Image by MIT OpenCourseWare.

[Istrail,
Schwartz,
King 1999]

1

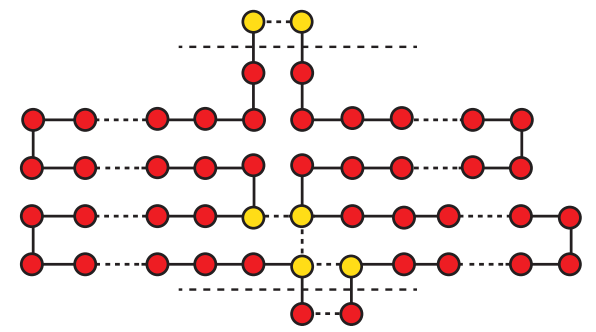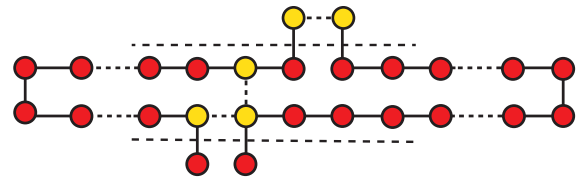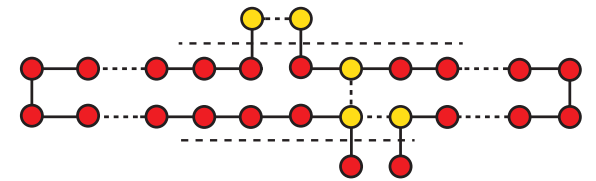|		Counterclockwise Chain	
		Length 1 to next even-parity H node	Length >1 to next even-parity H node
Clockwise Chain	Length 1 to next odd-parity H node		
	Length >1 to next odd-parity H node		

[Newman 2002]

Unique optimal folding

Length 18

Unique optimal folding

Length 20

Aichholzer, Bremner, Demaine, Meijer, Sacristán, Soss 2003
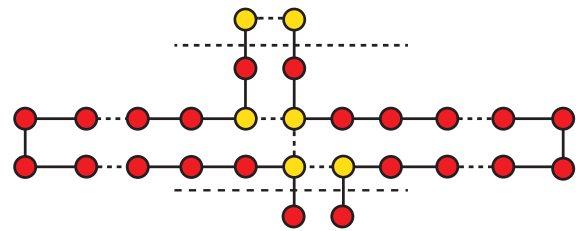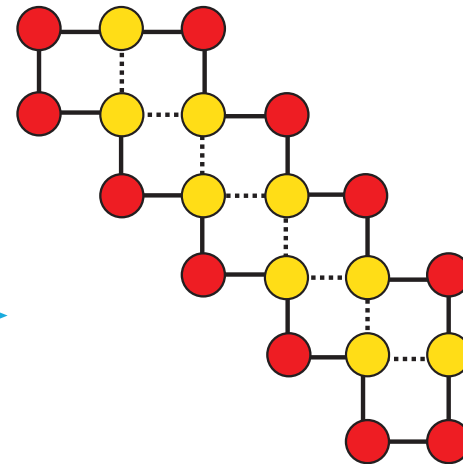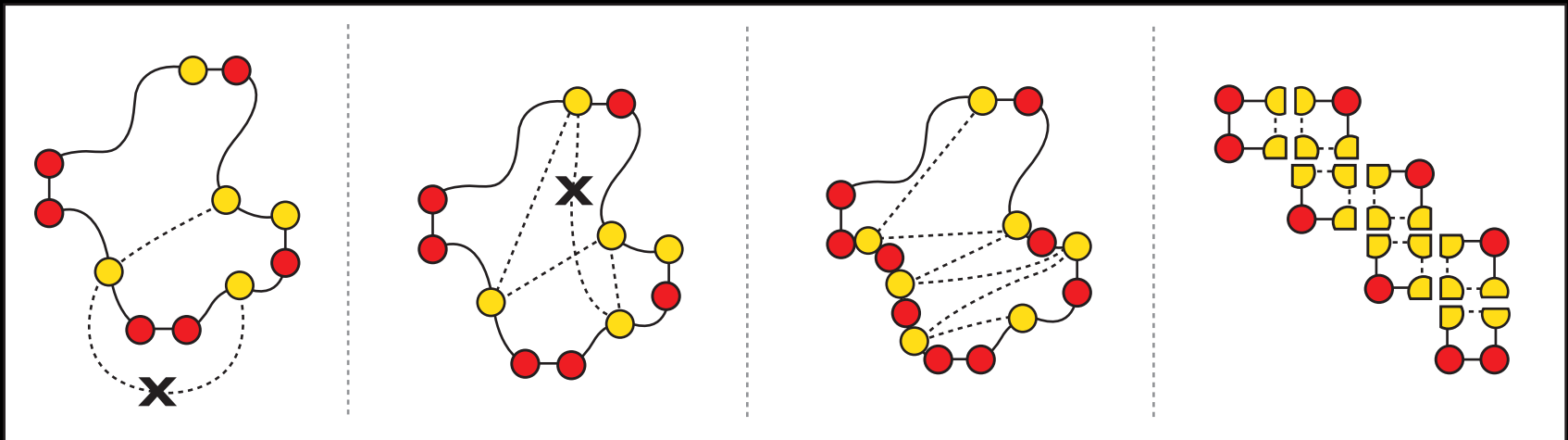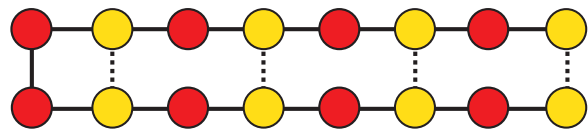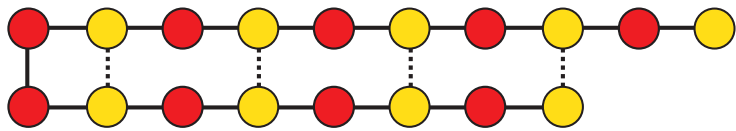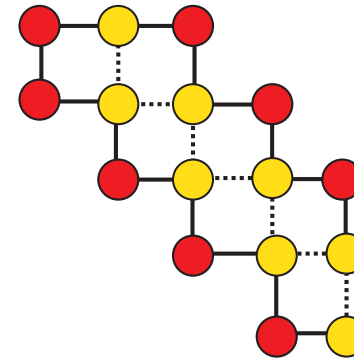
Image by MIT OpenCourseWare.
See also http://erikdemaine.org/papers/RedBlue_CGTA2003/.

3

See also http://erikdemaine.org/papers/RedBlue_CGTA2003/.

Aichholzer,
Bremner,
Demaine,
Meijer,
Sacristán,
Soss 2003

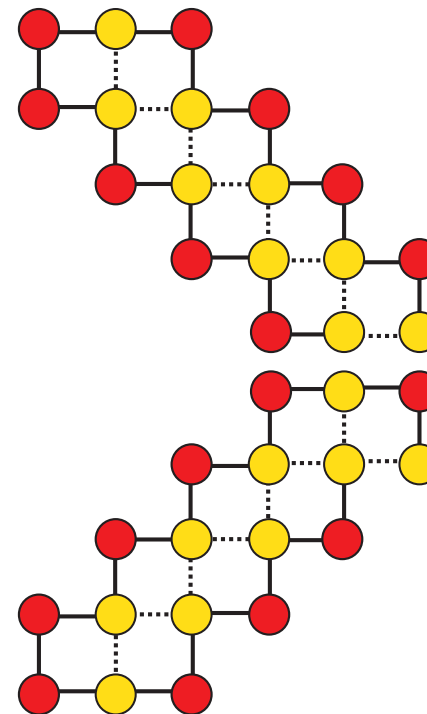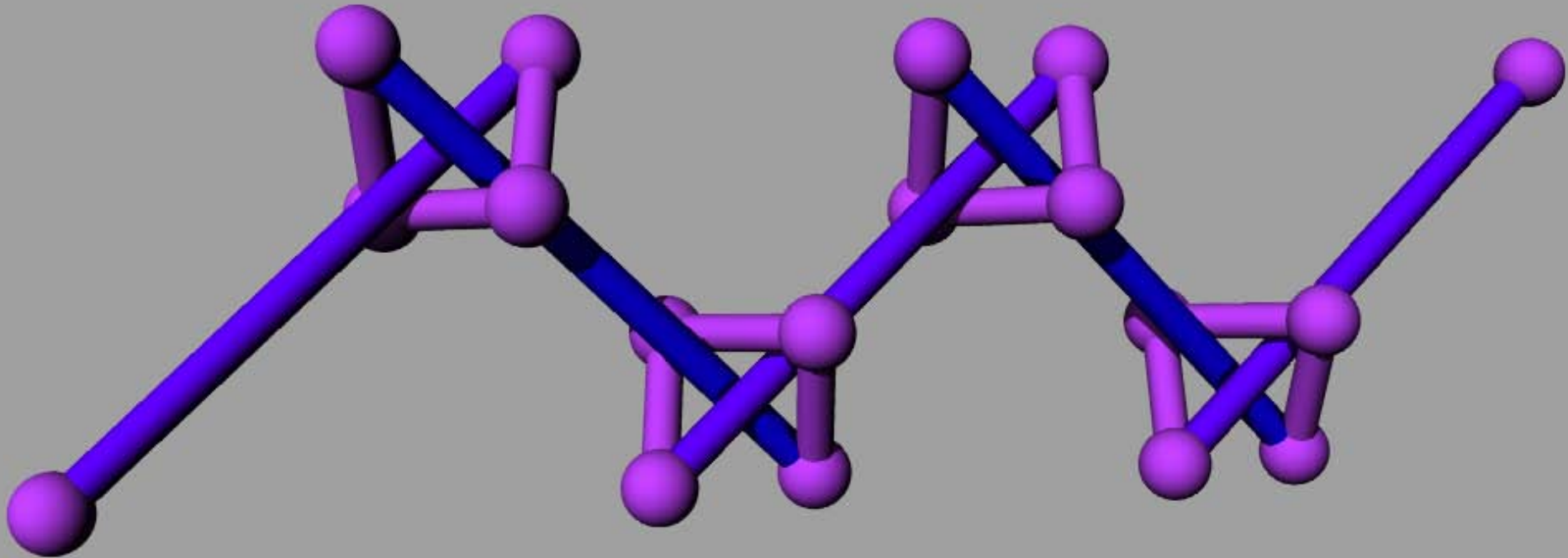**Unique optimal folding**

Length 16

Two optimal foldings

Length 18

Aichholzer, Bremner, Demaine, Meijer, Sacristán, Soss 2003

[Demaine, Langerman, O'Rourke, Snoeyink 2003]

Brunet,
Irving,
O'Rourke
2004

Glass,
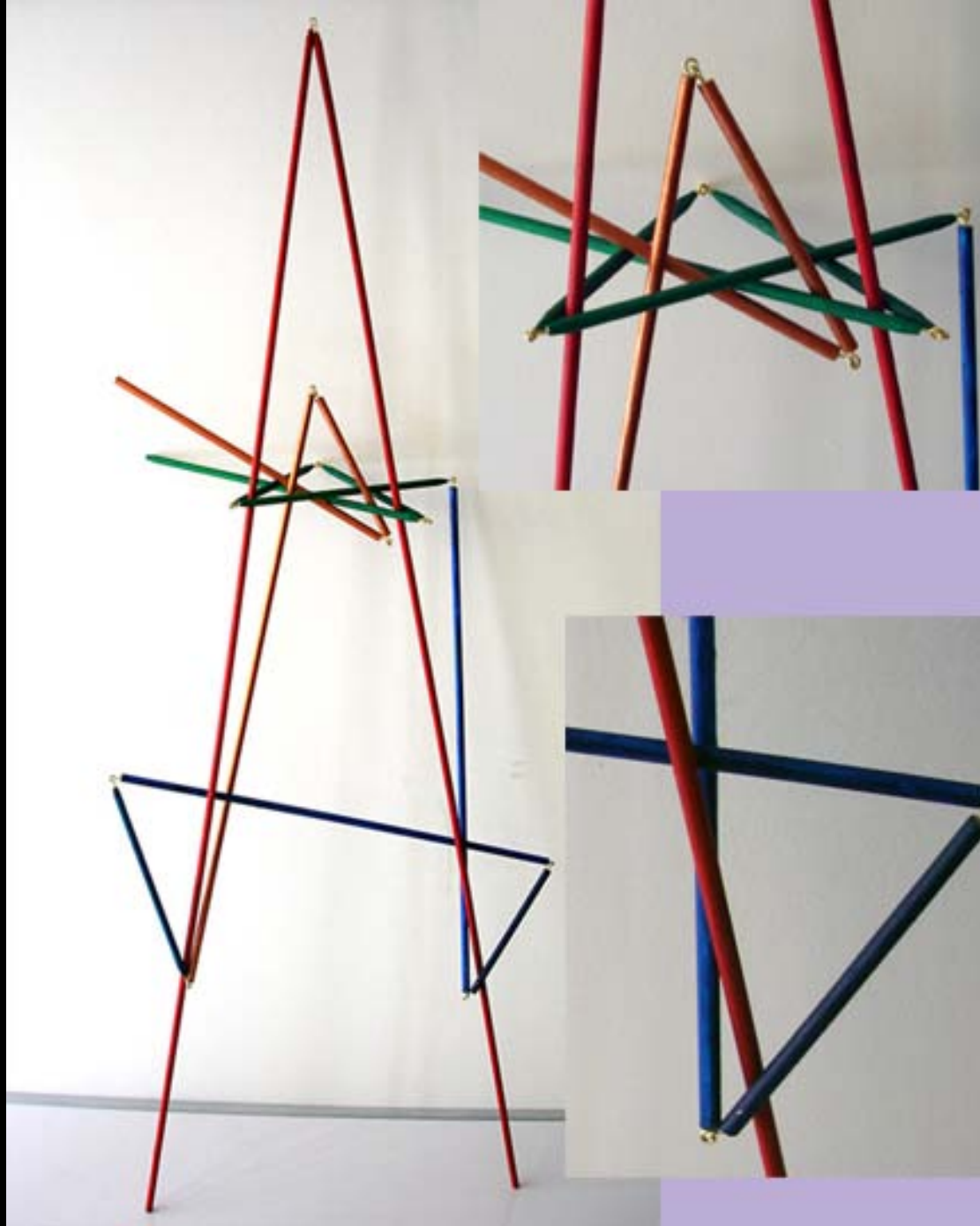Langerman,
O'Rourke,
Snoeyink,
Zhong 2004
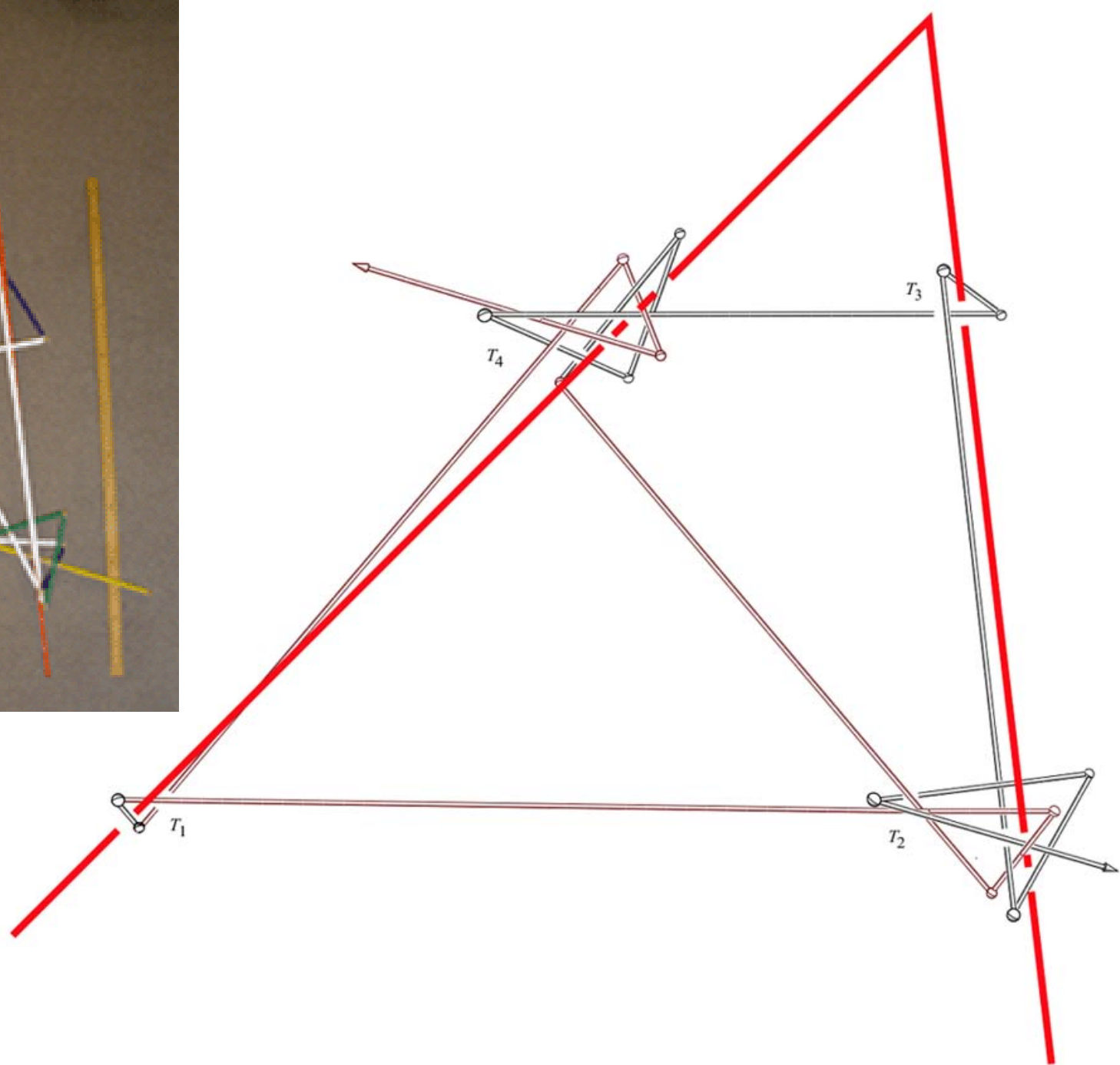
T_3

T_4

T_1

T_2

Glass, Lu,
O'Rourke,
Zhong 2006

8

sv_1

v'_0

sv_0

v'_2

s_0

$(0,0,0)$

v_2

sv_2

[Demaine, Langerman, O'Rourke, Snoeyink 2002]

a_2 a_1

xy

b_1

b_1

[Demaine, Langerman, O'Rourke, Snoeyink 2002]

[Demaine,
Langerman,
O'Rourke,
Snoeyink
2002]

[Demaine,
Langerman,
O'Rourke,
Snoeyink
2002]

12
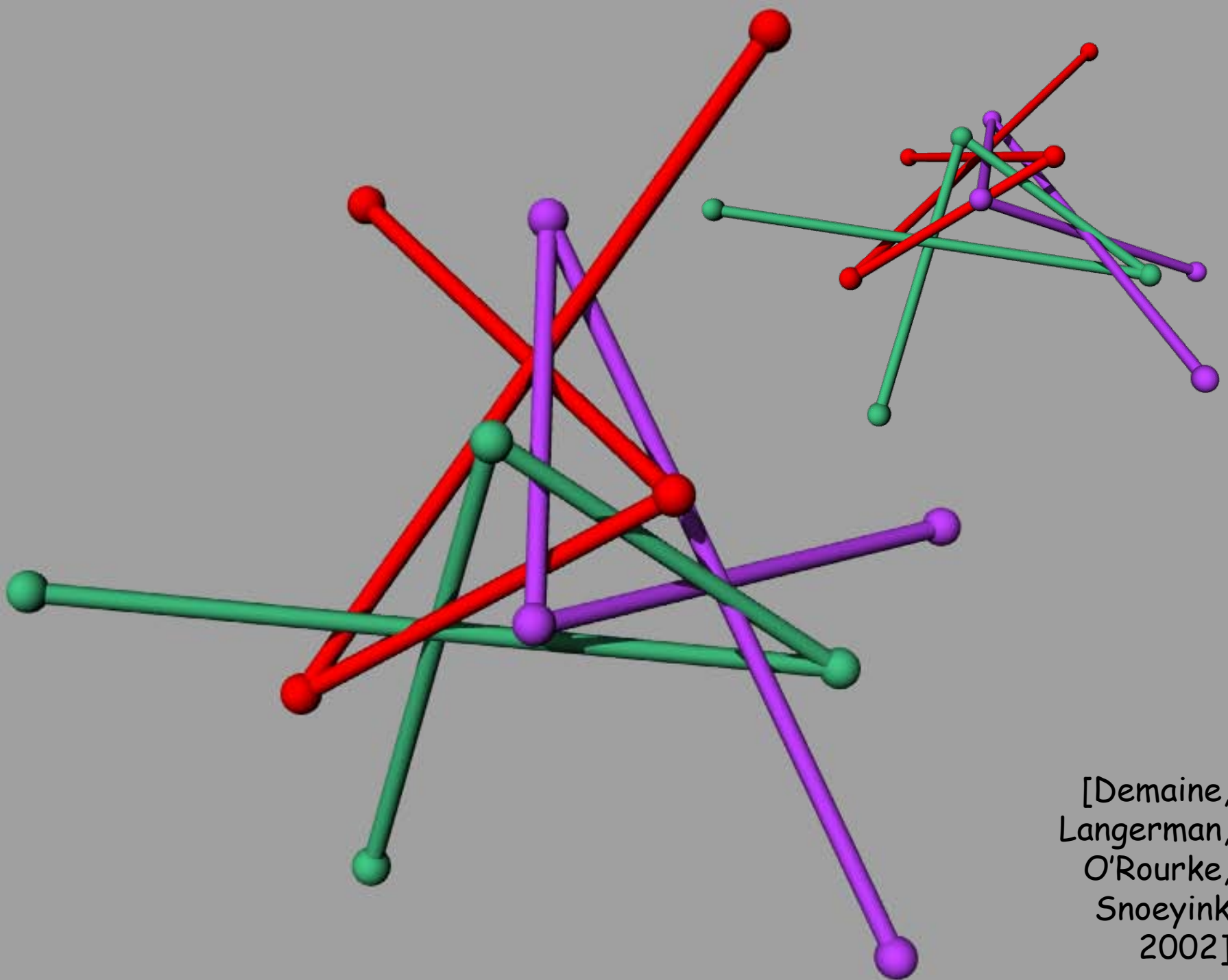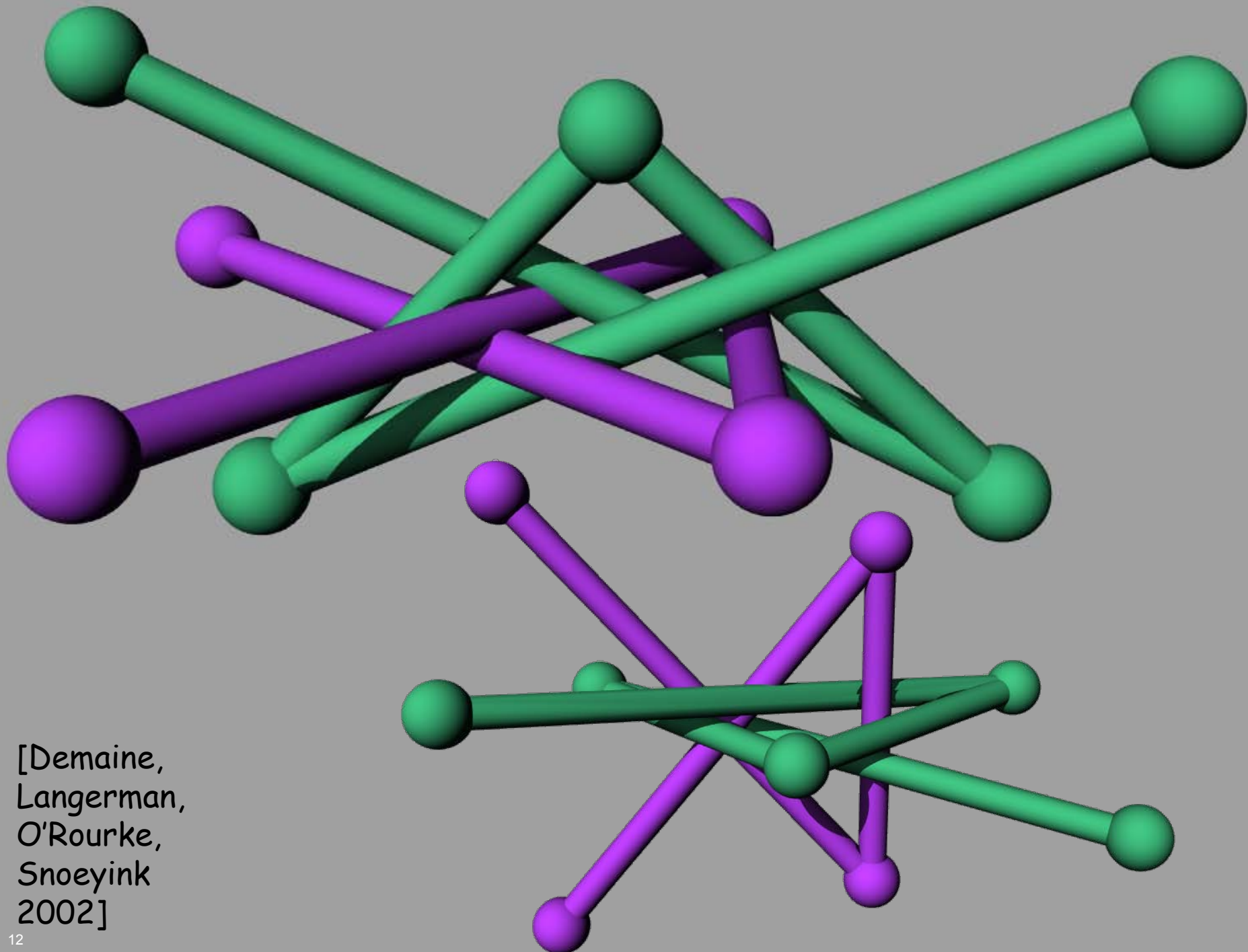
[Demaine,
Langerman,
O'Rourke,
Snoeyink
2003]

0_1^2 2_1^2 4_1^2 5_1^2
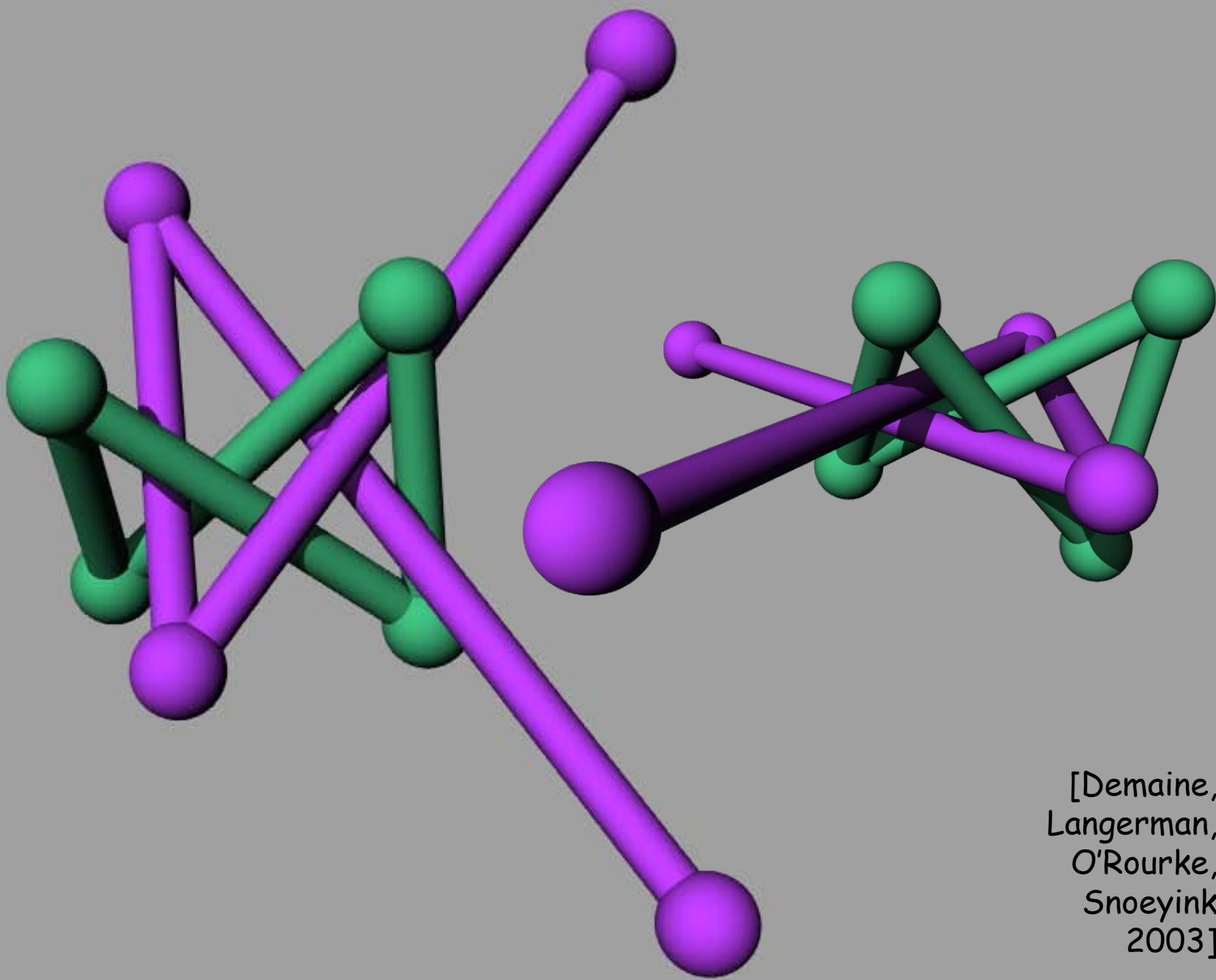
[Demaine,
Langerman,
O'Rourke,
Snoeyink
2003]

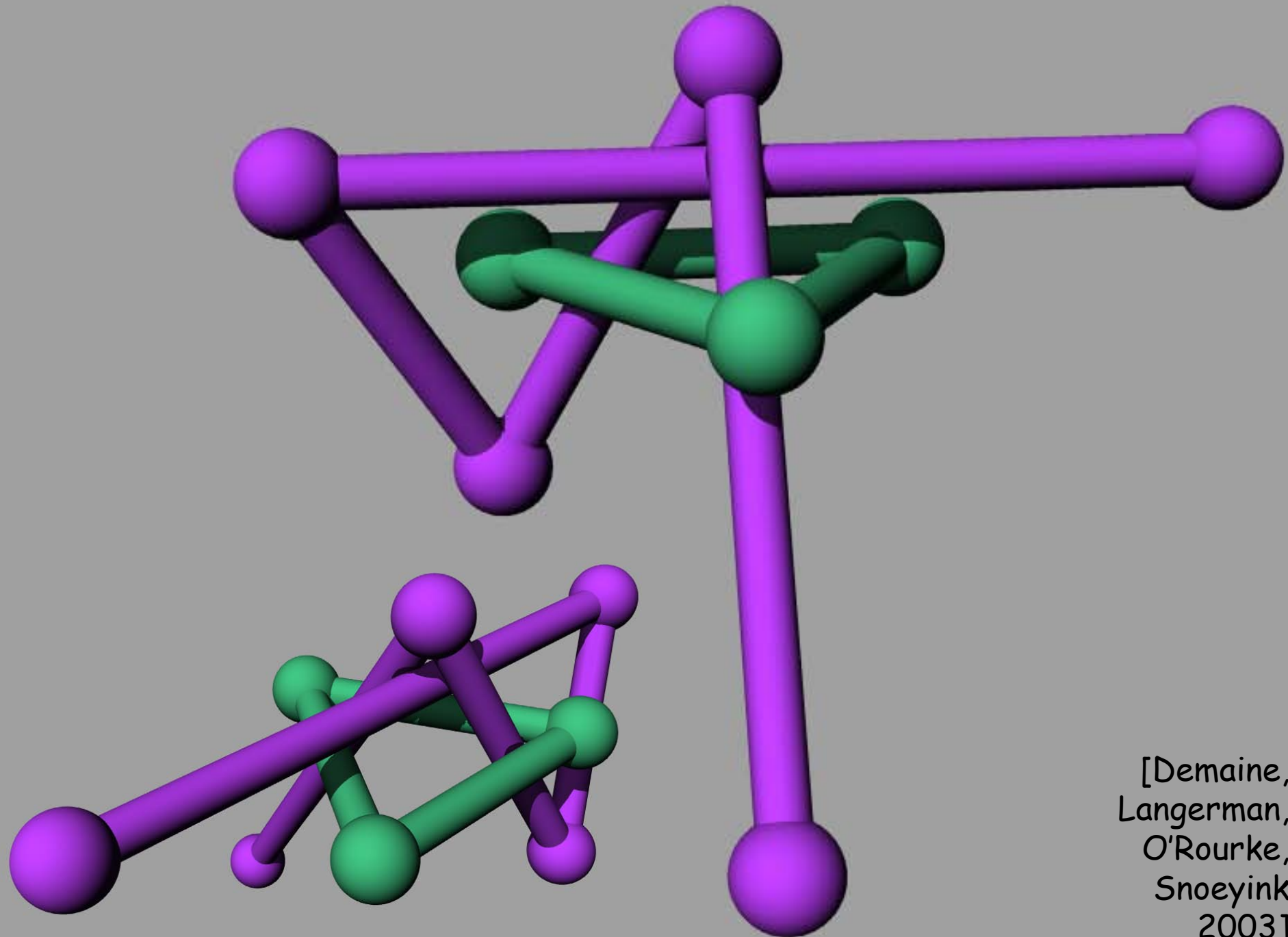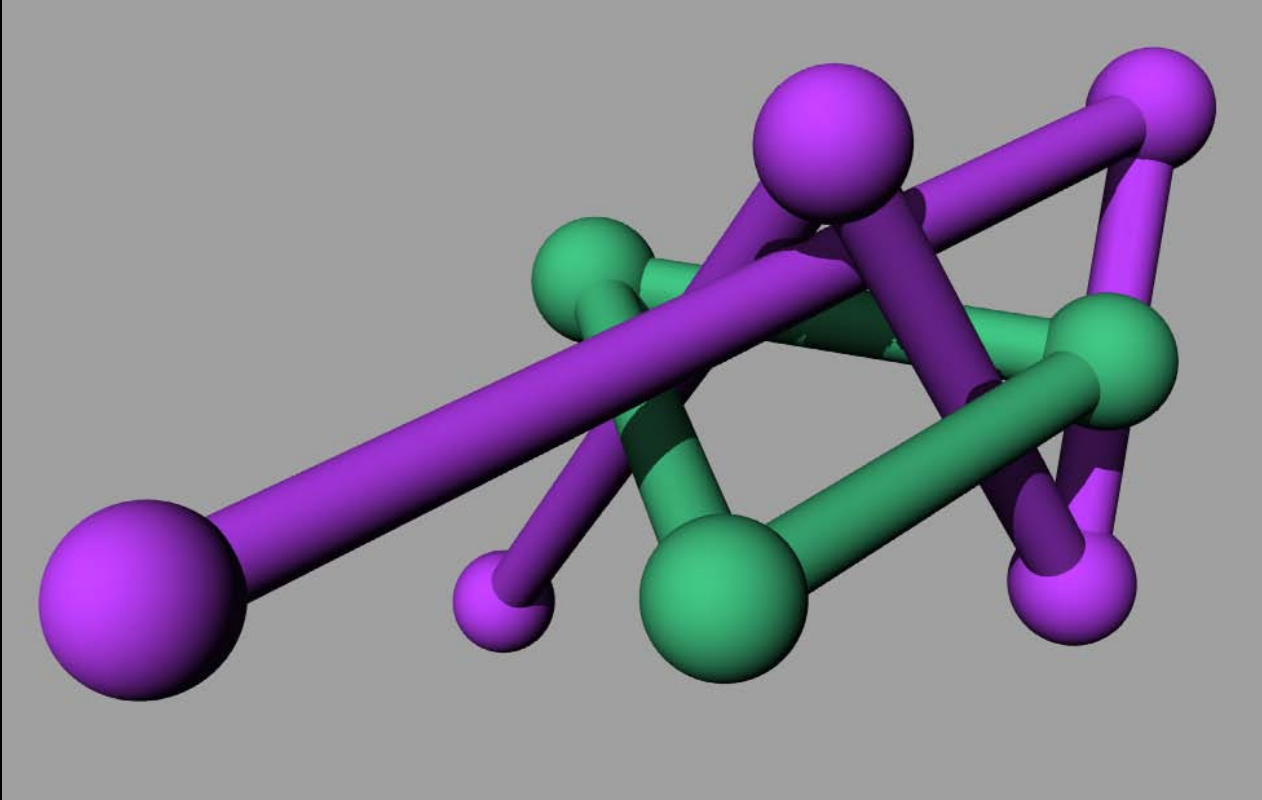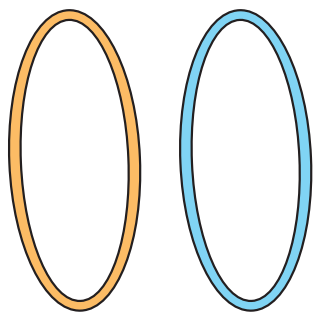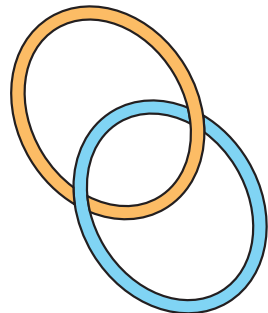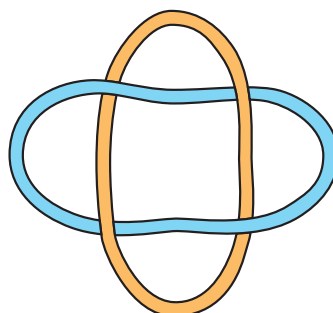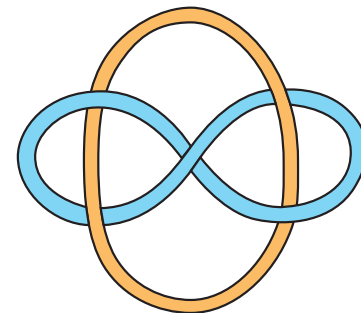| locked chains?		2		3			4			5
		univ.	rigid	univ.	fixed angle	rigid	univ.	fixed angle	rigid	rigid
2	univ.	–	–	–	–	–	–	–	–	+
	rigid	–	–	–	–	+	+	+	+	+
3	univ.	–	–	–	–	+	+	+	+	+
	fixed angle	–	–	–	+	+	+	+	+	+
	rigid	–	+	+	+	+	+	+	+	+
4	univ.	–	+	+	+	+	+	+	+	+
	fixed angle	–	+	+	+	+	+	+	+	+
	rigid	–	+	+	+	+	+	+	+	+
5	rigid	+	+	+	+	+	+	+	+	+

[Demaine, Langerman, O'Rourke, Snoeyink 2002]

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6.849 Geometric Folding Algorithms: Linkages, Origami, Polyhedra
Fall 2012