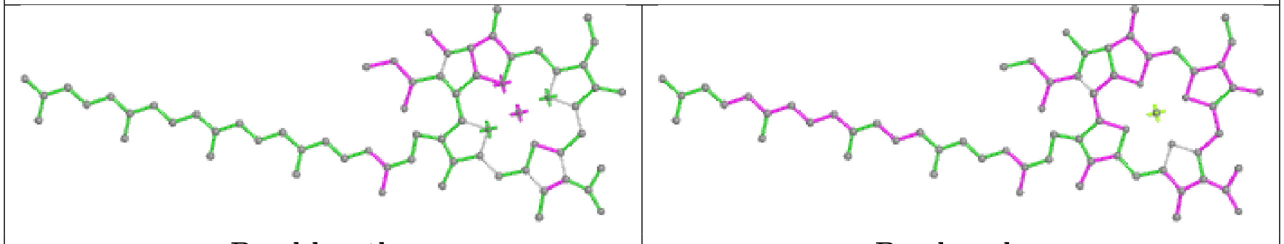


Bond lengths   Bond angles

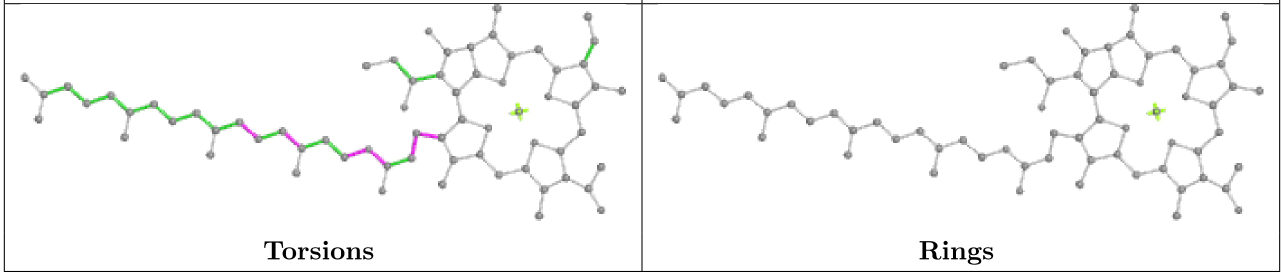


Torsions   Rings

Ligand BCL K 101

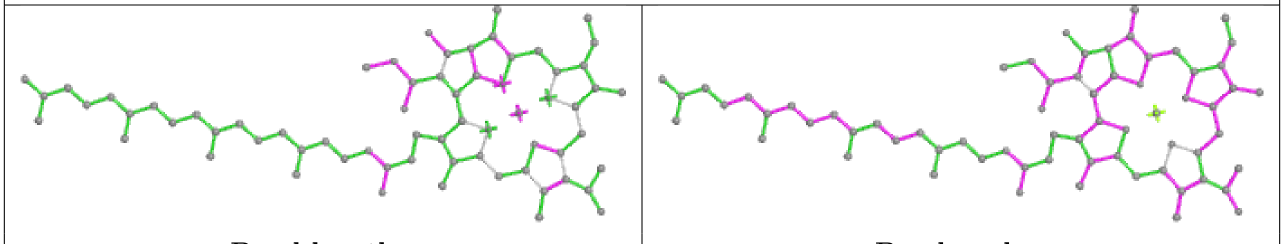


Bond lengths **Bond angles**

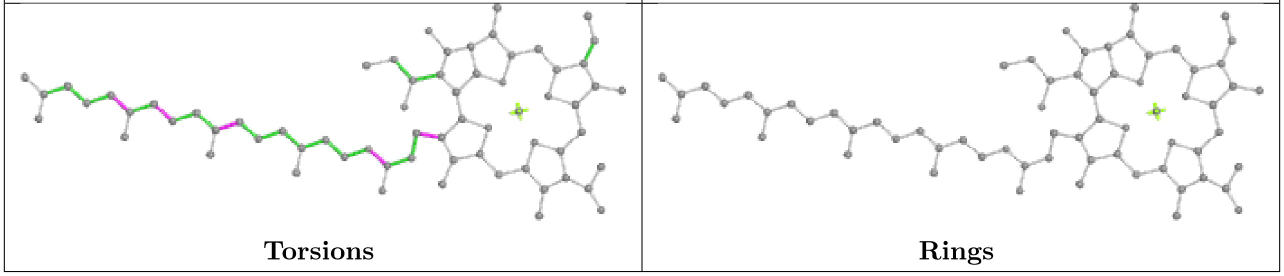


Torsions **Rings**

Ligand BCL n 101

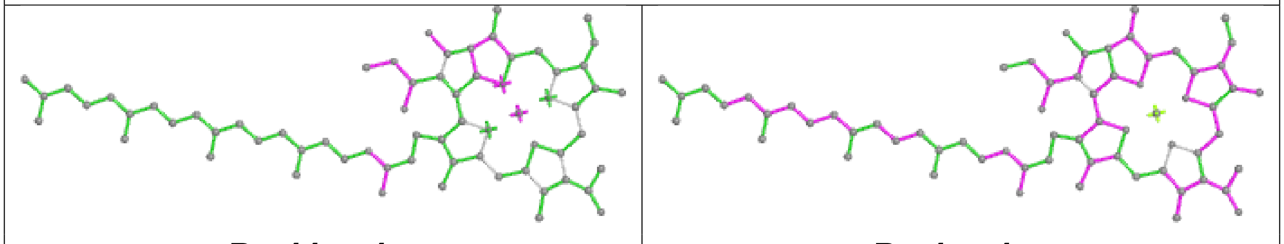


Bond lengths **Bond angles**

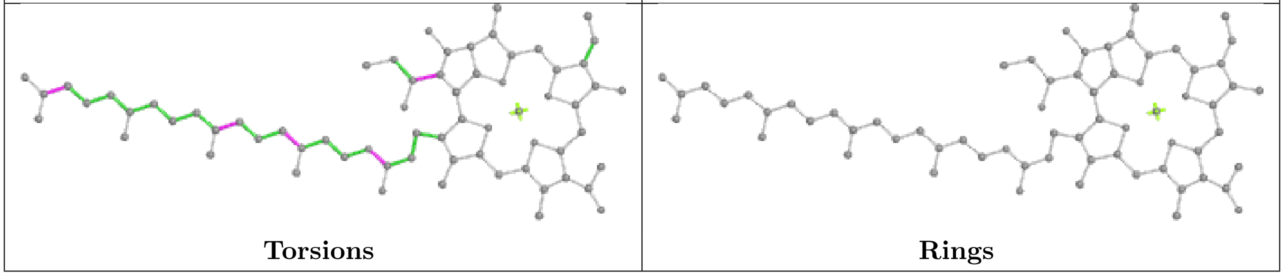


Torsions **Rings**

Ligand BCL F 101

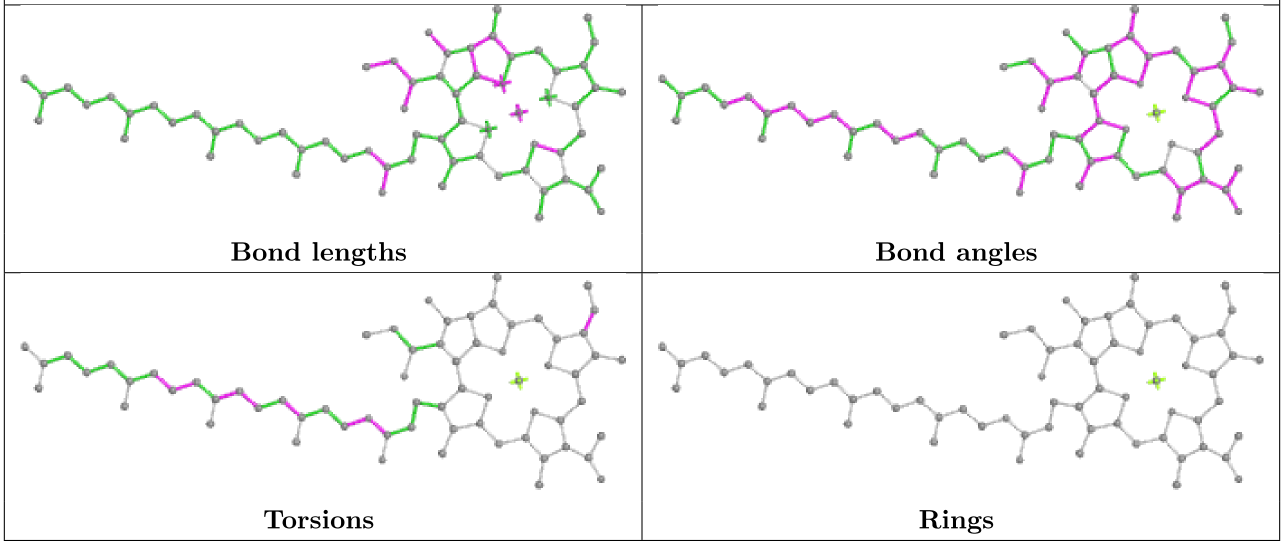


Bond lengths **Bond angles**

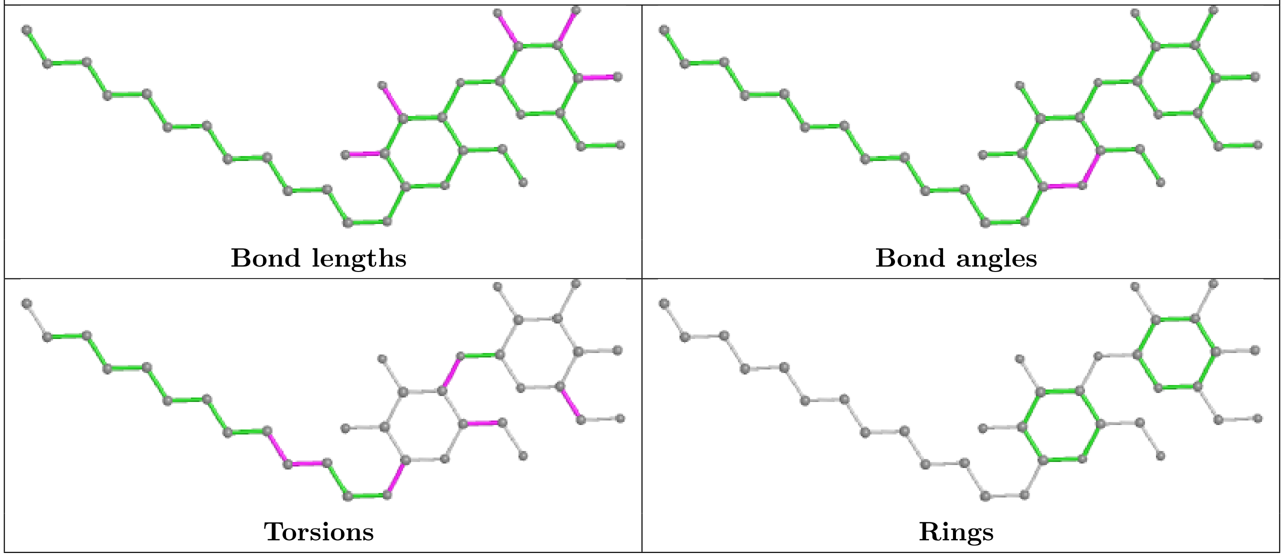


Torsions **Rings**

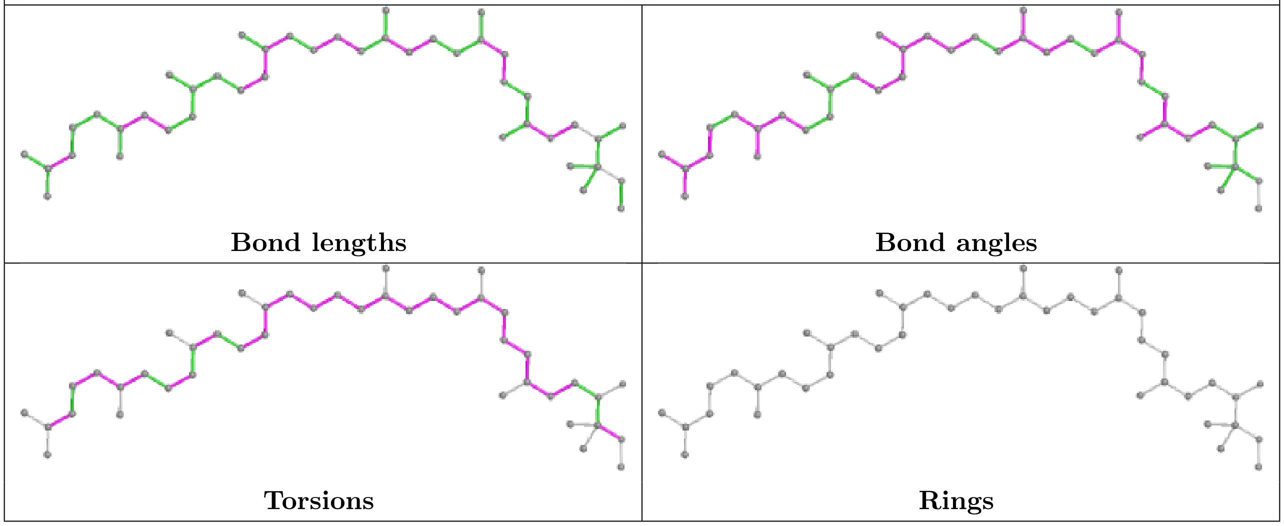
Ligand BCL J 101


Bond lengths
Bond angles
Torsions
Rings

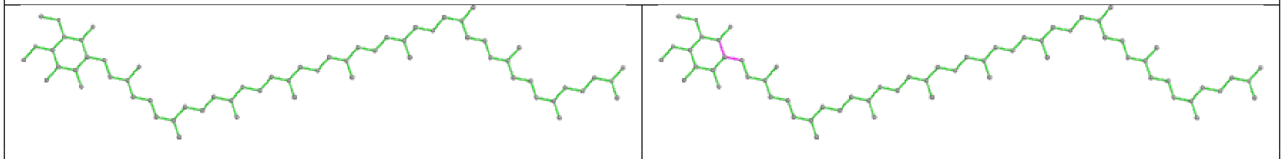
Ligand LMT E 103


Bond lengths
Bond angles
Torsions
Rings

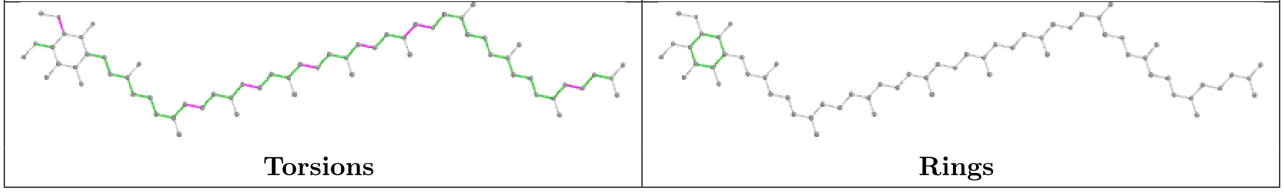
Ligand SPN R 102


Bond lengths
Bond angles
Torsions
Rings

Ligand U10 M 406

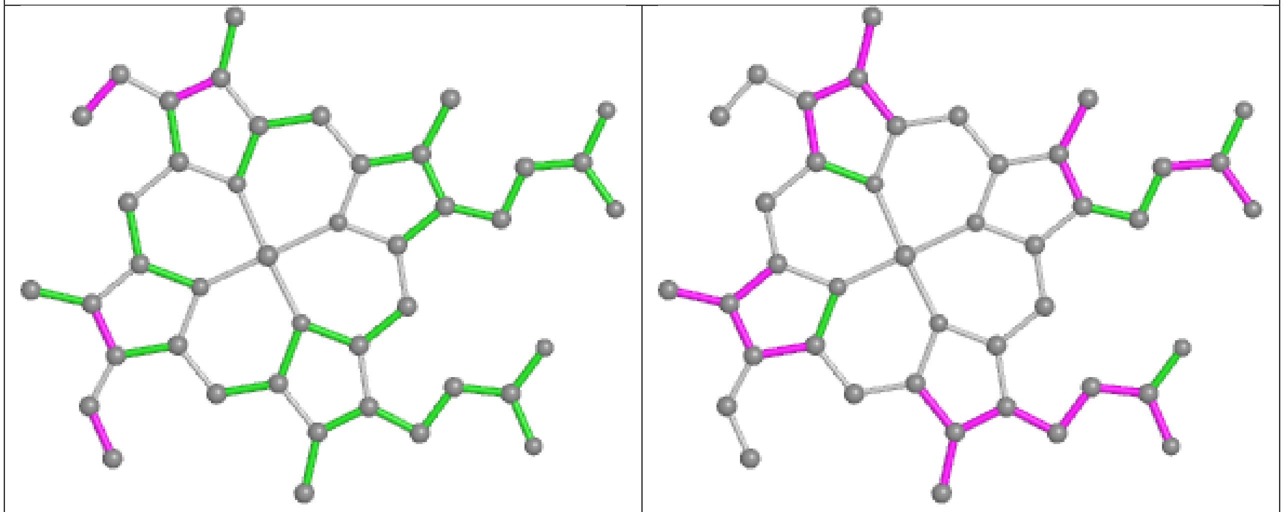


Bond lengths Bond angles

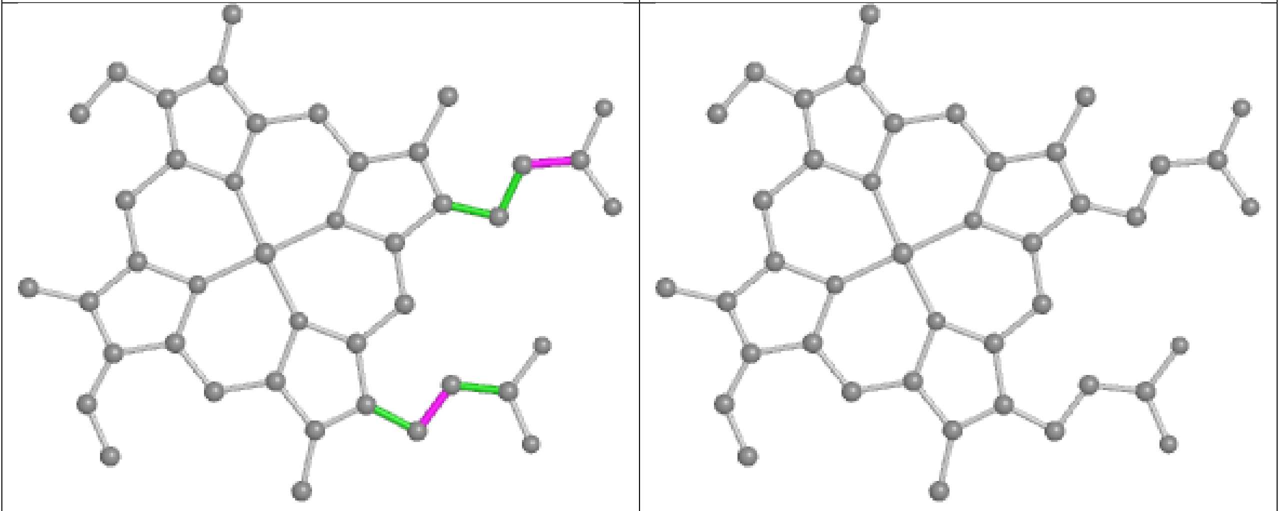


Torsions Rings

Ligand HEC C 401

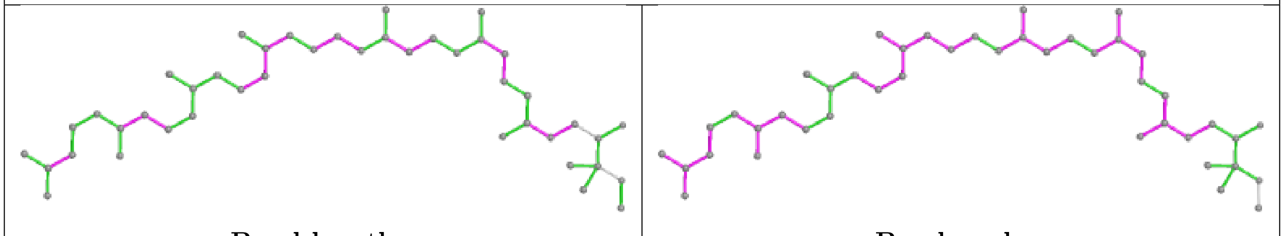


Bond lengths Bond angles



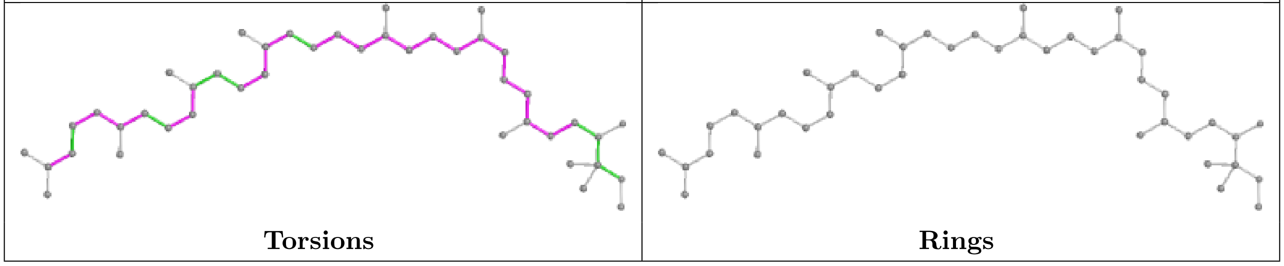
Torsions Rings

Ligand SPN F 102



Bond lengths

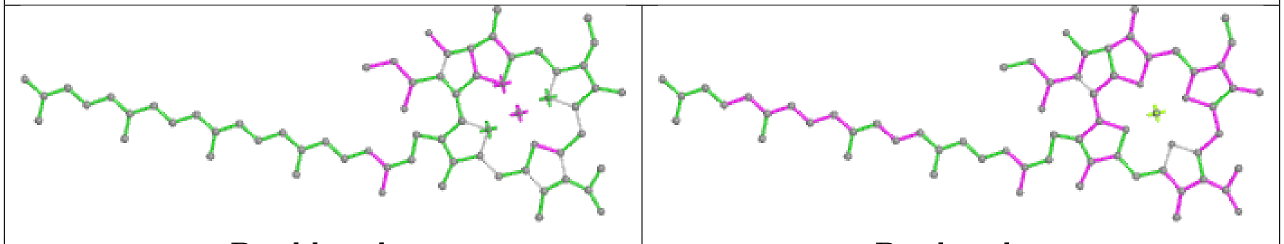
Bond angles



Torsions

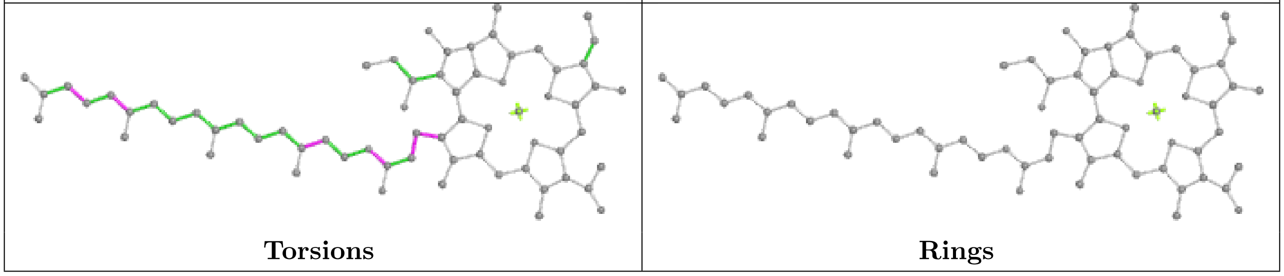
Rings

Ligand BCL R 103



Bond lengths

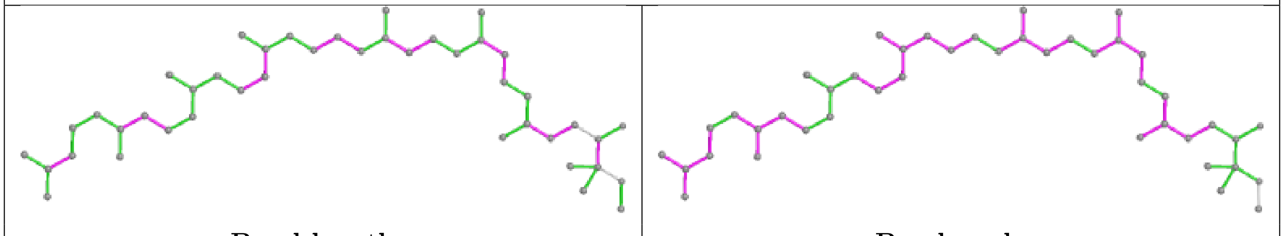
Bond angles



Torsions

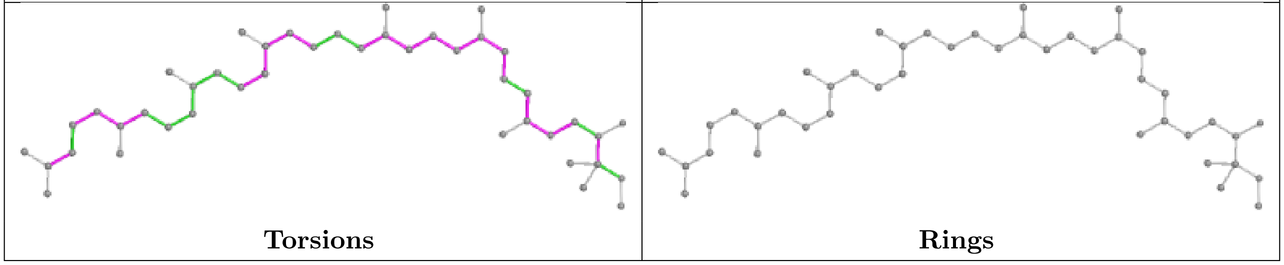
Rings

Ligand SPN i 103



Bond lengths

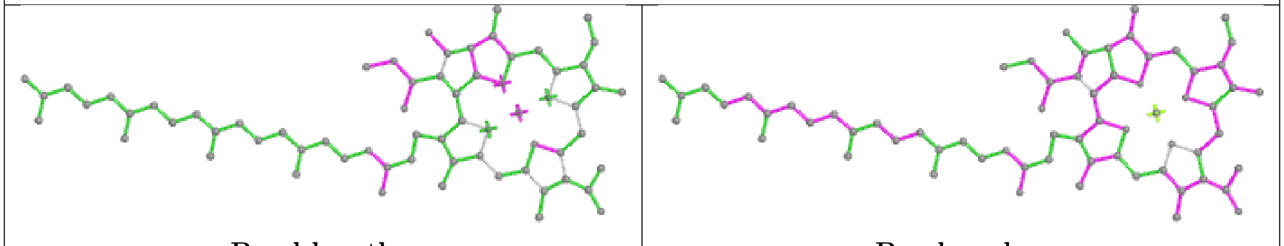
Bond angles



Torsions

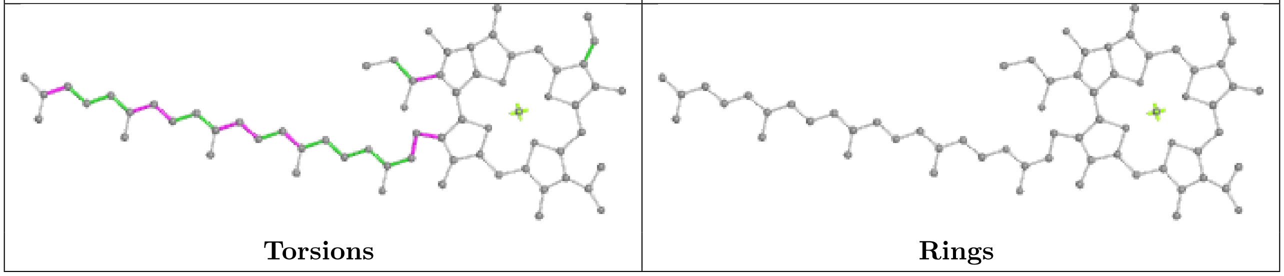
Rings

Ligand BCL G 102



Bond lengths

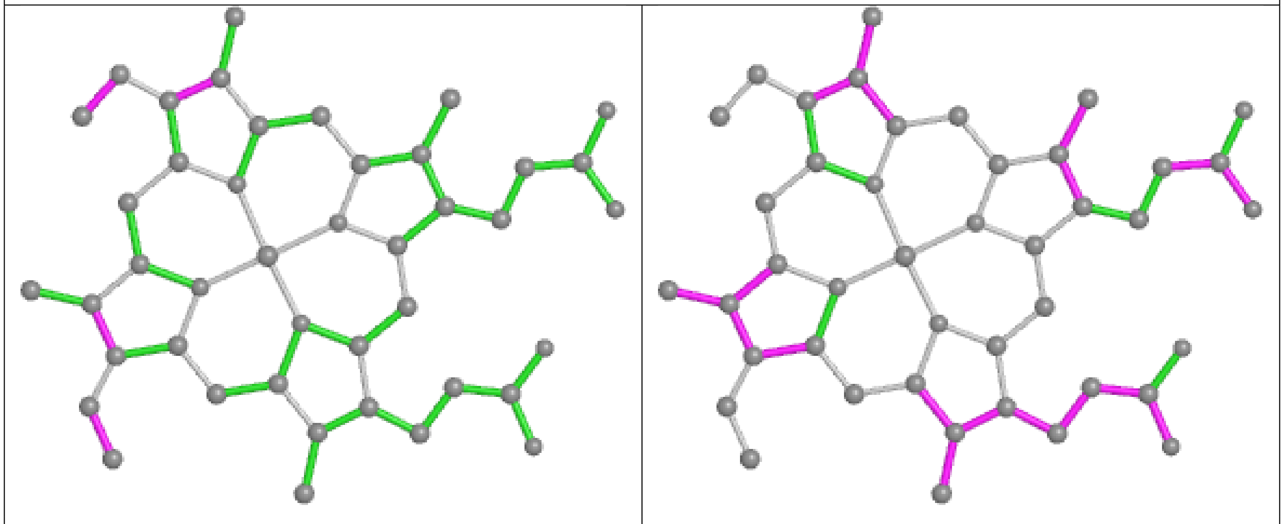
Bond angles



Torsions

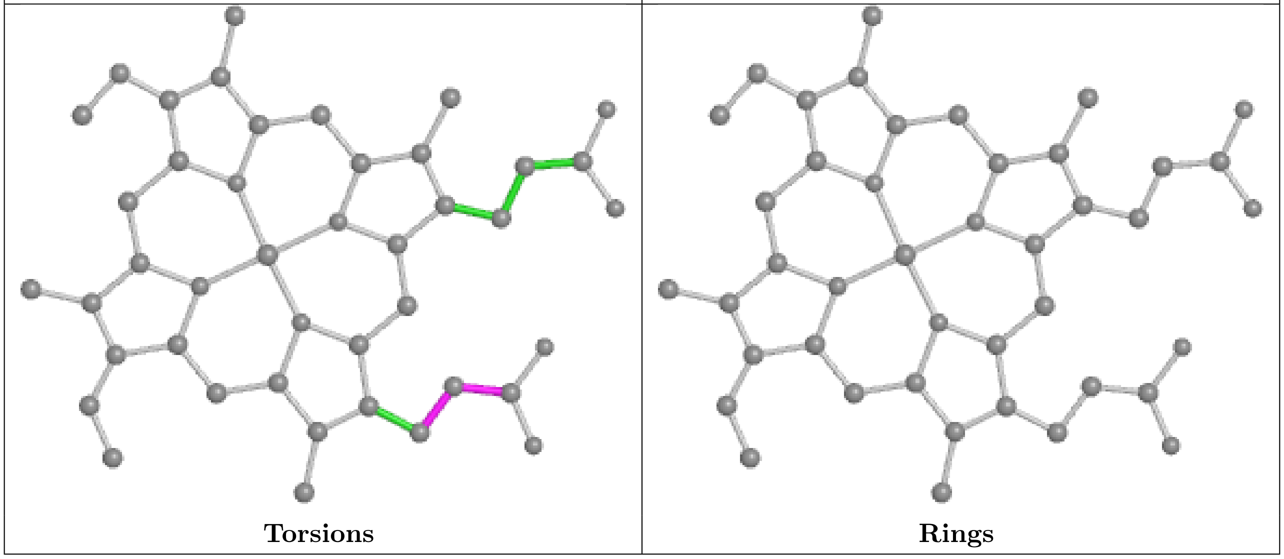
Rings

Ligand HEC C 403



Bond lengths

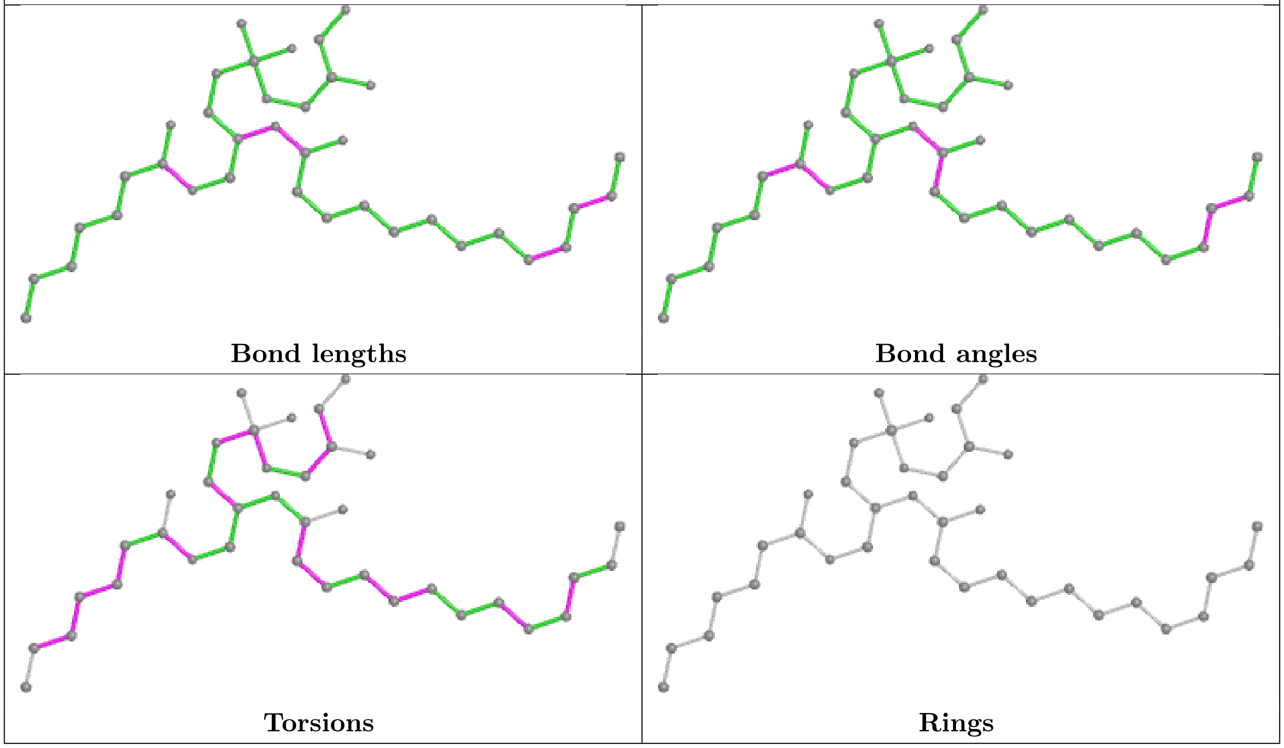
Bond angles



Torsions

Rings

Ligand MW9 L 307



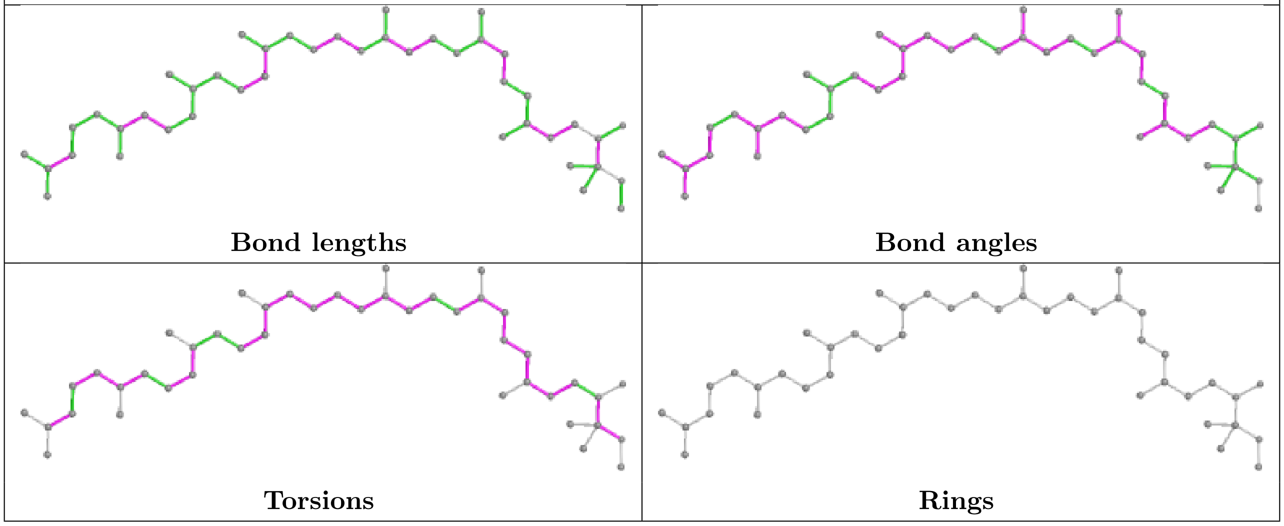
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN e 102



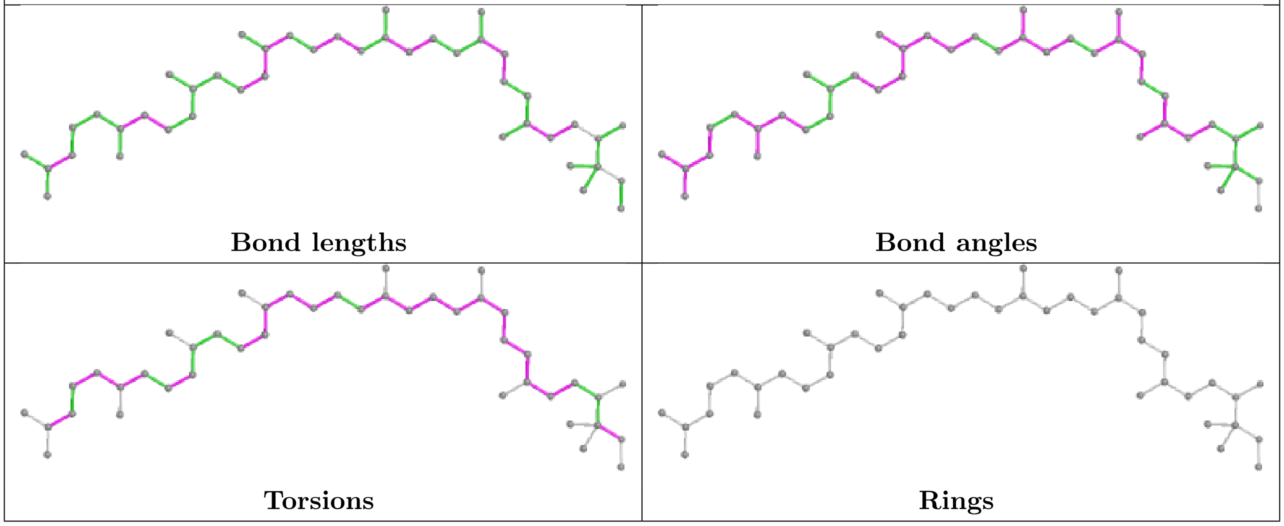
Bond lengths

Bond angles

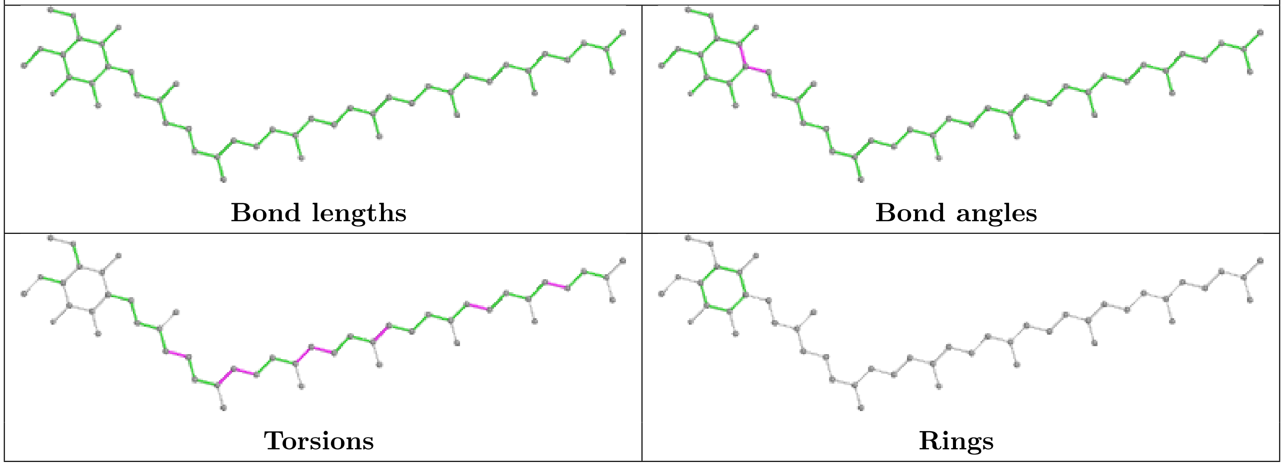
Torsions

Rings

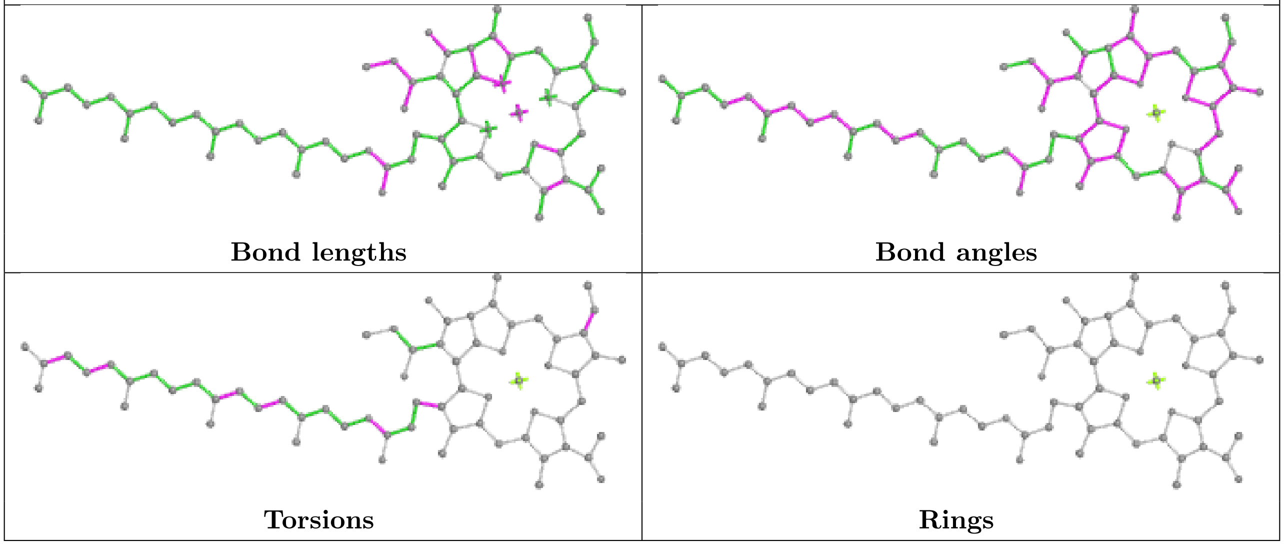
Ligand SPN E 102



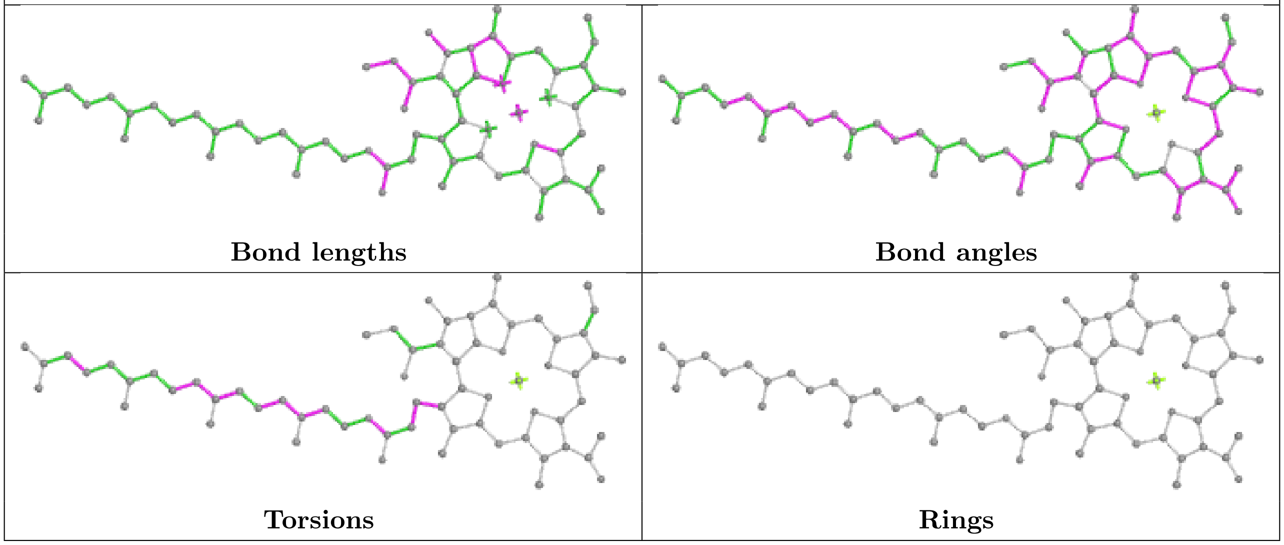
Ligand U10 L 303



Ligand BCL r 102



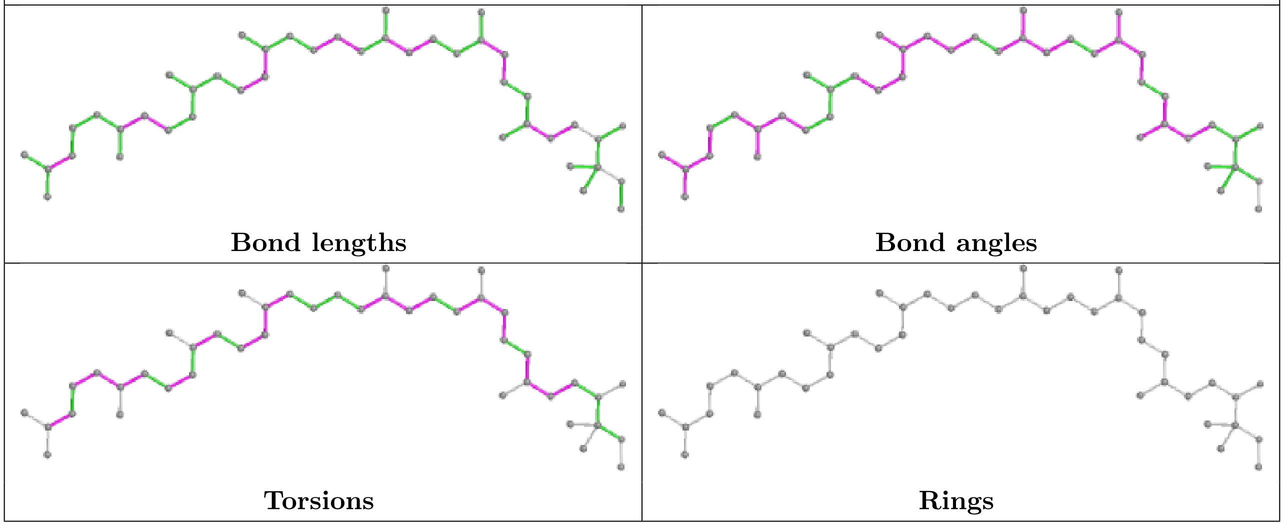
Ligand BCL N 101



Bond lengths Bond angles

Torsions Rings

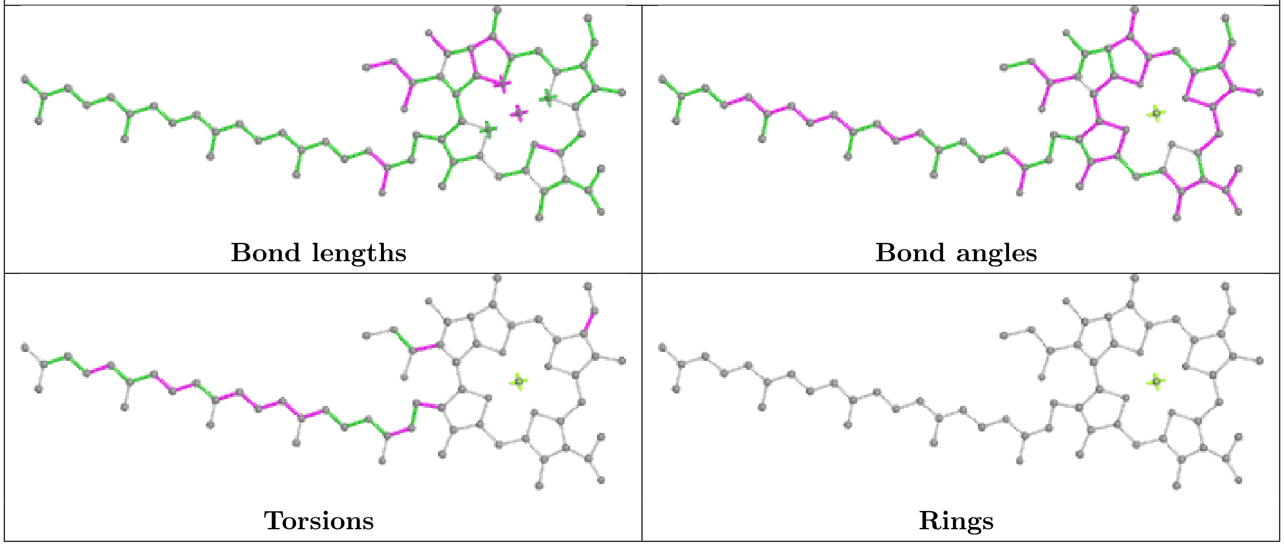
Ligand SPN K 102



Bond lengths Bond angles

Torsions Rings

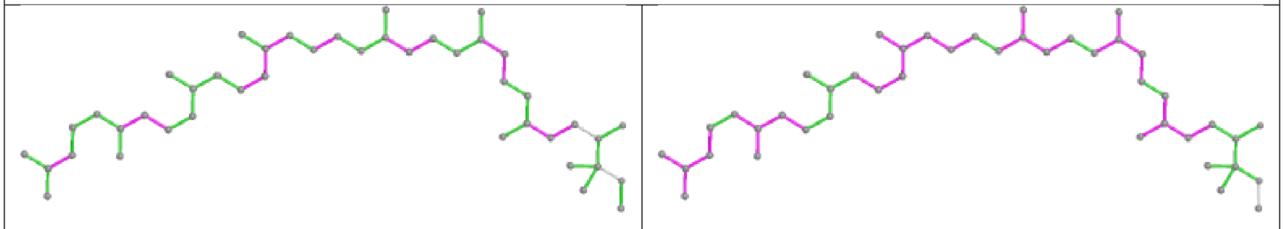
Ligand BCL 2 101



Bond lengths Bond angles

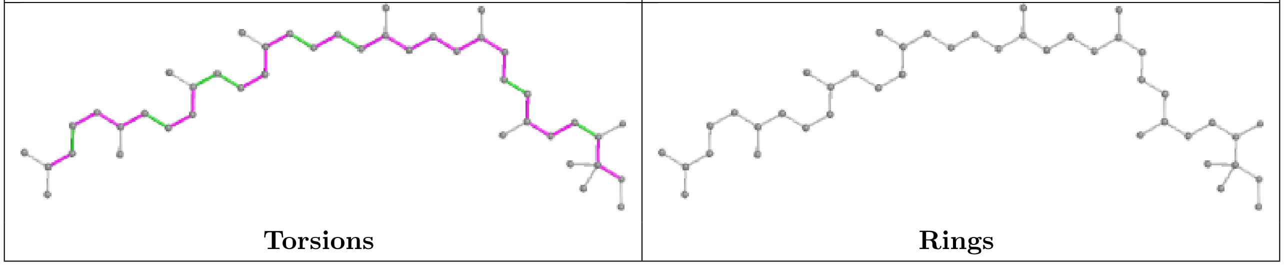
Torsions Rings

Ligand SPN f 102



Bond lengths

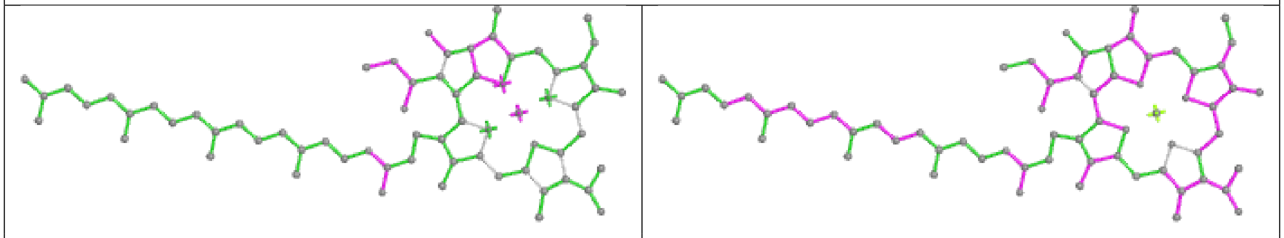
Bond angles



Torsions

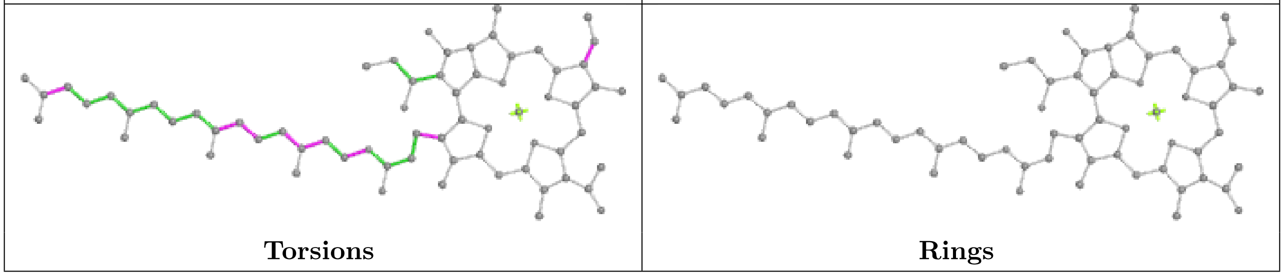
Rings

Ligand BCL P 101



Bond lengths

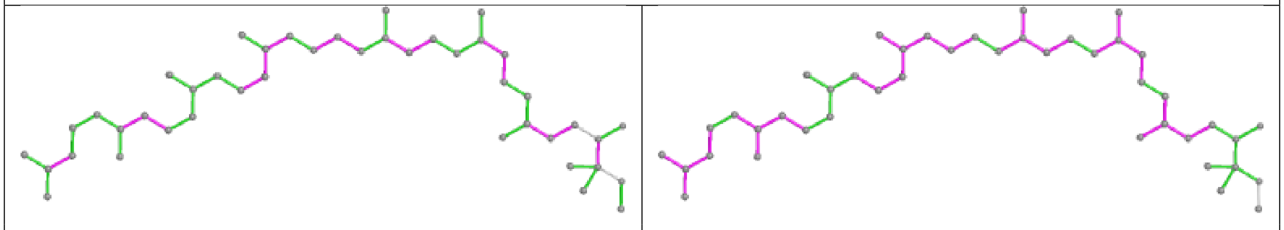
Bond angles



Torsions

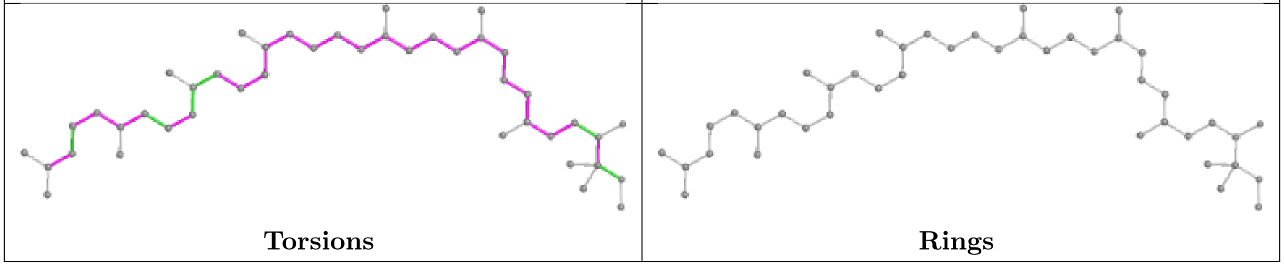
Rings

Ligand SPN b 102



Bond lengths

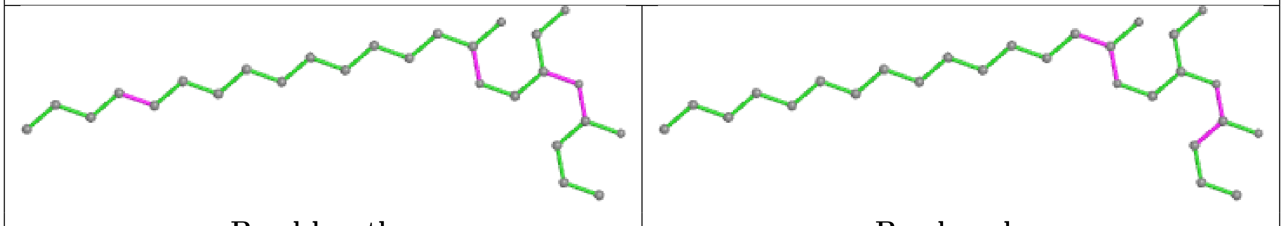
Bond angles



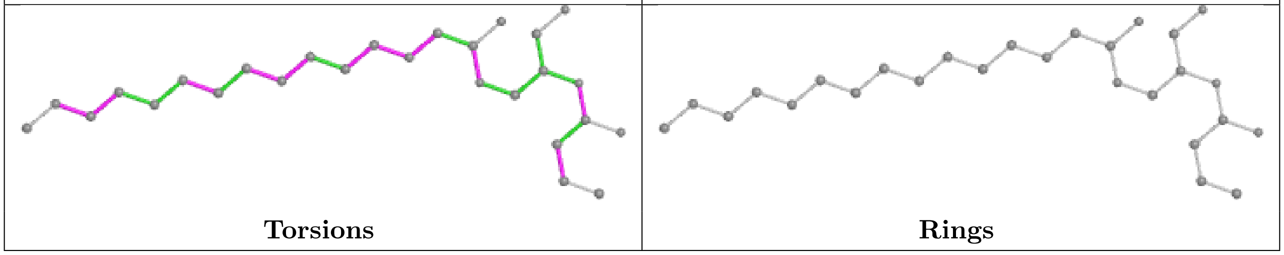
Torsions

Rings

Ligand MW9 D 104

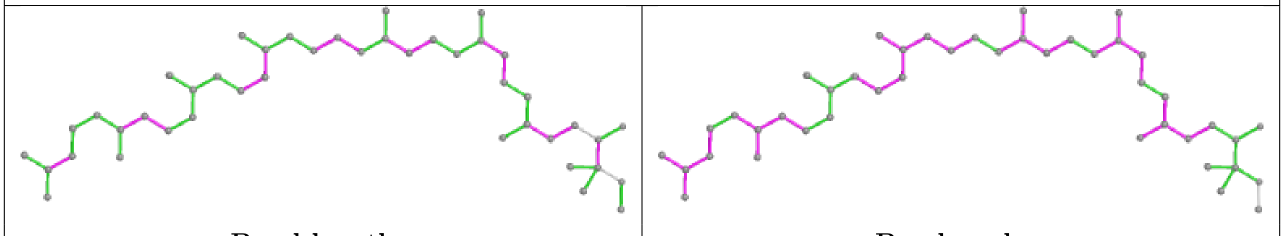


Bond lengths **Bond angles**

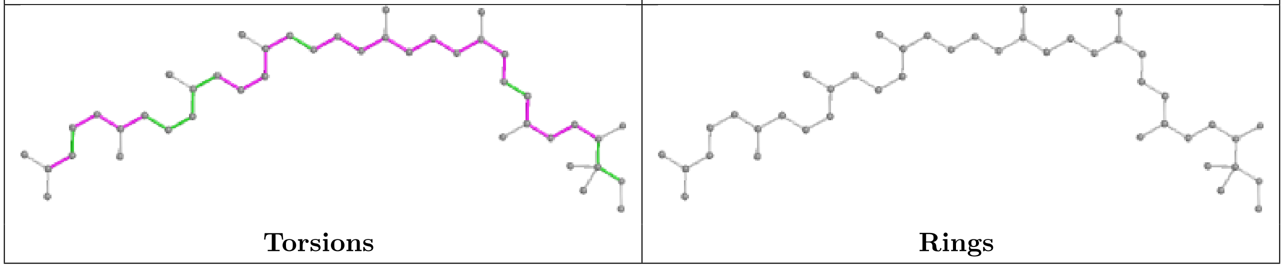


Torsions **Rings**

Ligand SPN i 101

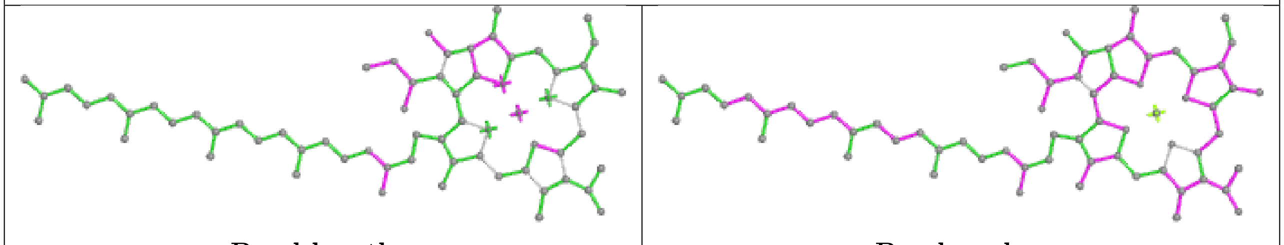


Bond lengths **Bond angles**

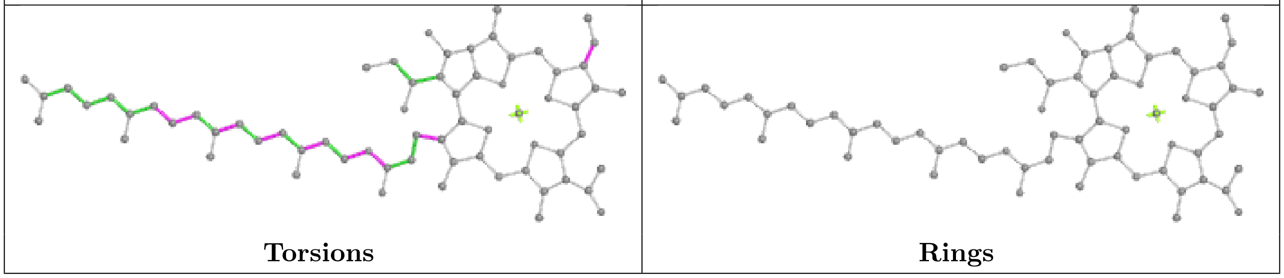


Torsions **Rings**

Ligand BCL 1 101

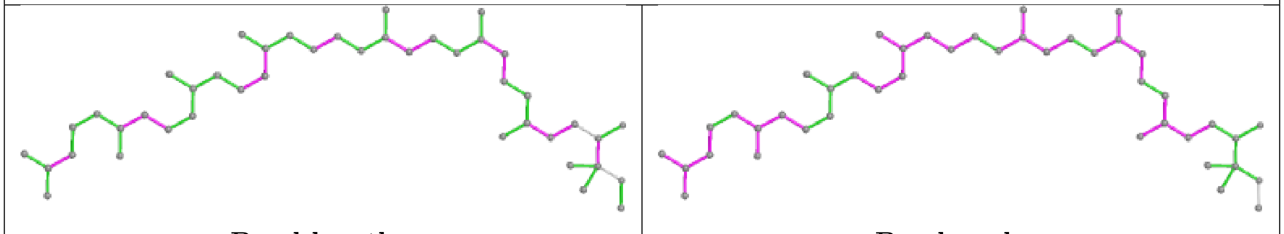


Bond lengths **Bond angles**

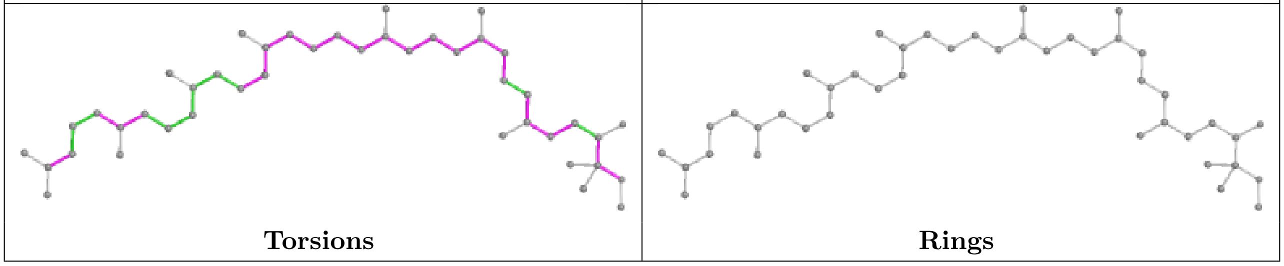


Torsions **Rings**

Ligand SPN G 104

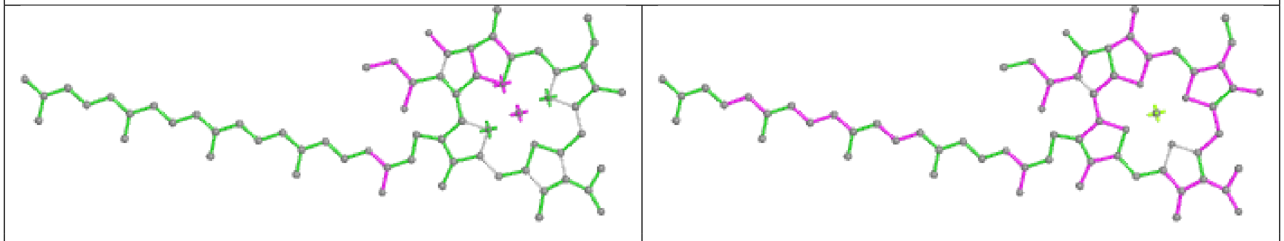


Bond lengths Bond angles

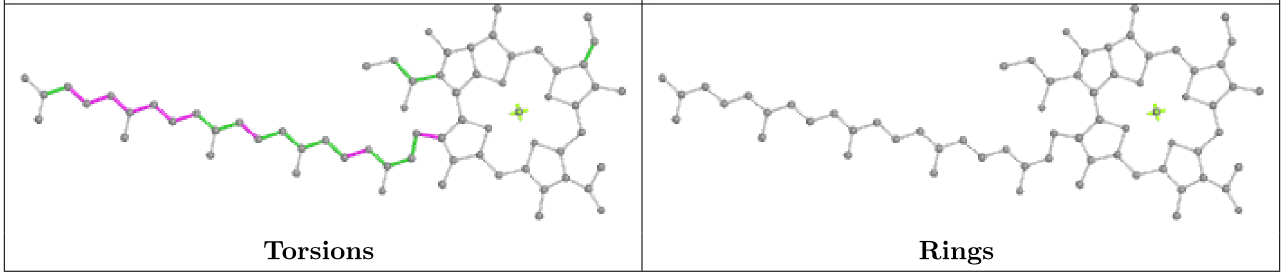


Torsions Rings

Ligand BCL e 101

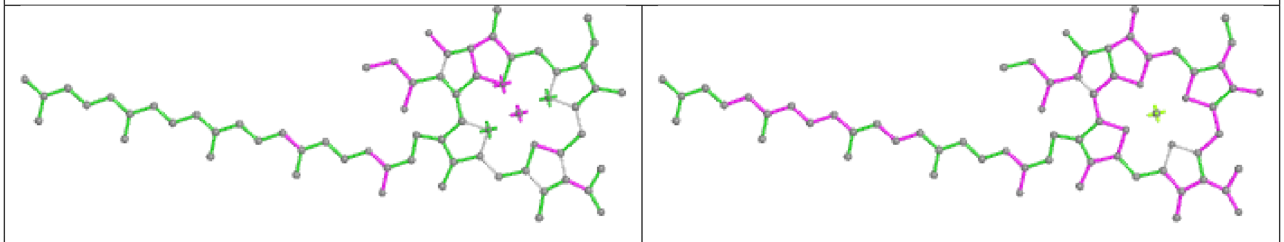


Bond lengths Bond angles

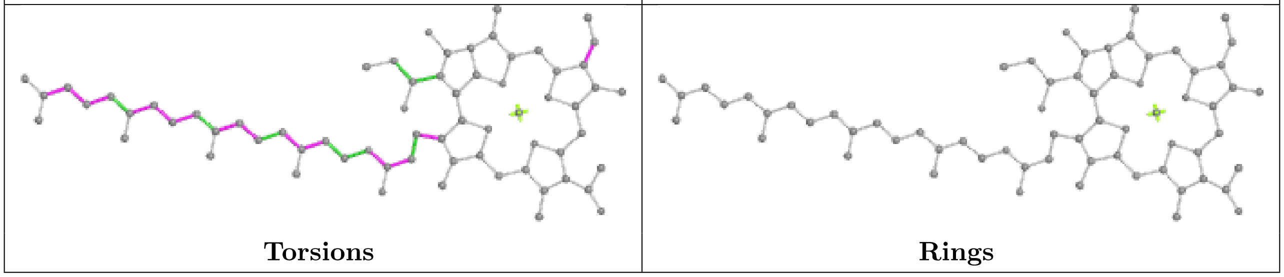


Torsions Rings

Ligand BCL v 101

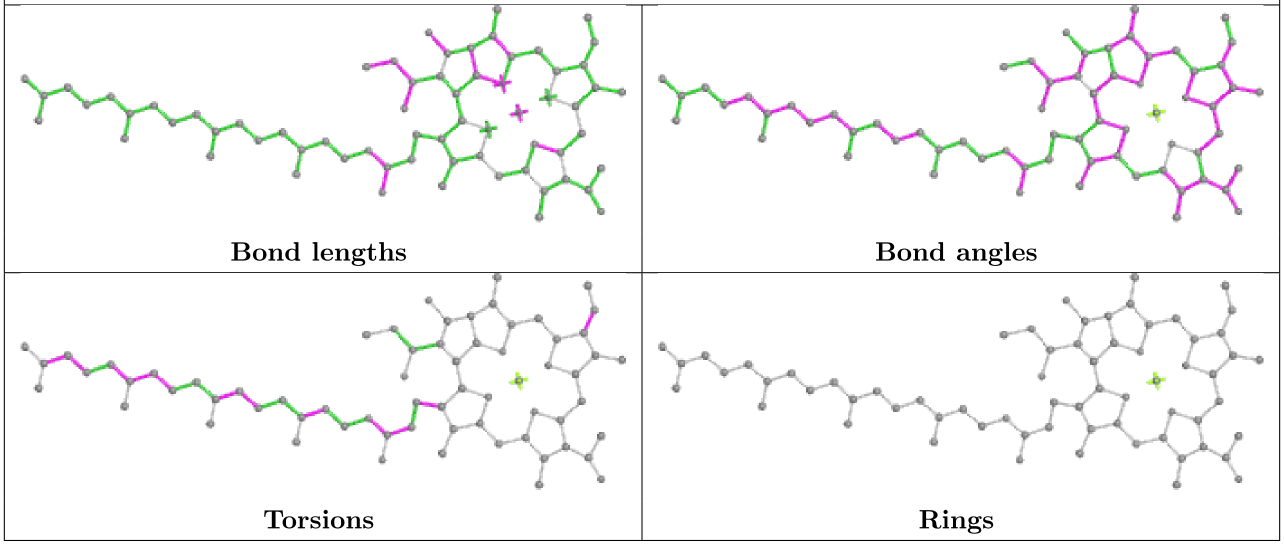


Bond lengths Bond angles

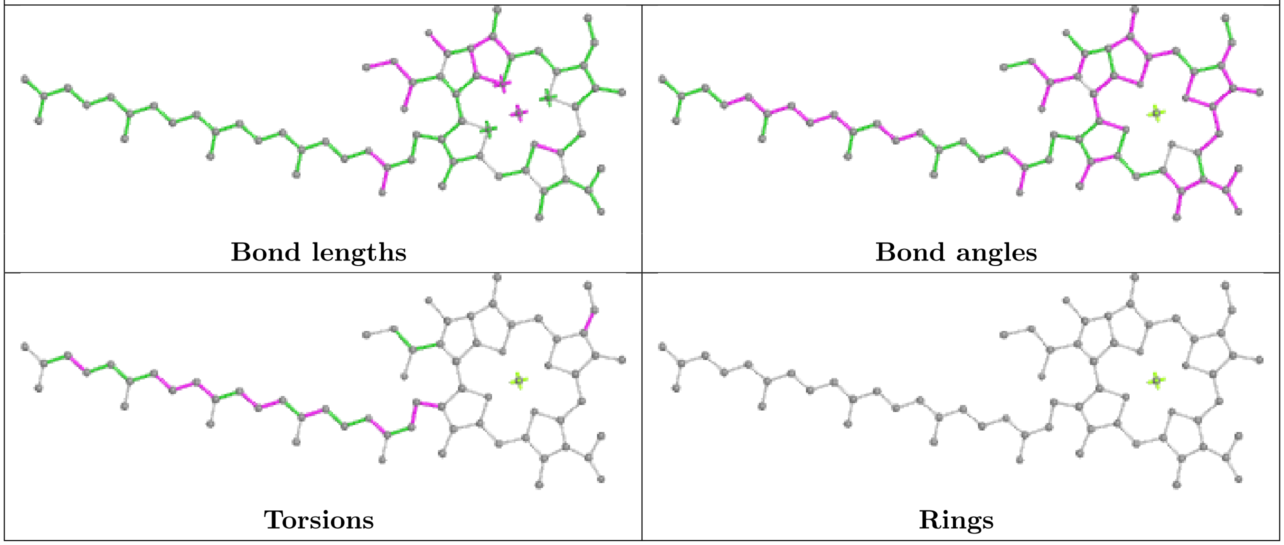


Torsions Rings

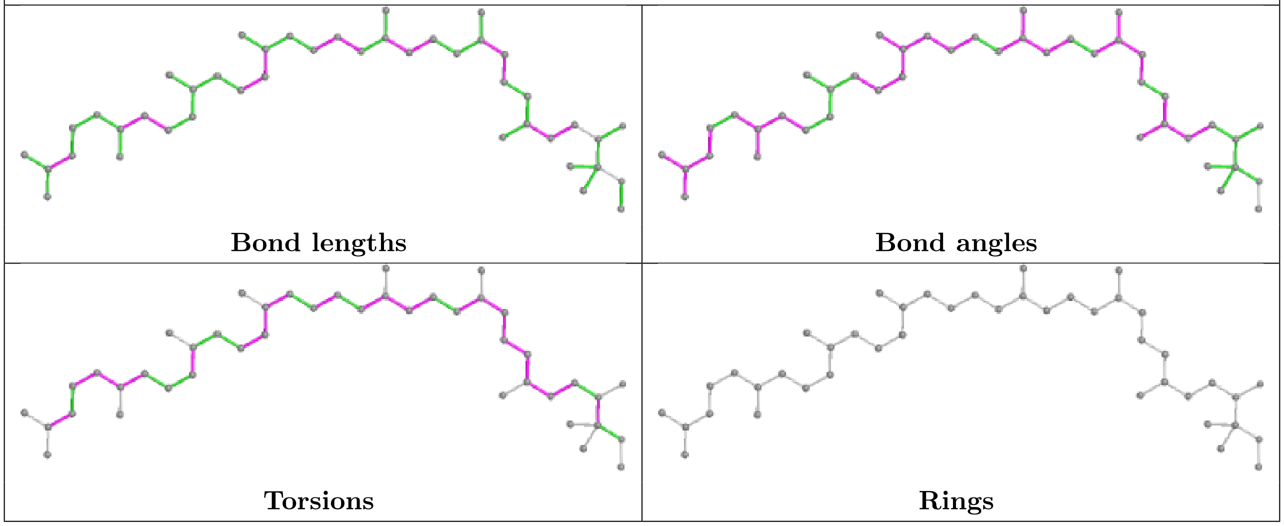
Ligand BCL s 101


Bond lengths
Bond angles
Torsions
Rings

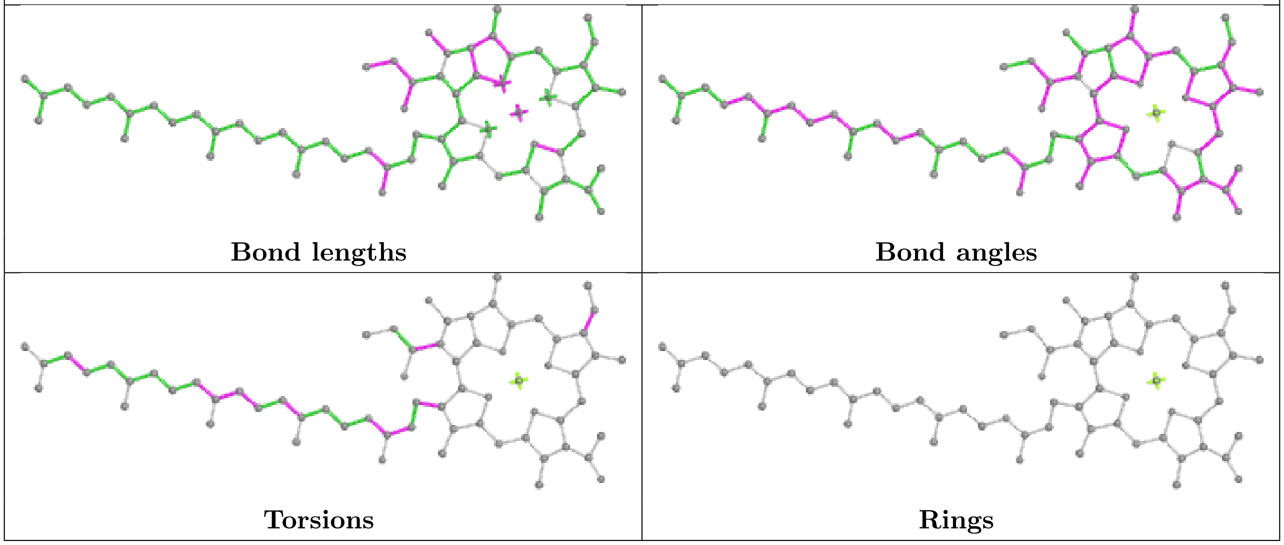
Ligand BCL Q 101


Bond lengths
Bond angles
Torsions
Rings

Ligand SPN a 101


Bond lengths
Bond angles
Torsions
Rings

Ligand BCL q 102



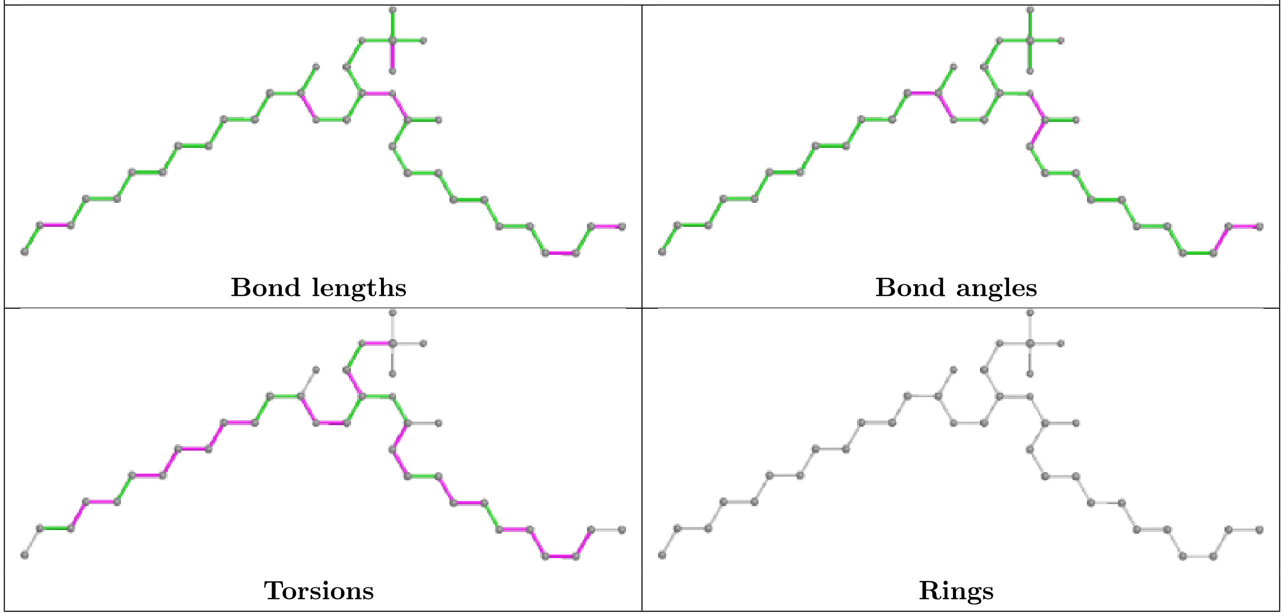
Bond lengths

Bond angles

Torsions

Rings

Ligand MW9 H 302



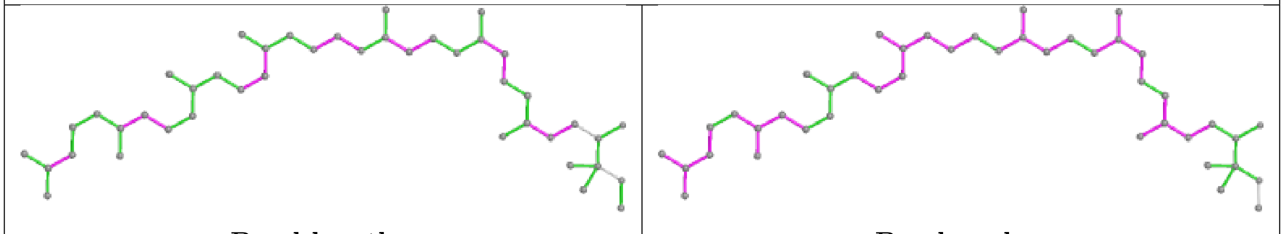
Bond lengths

Bond angles

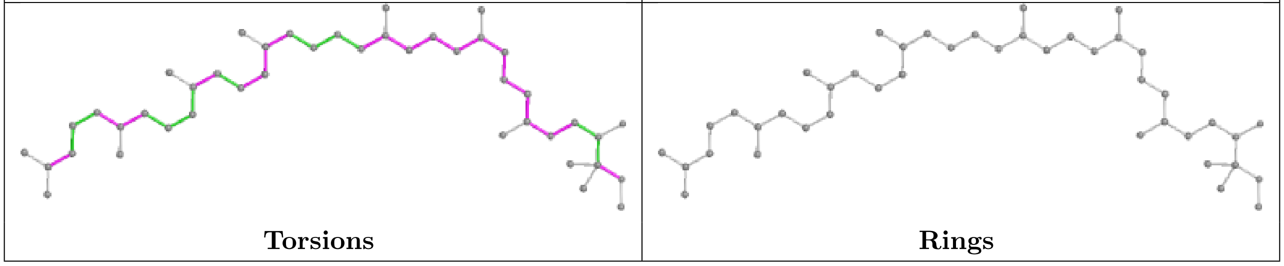
Torsions

Rings

Ligand SPN 2 103

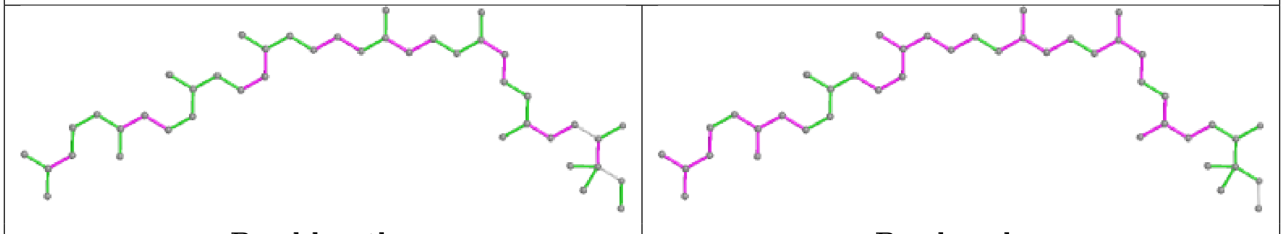


Bond lengths **Bond angles**

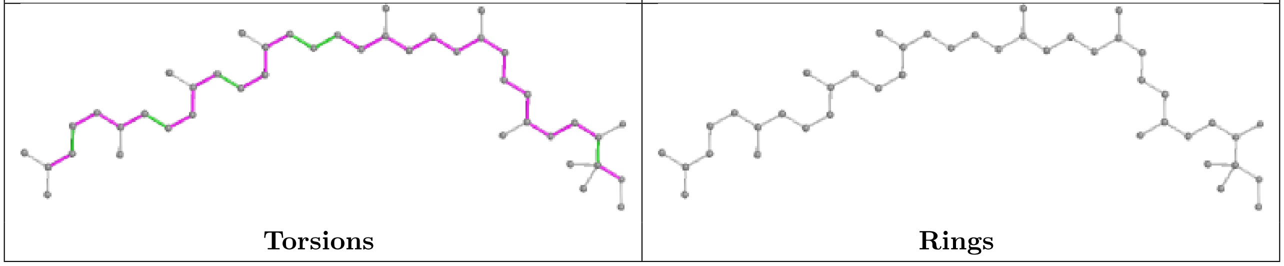


Torsions **Rings**

Ligand SPN v 102

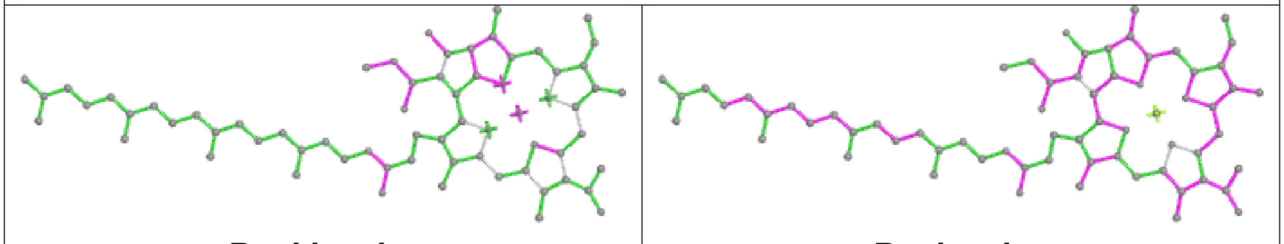


Bond lengths **Bond angles**

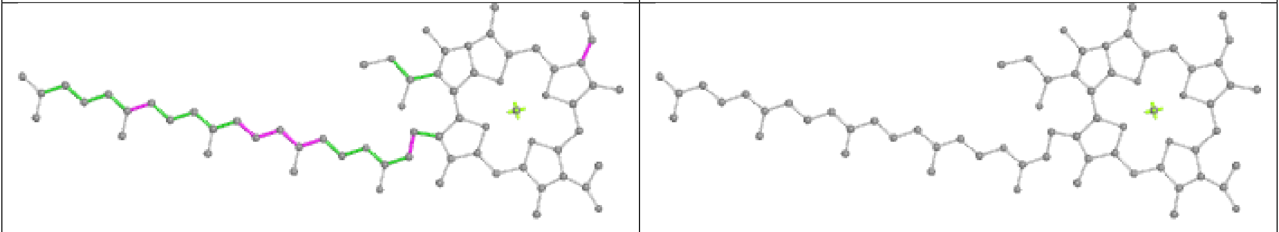


Torsions **Rings**

Ligand BCL R 101

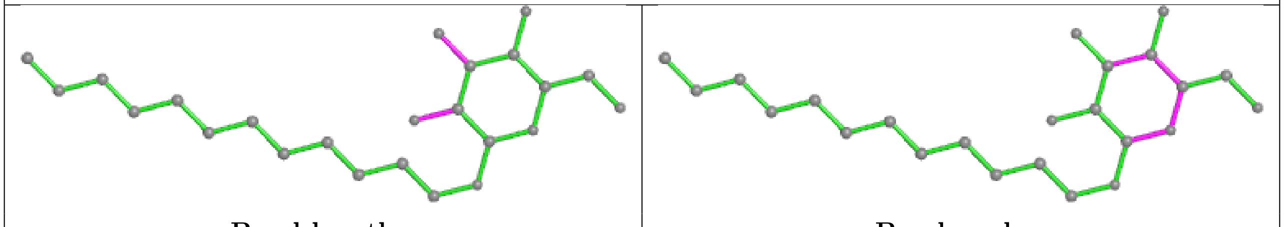


Bond lengths **Bond angles**



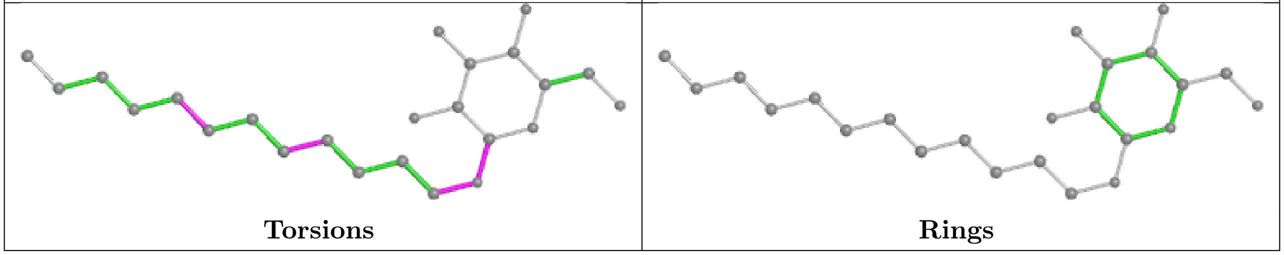
Torsions **Rings**

Ligand LMT L 305



Bond lengths

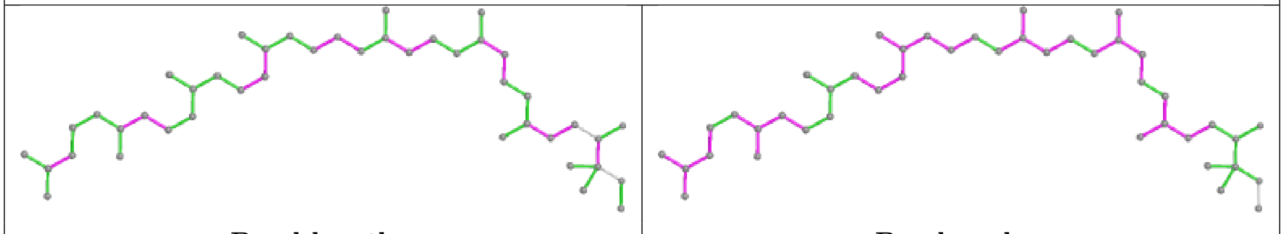
Bond angles



Torsions

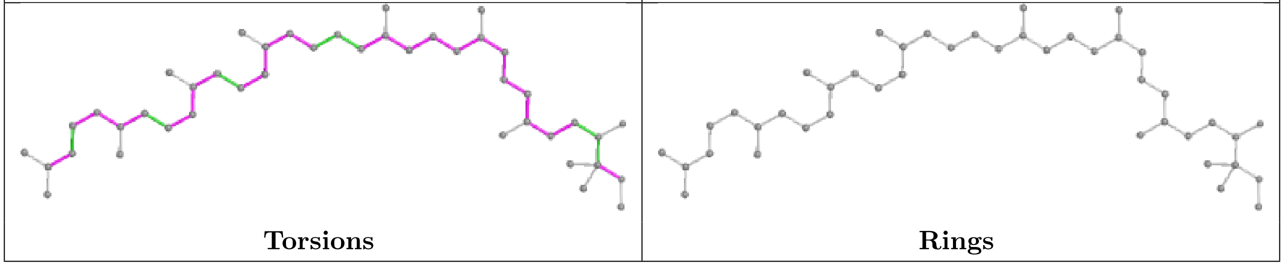
Rings

Ligand SPN t 102



Bond lengths

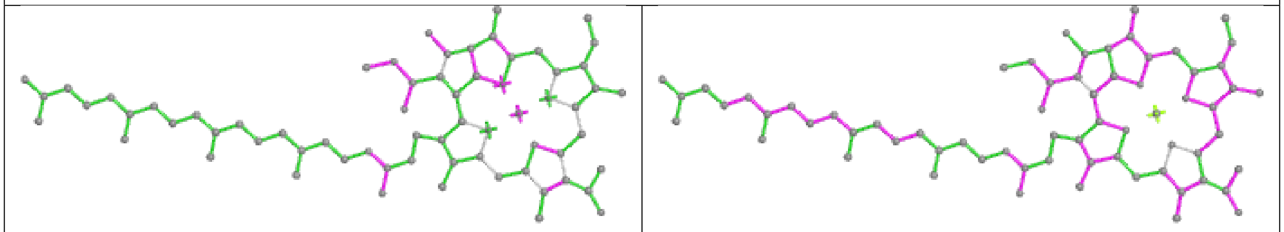
Bond angles



Torsions

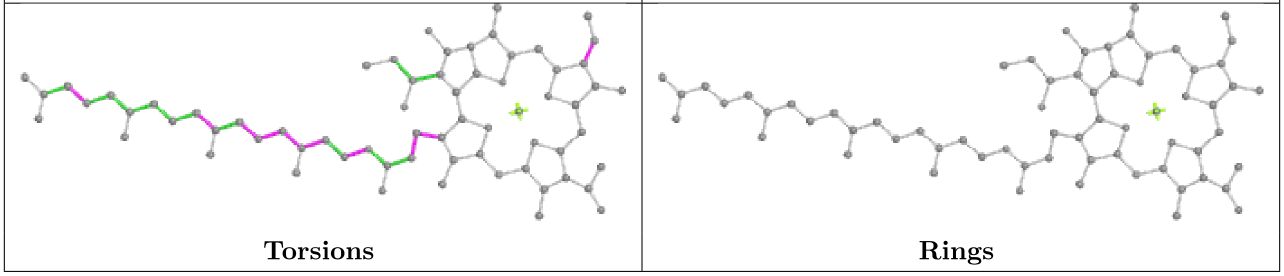
Rings

Ligand BCL A 101



Bond lengths

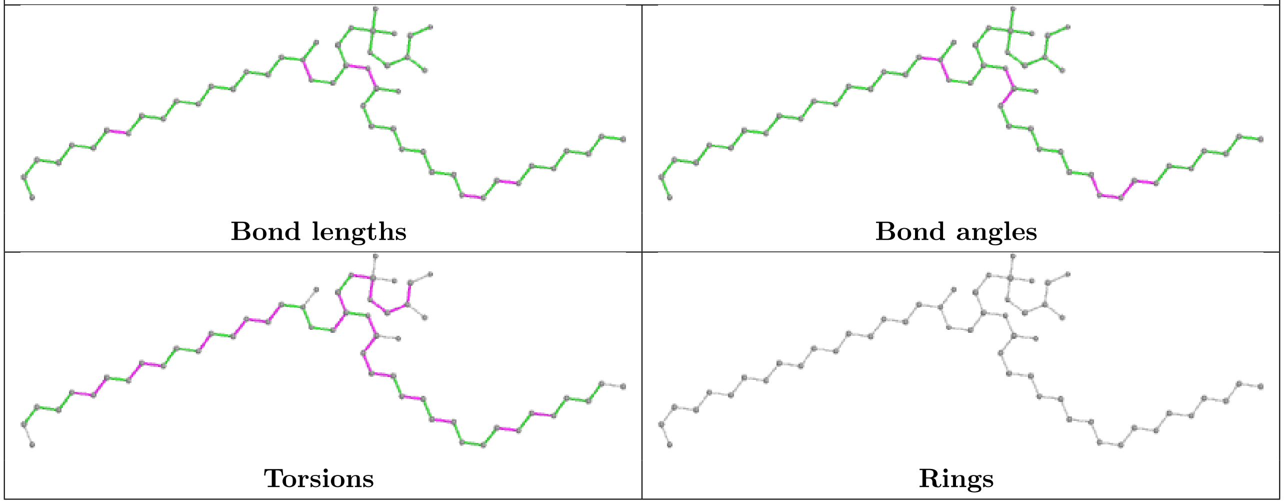
Bond angles



Torsions

Rings

Ligand MW9 B 102



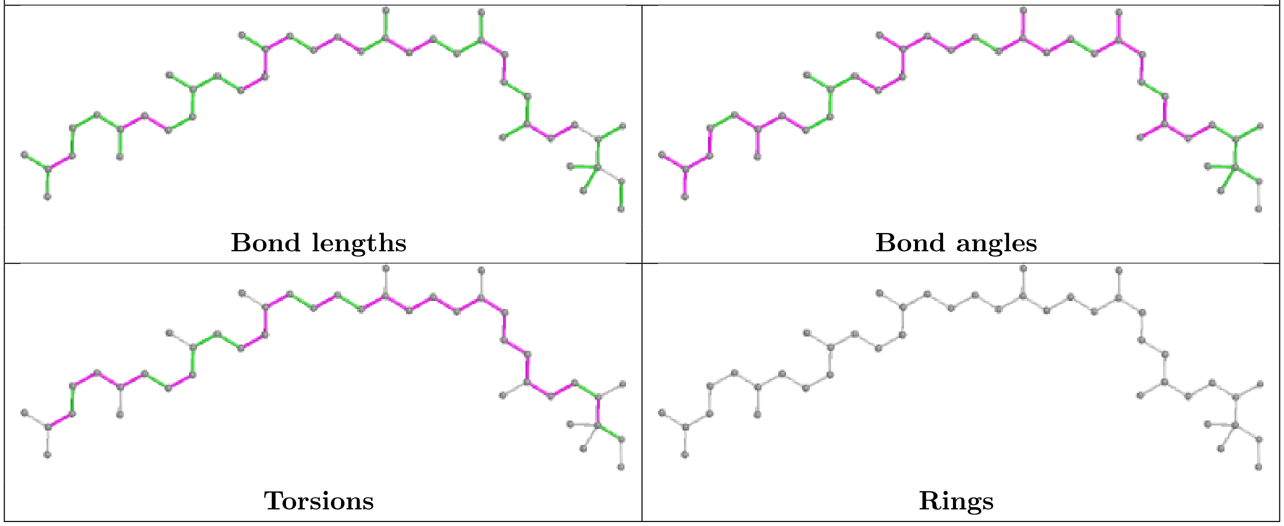
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN D 102



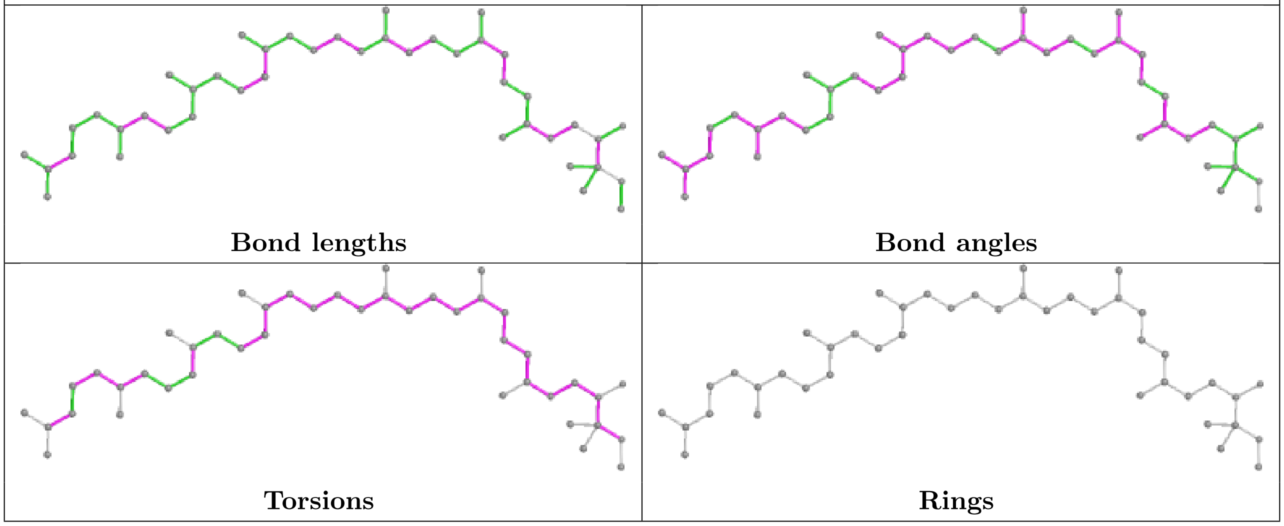
Bond lengths

Bond angles

Torsions

Rings

Ligand SPN k 103



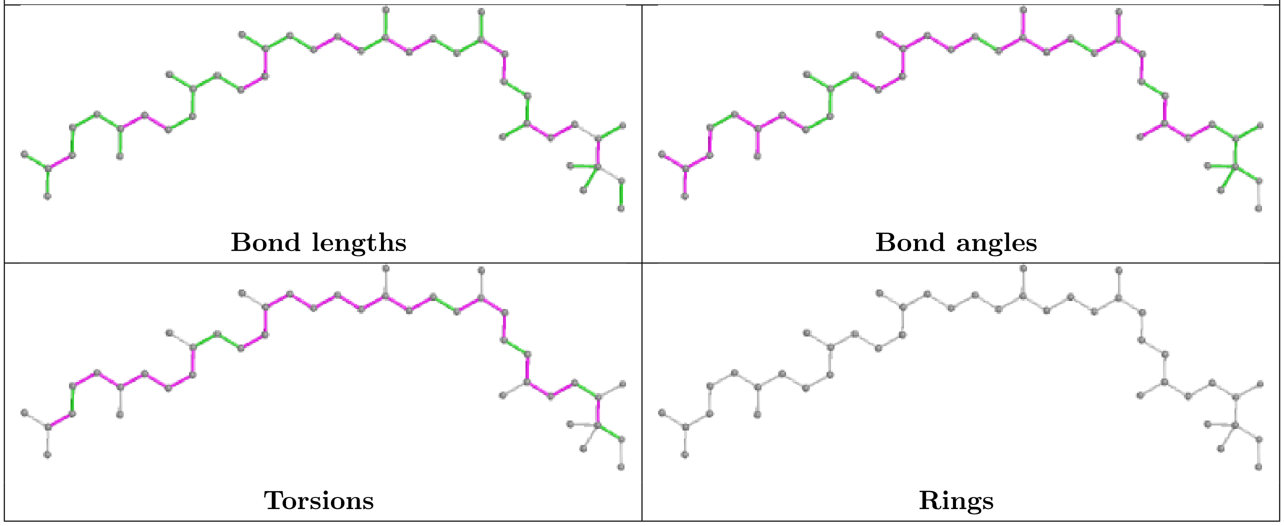
Bond lengths

Bond angles

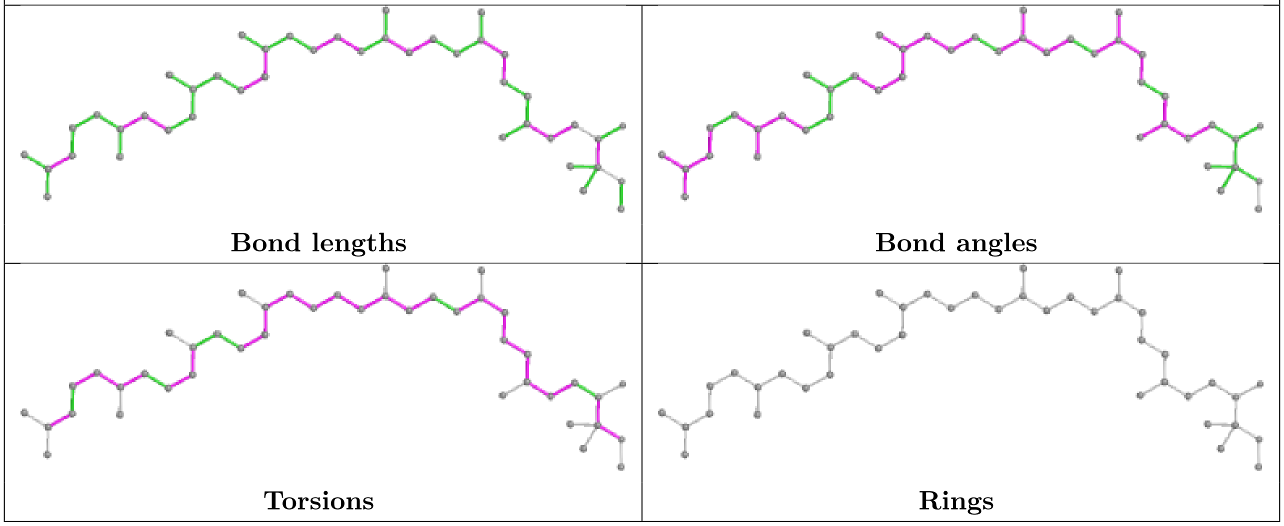
Torsions

Rings

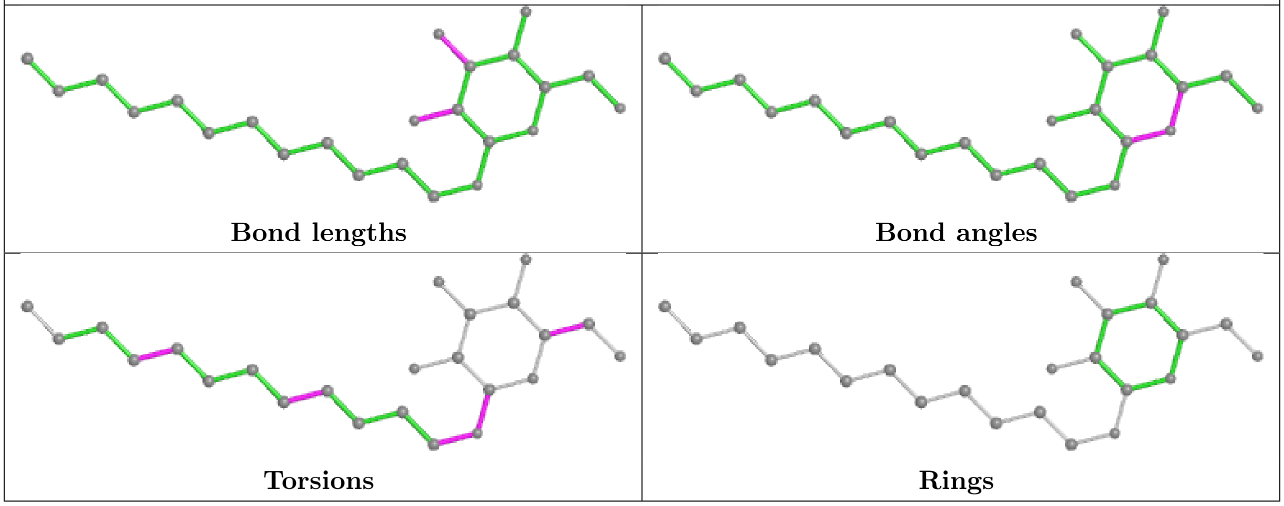
Ligand SPN Q 102



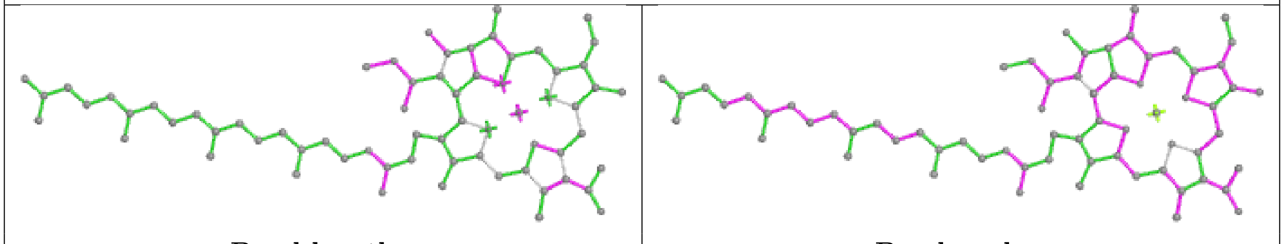
Ligand SPN D 103



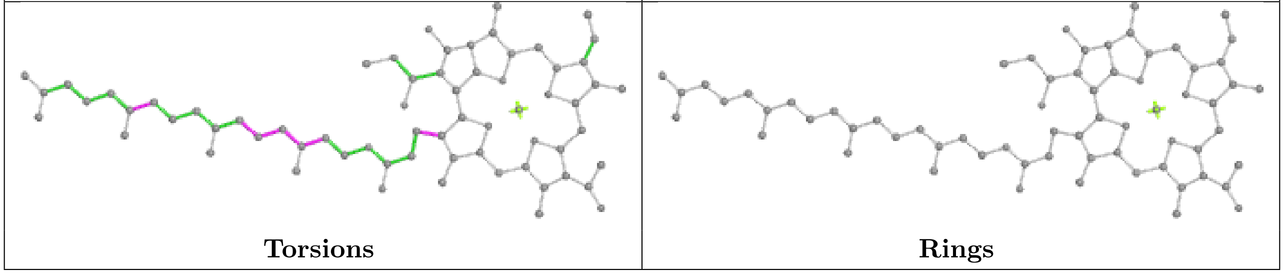
Ligand LMT H 301



Ligand BCL t 101

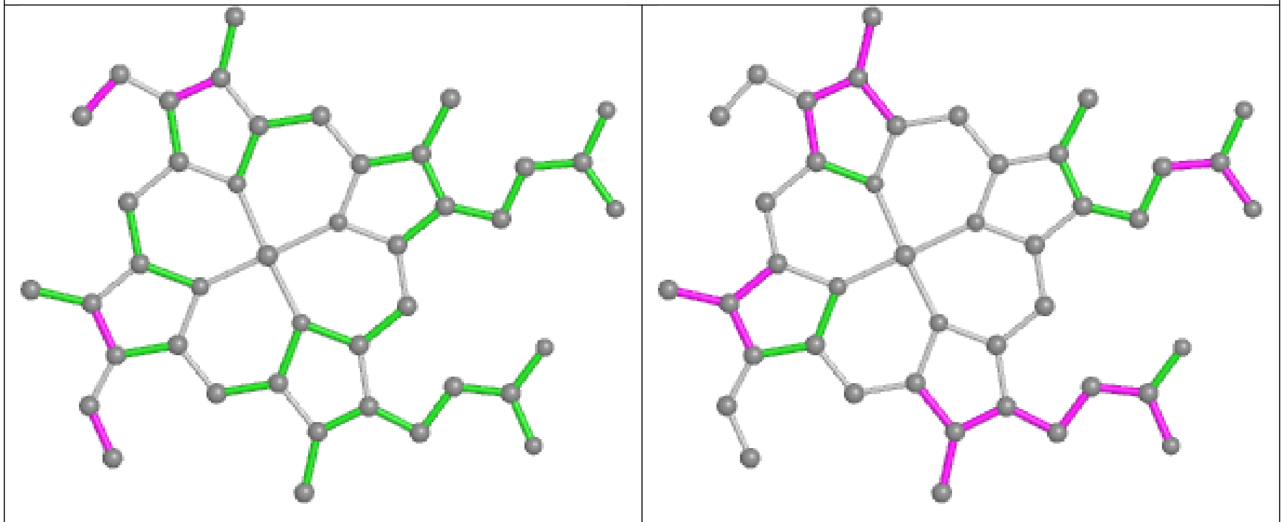


Bond lengths **Bond angles**

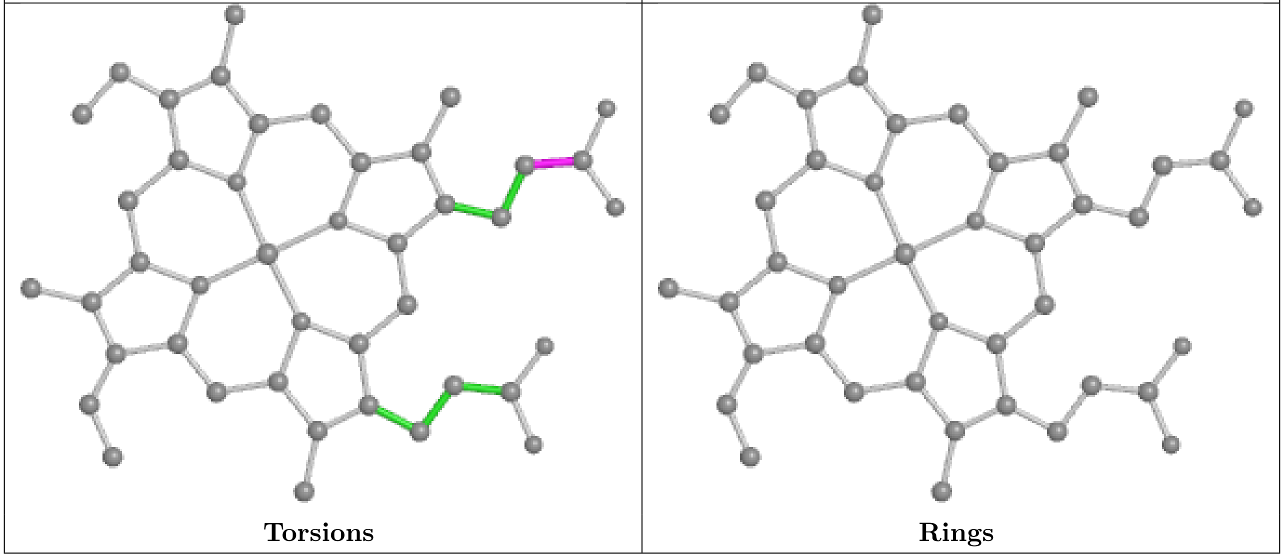


Torsions **Rings**

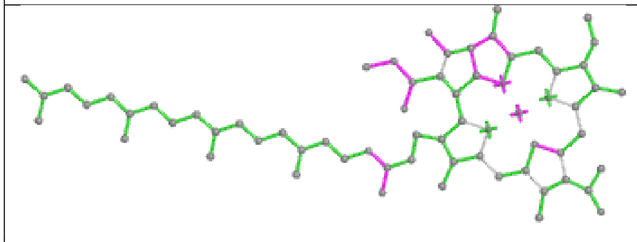
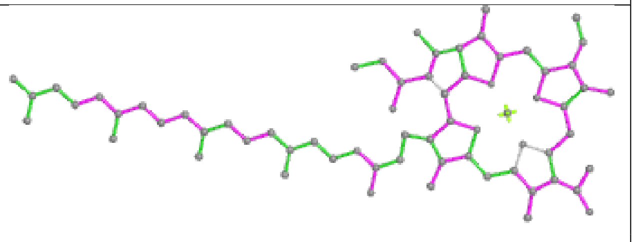
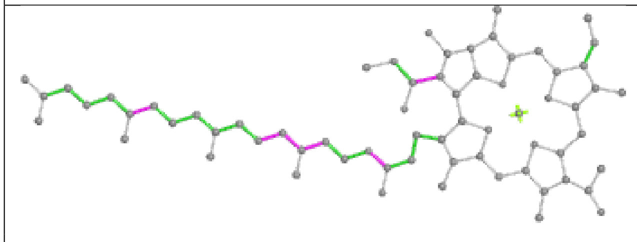
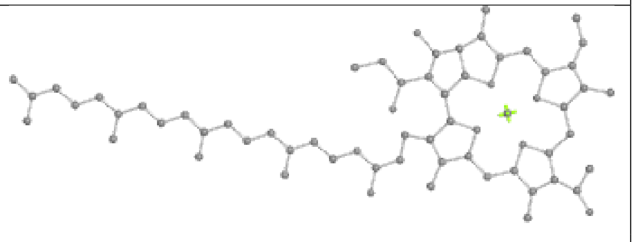
Ligand HEC C 402



Bond lengths **Bond angles**



Torsions **Rings**

Ligand BCL E 101	
 **Bond lengths**	 **Bond angles**
 **Torsions**	 **Rings**

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

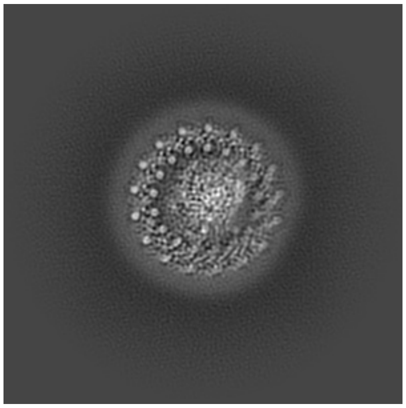
6 Map visualisation ⓘ

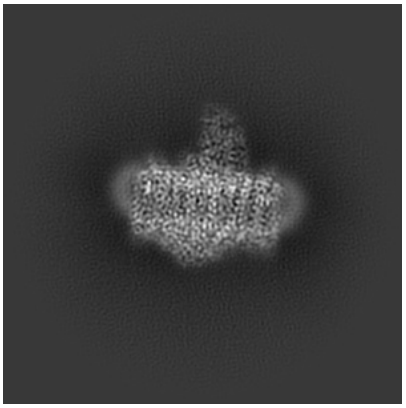
This section contains visualisations of the EMDB entry EMD-61695. These allow visual inspection of the internal detail of the map and identification of artifacts.

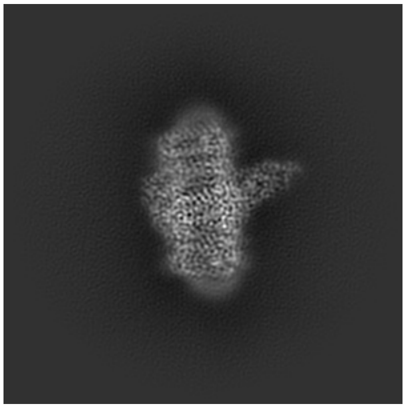
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections ⓘ

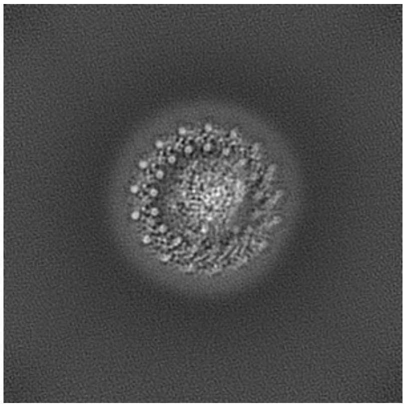
6.1.1 Primary map

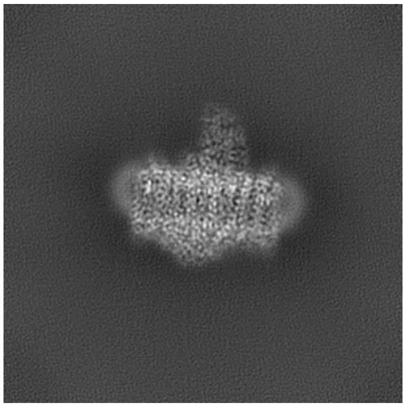

X

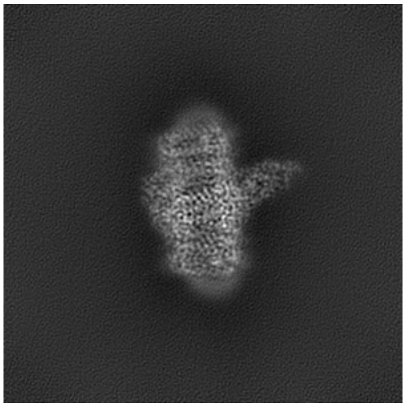

Y


Z

6.1.2 Raw map


X

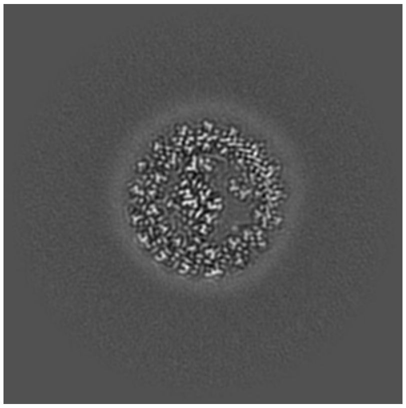

Y

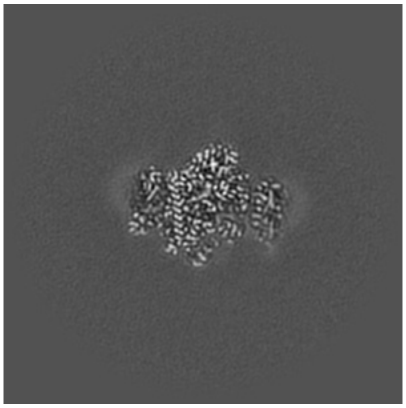

Z

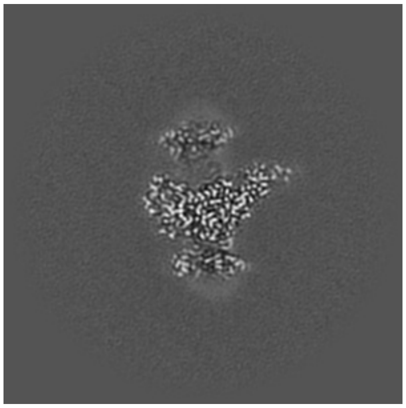
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ

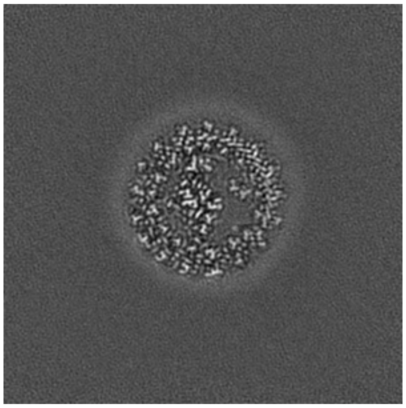
6.2.1 Primary map

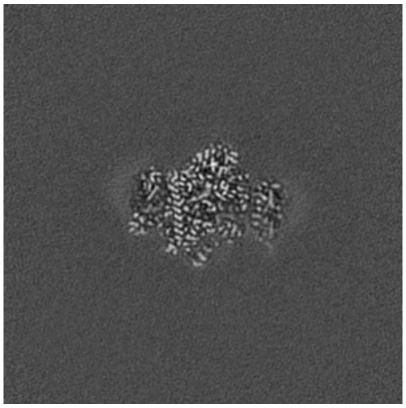

X Index: 128

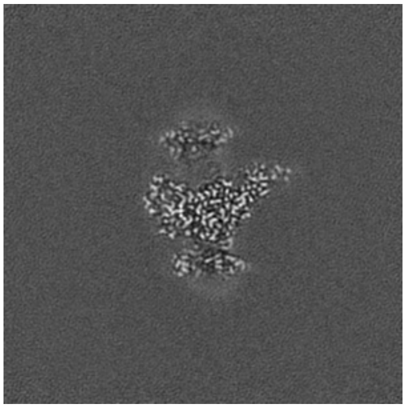

Y Index: 128


Z Index: 128

6.2.2 Raw map


X Index: 128

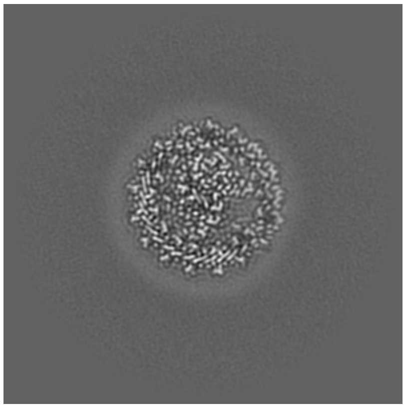

Y Index: 128


Z Index: 128

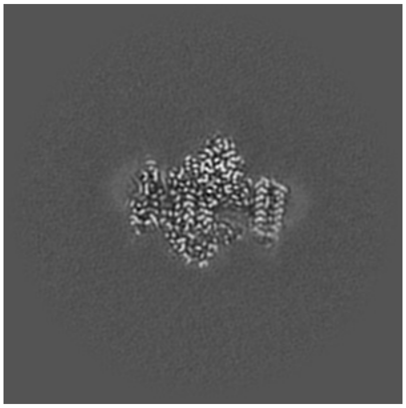
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices

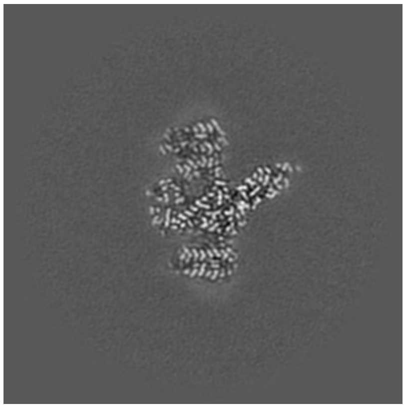
6.3.1 Primary map



X Index: 137

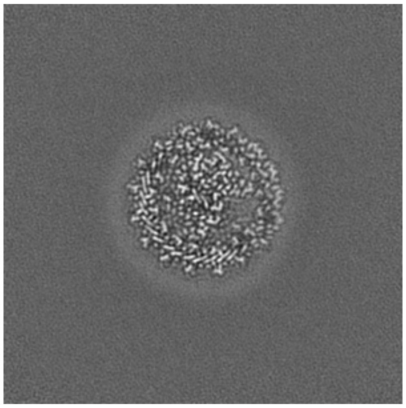


Y Index: 131

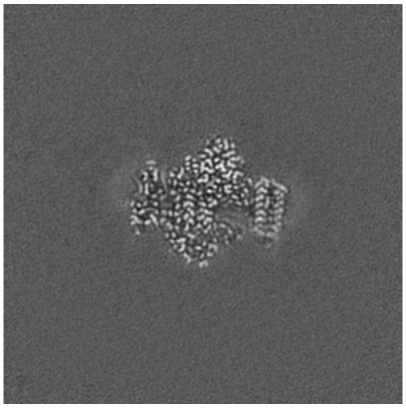


Z Index: 135

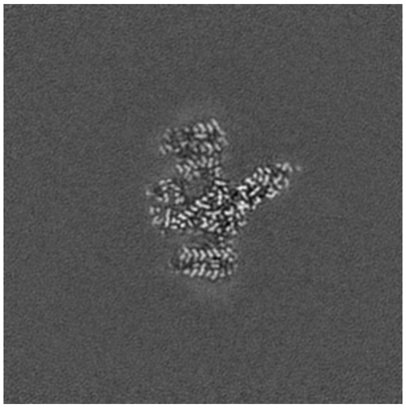
6.3.2 Raw map



X Index: 137



Y Index: 131

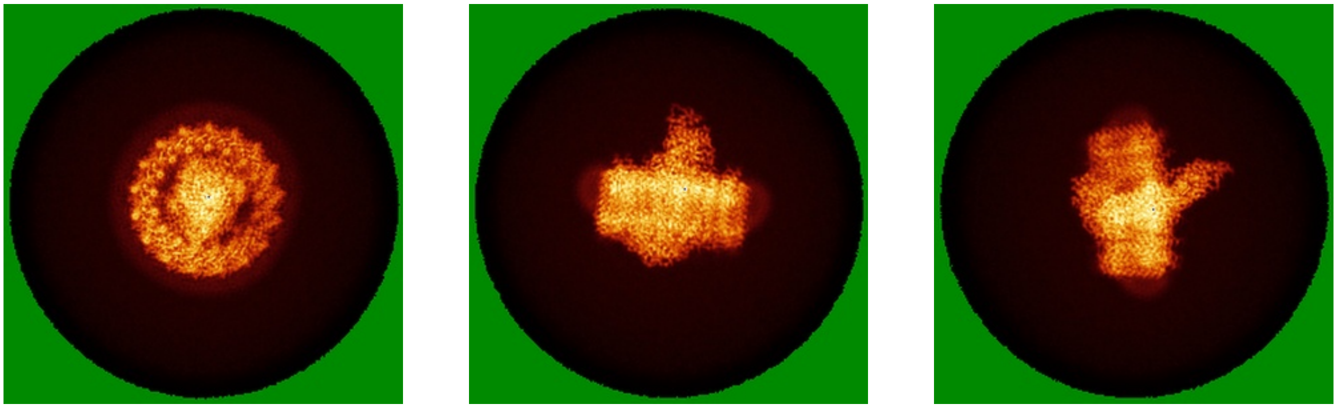


Z Index: 135

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

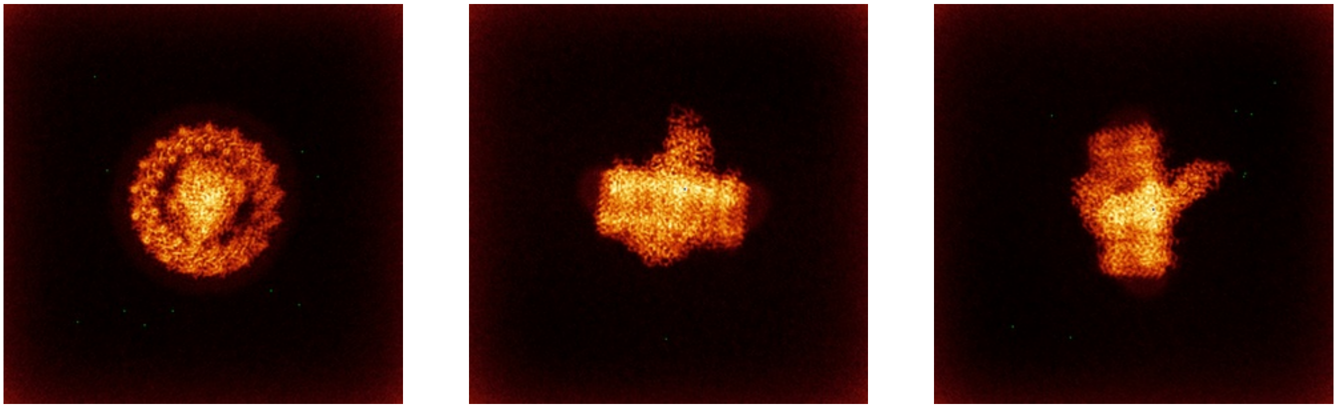
6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map



X Y Z

6.4.2 Raw map

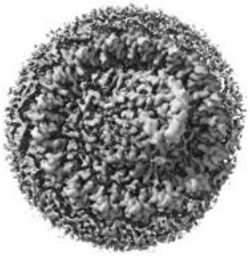


X Y Z

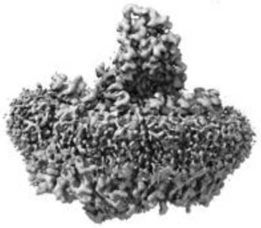
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map



X

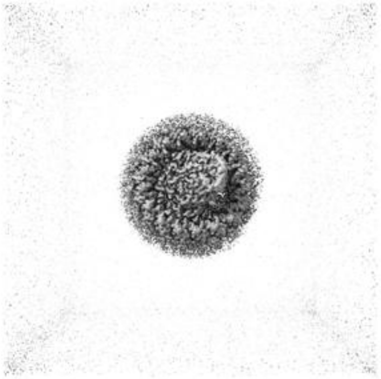


Y

Z

The images above show the 3D surface view of the map at the recommended contour level 0.103. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X

Y

Z

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

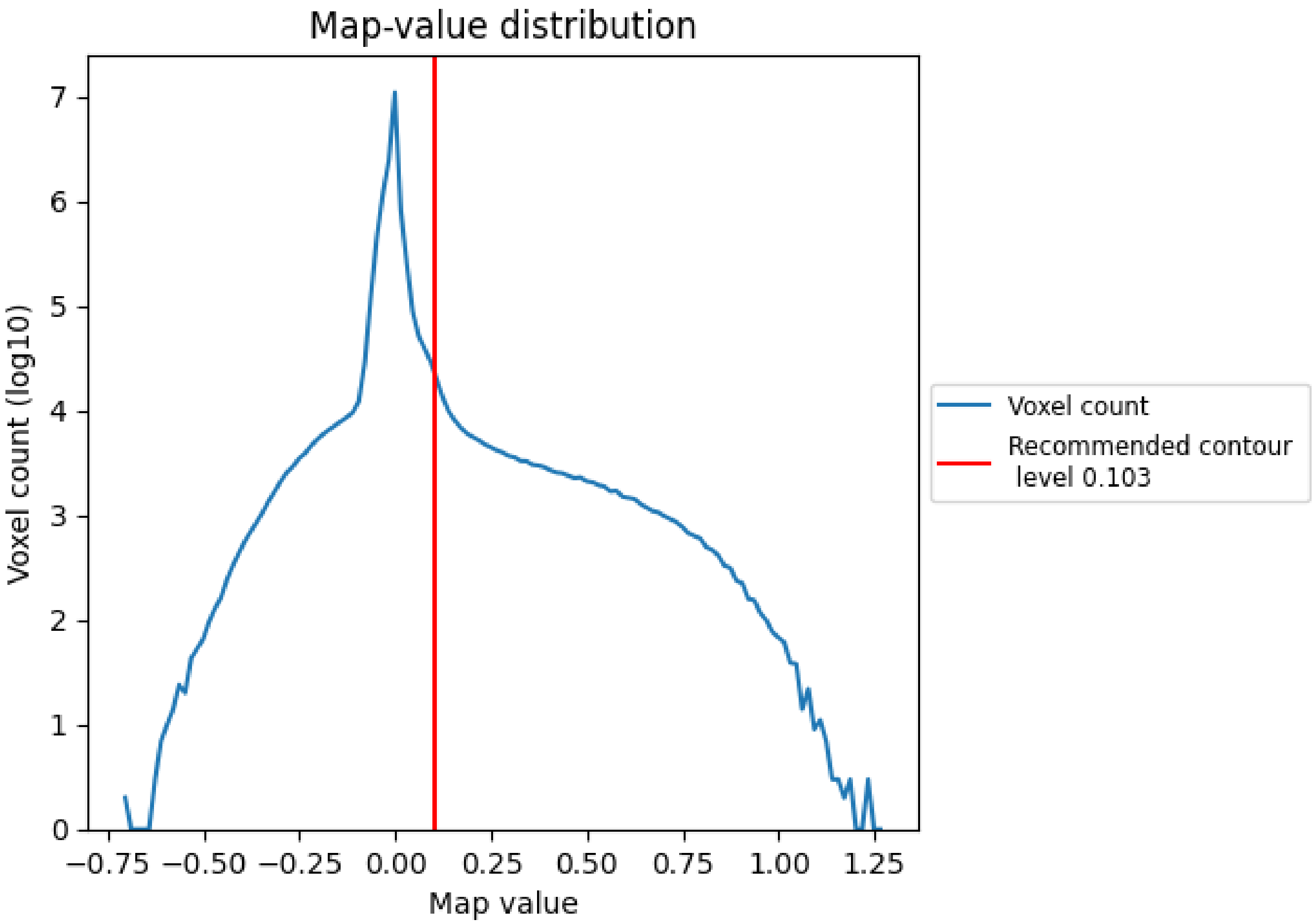
6.6 Mask visualisation ⓘ

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

7 Map analysis ⓘ

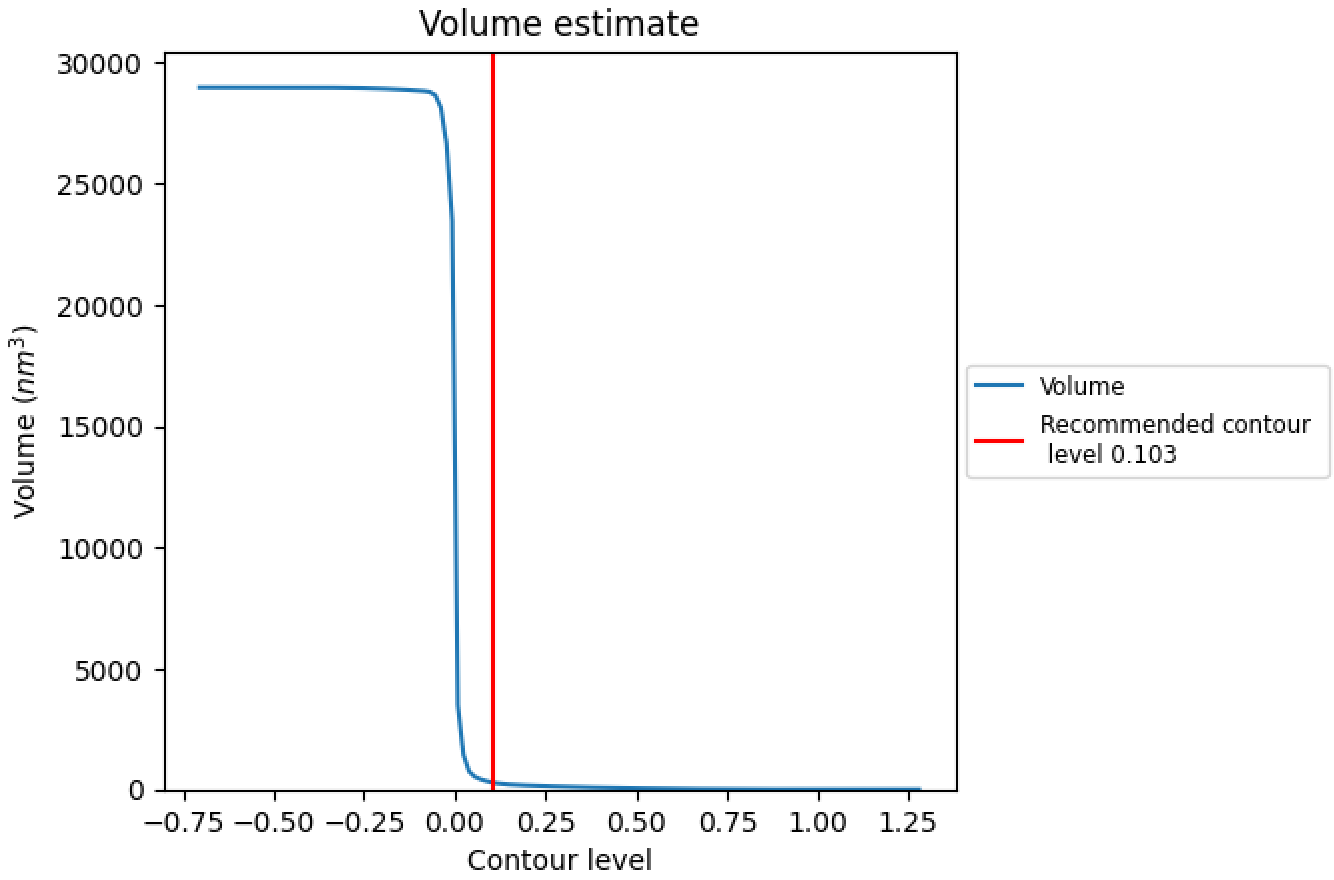
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ



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

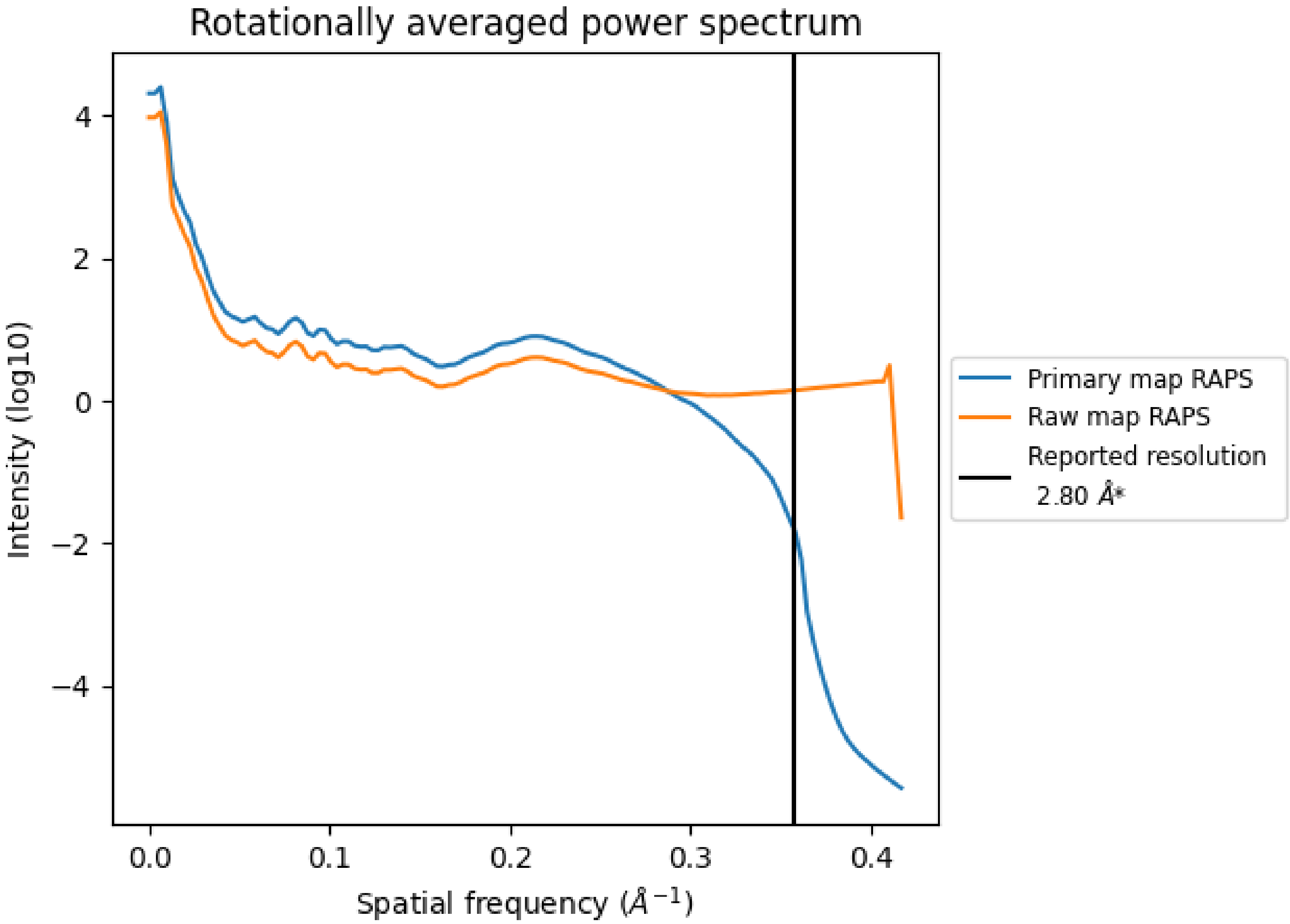
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 290 nm^3; this corresponds to an approximate mass of 262 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

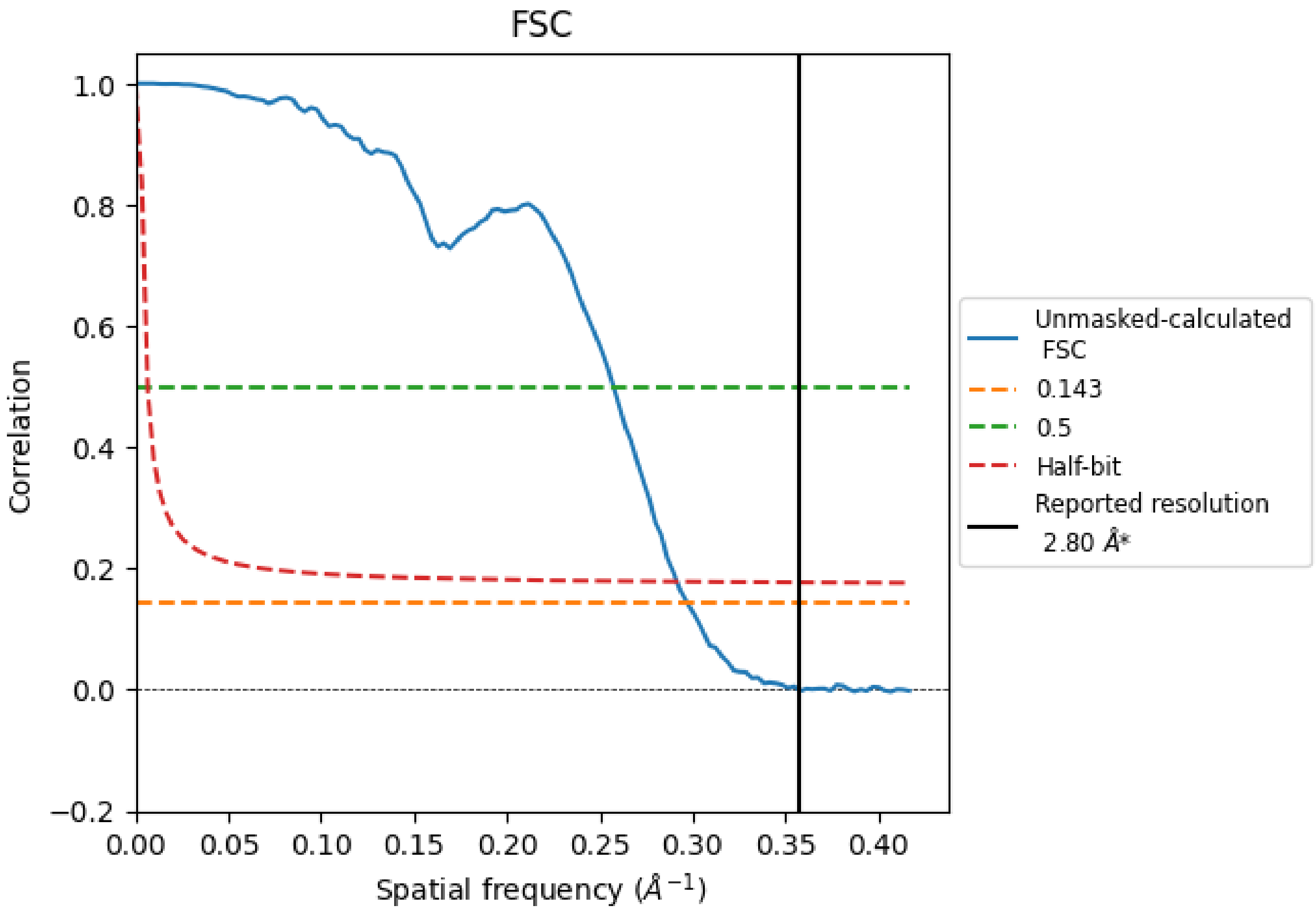


*Reported resolution corresponds to spatial frequency of 0.357 Å^{-1}

8 Fourier-Shell correlation ⓘ

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

8.1 FSC ⓘ



*Reported resolution corresponds to spatial frequency of 0.357 $\AA^{-1}$

8.2 Resolution estimates ⓘ

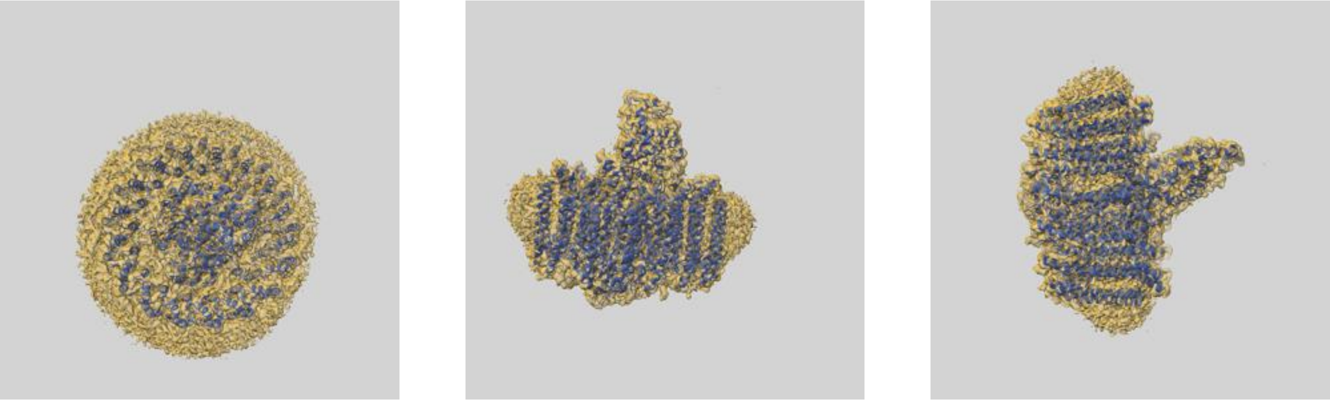
Resolution estimate (Å)	**Estimation criterion (FSC cut-off)**		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.36	3.89	3.43

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.36 differs from the reported value 2.8 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-61695 and PDB model 9JPB. Per-residue inclusion information can be found in section 3 on page 18.

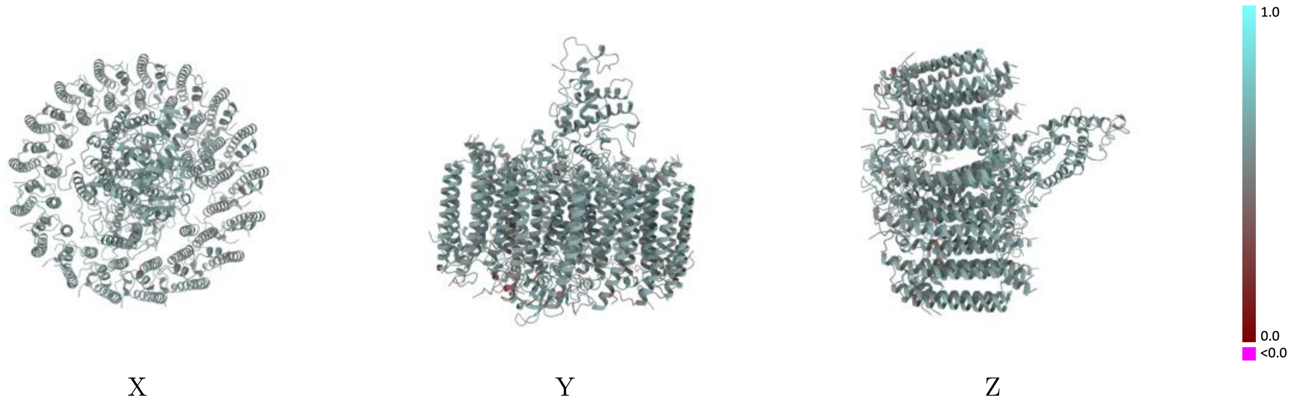
9.1 Map-model overlay ⓘ



X Y Z

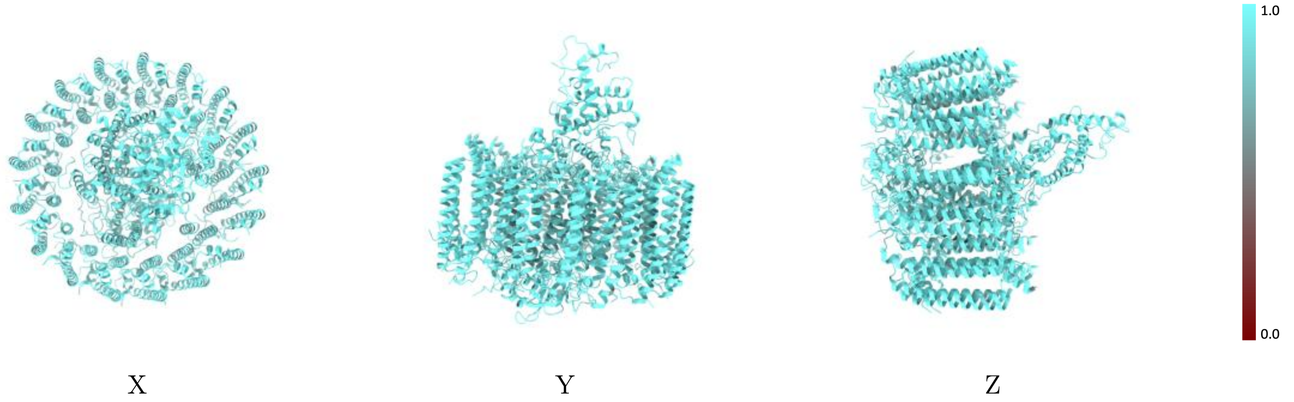
The images above show the 3D surface view of the map at the recommended contour level 0.103 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ



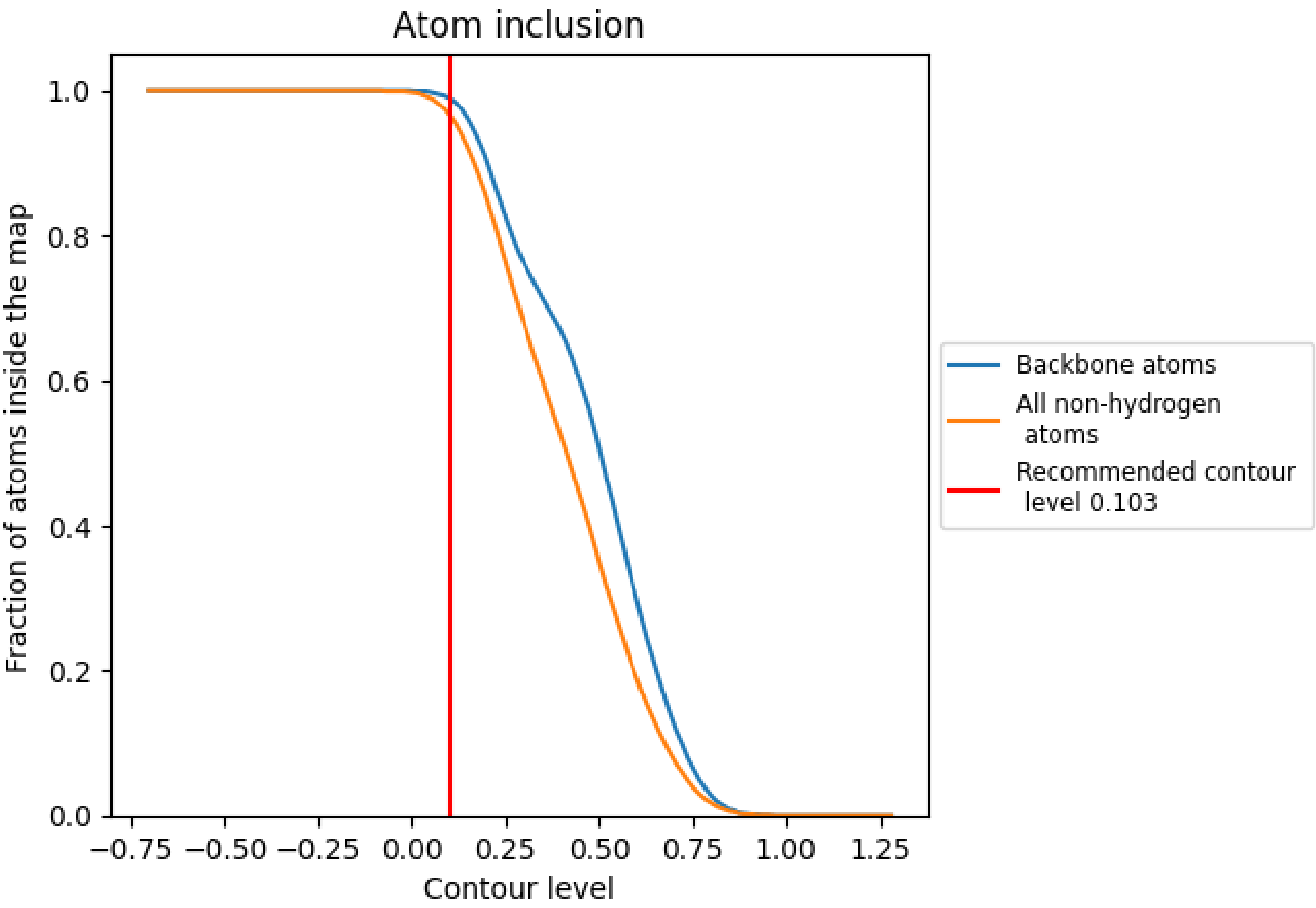
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model ⓘ



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.103).

9.4 Atom inclusion ⓘ



At the recommended contour level, 99% of all backbone atoms, 96% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.103) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9650	0.5710
1	0.9620	0.5720
2	0.9620	0.5640
A	0.9430	0.5540
B	0.9450	0.5680
C	0.9730	0.5730
D	0.9760	0.5830
E	0.9680	0.5800
F	0.9790	0.5910
G	0.9660	0.5820
H	0.9760	0.5840
I	0.9820	0.5840
J	0.9700	0.5670
K	0.9640	0.5770
L	0.9790	0.5930
M	0.9760	0.5890
N	0.9670	0.5560
O	0.9650	0.5620
P	0.9520	0.5610
Q	0.9500	0.5670
R	0.9520	0.5590
S	0.9300	0.5580
T	0.9600	0.5500
V	0.8860	0.5220
a	0.9450	0.5430
b	0.9760	0.5600
d	0.9810	0.5720
e	0.9820	0.5830
f	0.9670	0.5820
g	0.9860	0.5720
i	0.9550	0.5620
j	0.9750	0.5640
k	0.9530	0.5560
n	0.9600	0.5620
p	0.9460	0.5350

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Chain	Atom inclusion	Q-score
q	0.9690	0.5640
r	0.9450	0.5600
s	0.9540	0.5470
t	0.9240	0.5260
v	0.9260	0.5060