$CuMo_3I_7$ Structure: AB7C3_oP88_61_c_7c_3c-001

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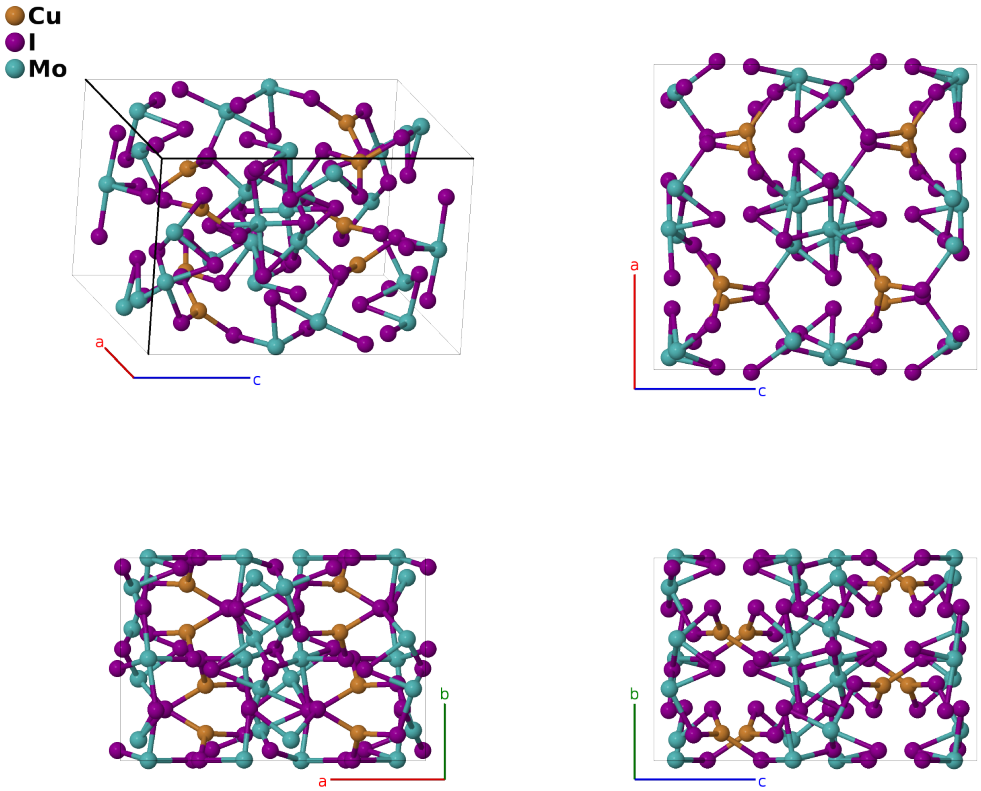
https://aflow.org/p/WLBF

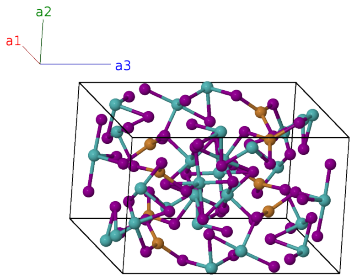
https://aflow.org/p/AB7C3_oP88_61_c_7c_3c-001



Prototype	CuI_7Mo_3
AFLOW prototype label	AB7C3_oP88_61_c_7c_3c-001
ICSD	404377
Pearson symbol	oP88
Space group number	61
Space group symbol	*Pbca*
AFLOW prototype command	`aflow --proto=AB7C3_oP88_61_c_7c_3c-001 --params=`$a, b/a, c/a, x_1, y_1, z_1, x_2, y_2, z_2, x_3, y_3, z_3, x_4, y_4, z_4, x_5, y_5, z_5, x_6, y_6, z_6, x_7, y_7, z_7, x_8, y_8, z_8, x_9, y_9, z_9, x_{10}, y_{10}, z_{10}, x_{11}, y_{11}, z_{11}$

Simple Orthorhombic primitive vectors

$$\mathbf{a_1} = a\,\hat{\mathbf{x}}$$
$$\mathbf{a_2} = b\,\hat{\mathbf{y}}$$
$$\mathbf{a_3} = c\,\hat{\mathbf{z}}$$



Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	=	$x_1\,\mathbf{a}_1 + y_1\,\mathbf{a}_2 + z_1\,\mathbf{a}_3$	=	$ax_1\,\hat{\mathbf{x}} + by_1\,\hat{\mathbf{y}} + cz_1\,\hat{\mathbf{z}}$	(8c)	Cu I
$\mathbf{B_2}$	=	$-\left(x_1 - \frac{1}{2}\right)\,\mathbf{a}_1 - y_1\,\mathbf{a}_2 + \left(z_1 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_1 - \frac{1}{2}\right)\,\hat{\mathbf{x}} - by_1\,\hat{\mathbf{y}} + c\left(z_1 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	Cu I
$\mathbf{B_3}$	=	$-x_1\,\mathbf{a}_1 + \left(y_1 + \frac{1}{2}\right)\,\mathbf{a}_2 - \left(z_1 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-ax_1\,\hat{\mathbf{x}} + b\left(y_1 + \frac{1}{2}\right)\,\hat{\mathbf{y}} - c\left(z_1 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	Cu I
$\mathbf{B_4}$	=	$\left(x_1 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_1 - \frac{1}{2}\right)\,\mathbf{a}_2 - z_1\,\mathbf{a}_3$	=	$a\left(x_1 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_1 - \frac{1}{2}\right)\,\hat{\mathbf{y}} - cz_1\,\hat{\mathbf{z}}$	(8c)	Cu I
$\mathbf{B_5}$	=	$-x_1\,\mathbf{a}_1 - y_1\,\mathbf{a}_2 - z_1\,\mathbf{a}_3$	=	$-ax_1\,\hat{\mathbf{x}} - by_1\,\hat{\mathbf{y}} - cz_1\,\hat{\mathbf{z}}$	(8c)	Cu I
$\mathbf{B_6}$	=	$\left(x_1 + \frac{1}{2}\right)\,\mathbf{a}_1 + y_1\,\mathbf{a}_2 - \left(z_1 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_1 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + by_1\,\hat{\mathbf{y}} - c\left(z_1 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	Cu I
$\mathbf{B_7}$	=	$x_1\,\mathbf{a}_1 - \left(y_1 - \frac{1}{2}\right)\,\mathbf{a}_2 + \left(z_1 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$ax_1\,\hat{\mathbf{x}} - b\left(y_1 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + c\left(z_1 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	Cu I
$\mathbf{B_8}$	=	$-\left(x_1 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_1 + \frac{1}{2}\right)\,\mathbf{a}_2 + z_1\,\mathbf{a}_3$	=	$-a\left(x_1 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_1 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_1\,\hat{\mathbf{z}}$	(8c)	Cu I
$\mathbf{B_9}$	=	$x_2\,\mathbf{a}_1 + y_2\,\mathbf{a}_2 + z_2\,\mathbf{a}_3$	=	$ax_2\,\hat{\mathbf{x}} + by_2\,\hat{\mathbf{y}} + cz_2\,\hat{\mathbf{z}}$	(8c)	I I
$\mathbf{B_{10}}$	=	$-\left(x_2 - \frac{1}{2}\right)\,\mathbf{a}_1 - y_2\,\mathbf{a}_2 + \left(z_2 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_2 - \frac{1}{2}\right)\,\hat{\mathbf{x}} - by_2\,\hat{\mathbf{y}} + c\left(z_2 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	I I
$\mathbf{B_{11}}$	=	$-x_2\,\mathbf{a}_1 + \left(y_2 + \frac{1}{2}\right)\,\mathbf{a}_2 - \left(z_2 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-ax_2\,\hat{\mathbf{x}} + b\left(y_2 + \frac{1}{2}\right)\,\hat{\mathbf{y}} - c\left(z_2 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	I I
$\mathbf{B_{12}}$	=	$\left(x_2 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_2 - \frac{1}{2}\right)\,\mathbf{a}_2 - z_2\,\mathbf{a}_3$	=	$a\left(x_2 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_2 - \frac{1}{2}\right)\,\hat{\mathbf{y}} - cz_2\,\hat{\mathbf{z}}$	(8c)	I I
$\mathbf{B_{13}}$	=	$-x_2\,\mathbf{a}_1 - y_2\,\mathbf{a}_2 - z_2\,\mathbf{a}_3$	=	$-ax_2\,\hat{\mathbf{x}} - by_2\,\hat{\mathbf{y}} - cz_2\,\hat{\mathbf{z}}$	(8c)	I I
$\mathbf{B_{14}}$	=	$\left(x_2 + \frac{1}{2}\right)\,\mathbf{a}_1 + y_2\,\mathbf{a}_2 - \left(z_2 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_2 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + by_2\,\hat{\mathbf{y}} - c\left(z_2 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	I I
$\mathbf{B_{15}}$	=	$x_2\,\mathbf{a}_1 - \left(y_2 - \frac{1}{2}\right)\,\mathbf{a}_2 + \left(z_2 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$ax_2\,\hat{\mathbf{x}} - b\left(y_2 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + c\left(z_2 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	I I
$\mathbf{B_{16}}$	=	$-\left(x_2 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_2 + \frac{1}{2}\right)\,\mathbf{a}_2 + z_2\,\mathbf{a}_3$	=	$-a\left(x_2 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_2 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_2\,\hat{\mathbf{z}}$	(8c)	I I
$\mathbf{B_{17}}$	=	$x_3\,\mathbf{a}_1 + y_3\,\mathbf{a}_2 + z_3\,\mathbf{a}_3$	=	$ax_3\,\hat{\mathbf{x}} + by_3\,\hat{\mathbf{y}} + cz_3\,\hat{\mathbf{z}}$	(8c)	I II
$\mathbf{B_{18}}$	=	$-\left(x_3 - \frac{1}{2}\right)\,\mathbf{a}_1 - y_3\,\mathbf{a}_2 + \left(z_3 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-a\left(x_3 - \frac{1}{2}\right)\,\hat{\mathbf{x}} - by_3\,\hat{\mathbf{y}} + c\left(z_3 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	I II
$\mathbf{B_{19}}$	=	$-x_3\,\mathbf{a}_1 + \left(y_3 + \frac{1}{2}\right)\,\mathbf{a}_2 - \left(z_3 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$-ax_3\,\hat{\mathbf{x}} + b\left(y_3 + \frac{1}{2}\right)\,\hat{\mathbf{y}} - c\left(z_3 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	I II
$\mathbf{B_{20}}$	=	$\left(x_3 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_3 - \frac{1}{2}\right)\,\mathbf{a}_2 - z_3\,\mathbf{a}_3$	=	$a\left(x_3 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_3 - \frac{1}{2}\right)\,\hat{\mathbf{y}} - cz_3\,\hat{\mathbf{z}}$	(8c)	I II
$\mathbf{B_{21}}$	=	$-x_3\,\mathbf{a}_1 - y_3\,\mathbf{a}_2 - z_3\,\mathbf{a}_3$	=	$-ax_3\,\hat{\mathbf{x}} - by_3\,\hat{\mathbf{y}} - cz_3\,\hat{\mathbf{z}}$	(8c)	I II
$\mathbf{B_{22}}$	=	$\left(x_3 + \frac{1}{2}\right)\,\mathbf{a}_1 + y_3\,\mathbf{a}_2 - \left(z_3 - \frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_3 + \frac{1}{2}\right)\,\hat{\mathbf{x}} + by_3\,\hat{\mathbf{y}} - c\left(z_3 - \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	I II
$\mathbf{B_{23}}$	=	$x_3\,\mathbf{a}_1 - \left(y_3 - \frac{1}{2}\right)\,\mathbf{a}_2 + \left(z_3 + \frac{1}{2}\right)\,\mathbf{a}_3$	=	$ax_3\,\hat{\mathbf{x}} - b\left(y_3 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + c\left(z_3 + \frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	I II

$$\mathbf{B_{24}} = -\left(x_3-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_3+\tfrac{1}{2}\right)\mathbf{a}_2+z_3\,\mathbf{a}_3 = -a\left(x_3-\tfrac{1}{2}\right)\hat{\mathbf{x}}+b\left(y_3+\tfrac{1}{2}\right)\hat{\mathbf{y}}+cz_3\,\hat{\mathbf{z}} \quad (8c) \quad \text{I II}$$

$$\mathbf{B_{25}} = x_4\,\mathbf{a}_1+y_4\,\mathbf{a}_2+z_4\,\mathbf{a}_3 = ax_4\,\hat{\mathbf{x}}+by_4\,\hat{\mathbf{y}}+cz_4\,\hat{\mathbf{z}} \quad (8c) \quad \text{I III}$$

$$\mathbf{B_{26}} = -\left(x_4-\tfrac{1}{2}\right)\mathbf{a}_1-y_4\,\mathbf{a}_2+\left(z_4+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_4-\tfrac{1}{2}\right)\hat{\mathbf{x}}-by_4\,\hat{\mathbf{y}}+c\left(z_4+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I III}$$

$$\mathbf{B_{27}} = -x_4\,\mathbf{a}_1+\left(y_4+\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_4-\tfrac{1}{2}\right)\mathbf{a}_3 = -ax_4\,\hat{\mathbf{x}}+b\left(y_4+\tfrac{1}{2}\right)\hat{\mathbf{y}}-c\left(z_4-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I III}$$

$$\mathbf{B_{28}} = \left(x_4+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_4-\tfrac{1}{2}\right)\mathbf{a}_2-z_4\,\mathbf{a}_3 = a\left(x_4+\tfrac{1}{2}\right)\hat{\mathbf{x}}-b\left(y_4-\tfrac{1}{2}\right)\hat{\mathbf{y}}-cz_4\,\hat{\mathbf{z}} \quad (8c) \quad \text{I III}$$

$$\mathbf{B_{29}} = -x_4\,\mathbf{a}_1-y_4\,\mathbf{a}_2-z_4\,\mathbf{a}_3 = -ax_4\,\hat{\mathbf{x}}-by_4\,\hat{\mathbf{y}}-cz_4\,\hat{\mathbf{z}} \quad (8c) \quad \text{I III}$$

$$\mathbf{B_{30}} = \left(x_4+\tfrac{1}{2}\right)\mathbf{a}_1+y_4\,\mathbf{a}_2-\left(z_4-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_4+\tfrac{1}{2}\right)\hat{\mathbf{x}}+by_4\,\hat{\mathbf{y}}-c\left(z_4-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I III}$$

$$\mathbf{B_{31}} = x_4\,\mathbf{a}_1-\left(y_4-\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_4+\tfrac{1}{2}\right)\mathbf{a}_3 = ax_4\,\hat{\mathbf{x}}-b\left(y_4-\tfrac{1}{2}\right)\hat{\mathbf{y}}+c\left(z_4+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I III}$$

$$\mathbf{B_{32}} = -\left(x_4-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_4+\tfrac{1}{2}\right)\mathbf{a}_2+z_4\,\mathbf{a}_3 = -a\left(x_4-\tfrac{1}{2}\right)\hat{\mathbf{x}}+b\left(y_4+\tfrac{1}{2}\right)\hat{\mathbf{y}}+cz_4\,\hat{\mathbf{z}} \quad (8c) \quad \text{I III}$$

$$\mathbf{B_{33}} = x_5\,\mathbf{a}_1+y_5\,\mathbf{a}_2+z_5\,\mathbf{a}_3 = ax_5\,\hat{\mathbf{x}}+by_5\,\hat{\mathbf{y}}+cz_5\,\hat{\mathbf{z}} \quad (8c) \quad \text{I IV}$$

$$\mathbf{B_{34}} = -\left(x_5-\tfrac{1}{2}\right)\mathbf{a}_1-y_5\,\mathbf{a}_2+\left(z_5+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_5-\tfrac{1}{2}\right)\hat{\mathbf{x}}-by_5\,\hat{\mathbf{y}}+c\left(z_5+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I IV}$$

$$\mathbf{B_{35}} = -x_5\,\mathbf{a}_1+\left(y_5+\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_5-\tfrac{1}{2}\right)\mathbf{a}_3 = -ax_5\,\hat{\mathbf{x}}+b\left(y_5+\tfrac{1}{2}\right)\hat{\mathbf{y}}-c\left(z_5-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I IV}$$

$$\mathbf{B_{36}} = \left(x_5+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_5-\tfrac{1}{2}\right)\mathbf{a}_2-z_5\,\mathbf{a}_3 = a\left(x_5+\tfrac{1}{2}\right)\hat{\mathbf{x}}-b\left(y_5-\tfrac{1}{2}\right)\hat{\mathbf{y}}-cz_5\,\hat{\mathbf{z}} \quad (8c) \quad \text{I IV}$$

$$\mathbf{B_{37}} = -x_5\,\mathbf{a}_1-y_5\,\mathbf{a}_2-z_5\,\mathbf{a}_3 = -ax_5\,\hat{\mathbf{x}}-by_5\,\hat{\mathbf{y}}-cz_5\,\hat{\mathbf{z}} \quad (8c) \quad \text{I IV}$$

$$\mathbf{B_{38}} = \left(x_5+\tfrac{1}{2}\right)\mathbf{a}_1+y_5\,\mathbf{a}_2-\left(z_5-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_5+\tfrac{1}{2}\right)\hat{\mathbf{x}}+by_5\,\hat{\mathbf{y}}-c\left(z_5-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I IV}$$

$$\mathbf{B_{39}} = x_5\,\mathbf{a}_1-\left(y_5-\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_5+\tfrac{1}{2}\right)\mathbf{a}_3 = ax_5\,\hat{\mathbf{x}}-b\left(y_5-\tfrac{1}{2}\right)\hat{\mathbf{y}}+c\left(z_5+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I IV}$$

$$\mathbf{B_{40}} = -\left(x_5-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_5+\tfrac{1}{2}\right)\mathbf{a}_2+z_5\,\mathbf{a}_3 = -a\left(x_5-\tfrac{1}{2}\right)\hat{\mathbf{x}}+b\left(y_5+\tfrac{1}{2}\right)\hat{\mathbf{y}}+cz_5\,\hat{\mathbf{z}} \quad (8c) \quad \text{I IV}$$

$$\mathbf{B_{41}} = x_6\,\mathbf{a}_1+y_6\,\mathbf{a}_2+z_6\,\mathbf{a}_3 = ax_6\,\hat{\mathbf{x}}+by_6\,\hat{\mathbf{y}}+cz_6\,\hat{\mathbf{z}} \quad (8c) \quad \text{I V}$$

$$\mathbf{B_{42}} = -\left(x_6-\tfrac{1}{2}\right)\mathbf{a}_1-y_6\,\mathbf{a}_2+\left(z_6+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_6-\tfrac{1}{2}\right)\hat{\mathbf{x}}-by_6\,\hat{\mathbf{y}}+c\left(z_6+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I V}$$

$$\mathbf{B_{43}} = -x_6\,\mathbf{a}_1+\left(y_6+\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_6-\tfrac{1}{2}\right)\mathbf{a}_3 = -ax_6\,\hat{\mathbf{x}}+b\left(y_6+\tfrac{1}{2}\right)\hat{\mathbf{y}}-c\left(z_6-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I V}$$

$$\mathbf{B_{44}} = \left(x_6+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_6-\tfrac{1}{2}\right)\mathbf{a}_2-z_6\,\mathbf{a}_3 = a\left(x_6+\tfrac{1}{2}\right)\hat{\mathbf{x}}-b\left(y_6-\tfrac{1}{2}\right)\hat{\mathbf{y}}-cz_6\,\hat{\mathbf{z}} \quad (8c) \quad \text{I V}$$

$$\mathbf{B_{45}} = -x_6\,\mathbf{a}_1-y_6\,\mathbf{a}_2-z_6\,\mathbf{a}_3 = -ax_6\,\hat{\mathbf{x}}-by_6\,\hat{\mathbf{y}}-cz_6\,\hat{\mathbf{z}} \quad (8c) \quad \text{I V}$$

$$\mathbf{B_{46}} = \left(x_6+\tfrac{1}{2}\right)\mathbf{a}_1+y_6\,\mathbf{a}_2-\left(z_6-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_6+\tfrac{1}{2}\right)\hat{\mathbf{x}}+by_6\,\hat{\mathbf{y}}-c\left(z_6-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I V}$$

$$\mathbf{B_{47}} = x_6\,\mathbf{a}_1-\left(y_6-\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_6+\tfrac{1}{2}\right)\mathbf{a}_3 = ax_6\,\hat{\mathbf{x}}-b\left(y_6-\tfrac{1}{2}\right)\hat{\mathbf{y}}+c\left(z_6+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I V}$$

$$\mathbf{B_{48}} = -\left(x_6-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_6+\tfrac{1}{2}\right)\mathbf{a}_2+z_6\,\mathbf{a}_3 = -a\left(x_6-\tfrac{1}{2}\right)\hat{\mathbf{x}}+b\left(y_6+\tfrac{1}{2}\right)\hat{\mathbf{y}}+cz_6\,\hat{\mathbf{z}} \quad (8c) \quad \text{I V}$$

$$\mathbf{B_{49}} = x_7\,\mathbf{a}_1+y_7\,\mathbf{a}_2+z_7\,\mathbf{a}_3 = ax_7\,\hat{\mathbf{x}}+by_7\,\hat{\mathbf{y}}+cz_7\,\hat{\mathbf{z}} \quad (8c) \quad \text{I VI}$$

$$\mathbf{B_{50}} = -\left(x_7-\tfrac{1}{2}\right)\mathbf{a}_1-y_7\,\mathbf{a}_2+\left(z_7+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_7-\tfrac{1}{2}\right)\hat{\mathbf{x}}-by_7\,\hat{\mathbf{y}}+c\left(z_7+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I VI}$$

$$\mathbf{B_{51}} = -x_7\,\mathbf{a}_1+\left(y_7+\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_7-\tfrac{1}{2}\right)\mathbf{a}_3 = -ax_7\,\hat{\mathbf{x}}+b\left(y_7+\tfrac{1}{2}\right)\hat{\mathbf{y}}-c\left(z_7-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I VI}$$

$$\mathbf{B_{52}} = \left(x_7+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_7-\tfrac{1}{2}\right)\mathbf{a}_2-z_7\,\mathbf{a}_3 = a\left(x_7+\tfrac{1}{2}\right)\hat{\mathbf{x}}-b\left(y_7-\tfrac{1}{2}\right)\hat{\mathbf{y}}-cz_7\,\hat{\mathbf{z}} \quad (8c) \quad \text{I VI}$$

$$\mathbf{B_{53}} = -x_7\,\mathbf{a}_1-y_7\,\mathbf{a}_2-z_7\,\mathbf{a}_3 = -ax_7\,\hat{\mathbf{x}}-by_7\,\hat{\mathbf{y}}-cz_7\,\hat{\mathbf{z}} \quad (8c) \quad \text{I VI}$$

$$\mathbf{B_{54}} = \left(x_7+\tfrac{1}{2}\right)\mathbf{a}_1+y_7\,\mathbf{a}_2-\left(z_7-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_7+\tfrac{1}{2}\right)\hat{\mathbf{x}}+by_7\,\hat{\mathbf{y}}-c\left(z_7-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I VI}$$

$$\mathbf{B_{55}} = x_7\,\mathbf{a}_1-\left(y_7-\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_7+\tfrac{1}{2}\right)\mathbf{a}_3 = ax_7\,\hat{\mathbf{x}}-b\left(y_7-\tfrac{1}{2}\right)\hat{\mathbf{y}}+c\left(z_7+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I VI}$$

$$\mathbf{B_{56}} = -\left(x_7-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_7+\tfrac{1}{2}\right)\mathbf{a}_2+z_7\,\mathbf{a}_3 = -a\left(x_7-\tfrac{1}{2}\right)\hat{\mathbf{x}}+b\left(y_7+\tfrac{1}{2}\right)\hat{\mathbf{y}}+cz_7\,\hat{\mathbf{z}} \quad (8c) \quad \text{I VI}$$

$$\mathbf{B_{57}} = x_8\,\mathbf{a}_1+y_8\,\mathbf{a}_2+z_8\,\mathbf{a}_3 = ax_8\,\hat{\mathbf{x}}+by_8\,\hat{\mathbf{y}}+cz_8\,\hat{\mathbf{z}} \quad (8c) \quad \text{I VII}$$

$$\mathbf{B_{58}} = -\left(x_8-\tfrac{1}{2}\right)\mathbf{a}_1-y_8\,\mathbf{a}_2+\left(z_8+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_8-\tfrac{1}{2}\right)\hat{\mathbf{x}}-by_8\,\hat{\mathbf{y}}+c\left(z_8+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I VII}$$

$$\mathbf{B_{59}} = -x_8\,\mathbf{a}_1+\left(y_8+\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_8-\tfrac{1}{2}\right)\mathbf{a}_3 = -ax_8\,\hat{\mathbf{x}}+b\left(y_8+\tfrac{1}{2}\right)\hat{\mathbf{y}}-c\left(z_8-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I VII}$$

$$\mathbf{B_{60}} = \left(x_8+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_8-\tfrac{1}{2}\right)\mathbf{a}_2-z_8\,\mathbf{a}_3 = a\left(x_8+\tfrac{1}{2}\right)\hat{\mathbf{x}}-b\left(y_8-\tfrac{1}{2}\right)\hat{\mathbf{y}}-cz_8\,\hat{\mathbf{z}} \quad (8c) \quad \text{I VII}$$

$$\mathbf{B_{61}} = -x_8\,\mathbf{a}_1-y_8\,\mathbf{a}_2-z_8\,\mathbf{a}_3 = -ax_8\,\hat{\mathbf{x}}-by_8\,\hat{\mathbf{y}}-cz_8\,\hat{\mathbf{z}} \quad (8c) \quad \text{I VII}$$

$$\mathbf{B_{62}} = \left(x_8+\tfrac{1}{2}\right)\mathbf{a}_1+y_8\,\mathbf{a}_2-\left(z_8-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_8+\tfrac{1}{2}\right)\hat{\mathbf{x}}+by_8\,\hat{\mathbf{y}}-c\left(z_8-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I VII}$$

$$\mathbf{B_{63}} = x_8\,\mathbf{a}_1-\left(y_8-\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_8+\tfrac{1}{2}\right)\mathbf{a}_3 = ax_8\,\hat{\mathbf{x}}-b\left(y_8-\tfrac{1}{2}\right)\hat{\mathbf{y}}+c\left(z_8+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{I VII}$$

$$\mathbf{B_{64}} = -\left(x_8-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_8+\tfrac{1}{2}\right)\mathbf{a}_2+z_8\,\mathbf{a}_3 = -a\left(x_8-\tfrac{1}{2}\right)\hat{\mathbf{x}}+b\left(y_8+\tfrac{1}{2}\right)\hat{\mathbf{y}}+cz_8\,\hat{\mathbf{z}} \quad (8c) \quad \text{I VII}$$

$$\mathbf{B_{65}} = x_9\,\mathbf{a}_1+y_9\,\mathbf{a}_2+z_9\,\mathbf{a}_3 = ax_9\,\hat{\mathbf{x}}+by_9\,\hat{\mathbf{y}}+cz_9\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo I}$$

$$\mathbf{B_{66}} = -\left(x_9-\tfrac{1}{2}\right)\mathbf{a}_1-y_9\,\mathbf{a}_2+\left(z_9+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_9-\tfrac{1}{2}\right)\hat{\mathbf{x}}-by_9\,\hat{\mathbf{y}}+c\left(z_9+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo I}$$

$$\mathbf{B_{67}} = -x_9\,\mathbf{a}_1+\left(y_9+\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_9-\tfrac{1}{2}\right)\mathbf{a}_3 = -ax_9\,\hat{\mathbf{x}}+b\left(y_9+\tfrac{1}{2}\right)\hat{\mathbf{y}}-c\left(z_9-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo I}$$

$$\mathbf{B_{68}} = \left(x_9+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_9-\tfrac{1}{2}\right)\mathbf{a}_2-z_9\,\mathbf{a}_3 = a\left(x_9+\tfrac{1}{2}\right)\hat{\mathbf{x}}-b\left(y_9-\tfrac{1}{2}\right)\hat{\mathbf{y}}-cz_9\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo I}$$

$$\mathbf{B_{69}} = -x_9\,\mathbf{a}_1-y_9\,\mathbf{a}_2-z_9\,\mathbf{a}_3 = -ax_9\,\hat{\mathbf{x}}-by_9\,\hat{\mathbf{y}}-cz_9\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo I}$$

$$\mathbf{B_{70}} = \left(x_9+\tfrac{1}{2}\right)\mathbf{a}_1+y_9\,\mathbf{a}_2-\left(z_9-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_9+\tfrac{1}{2}\right)\hat{\mathbf{x}}+by_9\,\hat{\mathbf{y}}-c\left(z_9-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo I}$$

$$\mathbf{B_{71}} = x_9\,\mathbf{a}_1-\left(y_9-\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_9+\tfrac{1}{2}\right)\mathbf{a}_3 = ax_9\,\hat{\mathbf{x}}-b\left(y_9-\tfrac{1}{2}\right)\hat{\mathbf{y}}+c\left(z_9+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo I}$$

$$\mathbf{B_{72}} = -\left(x_9-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_9+\tfrac{1}{2}\right)\mathbf{a}_2+z_9\,\mathbf{a}_3 = -a\left(x_9-\tfrac{1}{2}\right)\hat{\mathbf{x}}+b\left(y_9+\tfrac{1}{2}\right)\hat{\mathbf{y}}+cz_9\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo I}$$

$$\mathbf{B_{73}} = x_{10}\,\mathbf{a}_1+y_{10}\,\mathbf{a}_2+z_{10}\,\mathbf{a}_3 = ax_{10}\,\hat{\mathbf{x}}+by_{10}\,\hat{\mathbf{y}}+cz_{10}\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo II}$$

$$\mathbf{B_{74}} = -\left(x_{10}-\tfrac{1}{2}\right)\mathbf{a}_1-y_{10}\,\mathbf{a}_2+\left(z_{10}+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_{10}-\tfrac{1}{2}\right)\hat{\mathbf{x}}-by_{10}\,\hat{\mathbf{y}}+c\left(z_{10}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo II}$$

$$\mathbf{B_{75}} = -x_{10}\,\mathbf{a}_1+\left(y_{10}+\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_{10}-\tfrac{1}{2}\right)\mathbf{a}_3 = -ax_{10}\,\hat{\mathbf{x}}+b\left(y_{10}+\tfrac{1}{2}\right)\hat{\mathbf{y}}-c\left(z_{10}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo II}$$

$$\mathbf{B_{76}} = \left(x_{10}+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_{10}-\tfrac{1}{2}\right)\mathbf{a}_2-z_{10}\,\mathbf{a}_3 = a\left(x_{10}+\tfrac{1}{2}\right)\hat{\mathbf{x}}-b\left(y_{10}-\tfrac{1}{2}\right)\hat{\mathbf{y}}-cz_{10}\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo II}$$

$$\mathbf{B_{77}} = -x_{10}\,\mathbf{a}_1-y_{10}\,\mathbf{a}_2-z_{10}\,\mathbf{a}_3 = -ax_{10}\,\hat{\mathbf{x}}-by_{10}\,\hat{\mathbf{y}}-cz_{10}\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo II}$$

$$\mathbf{B_{78}} = \left(x_{10}+\tfrac{1}{2}\right)\mathbf{a}_1+y_{10}\,\mathbf{a}_2-\left(z_{10}-\tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_{10}+\tfrac{1}{2}\right)\hat{\mathbf{x}}+by_{10}\,\hat{\mathbf{y}}-c\left(z_{10}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo II}$$

$$\mathbf{B_{79}} = x_{10}\,\mathbf{a}_1-\left(y_{10}-\tfrac{1}{2}\right)\mathbf{a}_2+\left(z_{10}+\tfrac{1}{2}\right)\mathbf{a}_3 = ax_{10}\,\hat{\mathbf{x}}-b\left(y_{10}-\tfrac{1}{2}\right)\hat{\mathbf{y}}+c\left(z_{10}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo II}$$

$$\mathbf{B_{80}} = -\left(x_{10}-\tfrac{1}{2}\right)\mathbf{a}_1+\left(y_{10}+\tfrac{1}{2}\right)\mathbf{a}_2+z_{10}\,\mathbf{a}_3 = -a\left(x_{10}-\tfrac{1}{2}\right)\hat{\mathbf{x}}+b\left(y_{10}+\tfrac{1}{2}\right)\hat{\mathbf{y}}+cz_{10}\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo II}$$

$$\mathbf{B_{81}} = x_{11}\,\mathbf{a}_1+y_{11}\,\mathbf{a}_2+z_{11}\,\mathbf{a}_3 = ax_{11}\,\hat{\mathbf{x}}+by_{11}\,\hat{\mathbf{y}}+cz_{11}\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo III}$$

$$\mathbf{B_{82}} = -\left(x_{11}-\tfrac{1}{2}\right)\mathbf{a}_1-y_{11}\,\mathbf{a}_2+\left(z_{11}+\tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_{11}-\tfrac{1}{2}\right)\hat{\mathbf{x}}-by_{11}\,\hat{\mathbf{y}}+c\left(z_{11}+\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo III}$$

$$\mathbf{B_{83}} = -x_{11}\,\mathbf{a}_1+\left(y_{11}+\tfrac{1}{2}\right)\mathbf{a}_2-\left(z_{11}-\tfrac{1}{2}\right)\mathbf{a}_3 = -ax_{11}\,\hat{\mathbf{x}}+b\left(y_{11}+\tfrac{1}{2}\right)\hat{\mathbf{y}}-c\left(z_{11}-\tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (8c) \quad \text{Mo III}$$

$$\mathbf{B_{84}} = \left(x_{11}+\tfrac{1}{2}\right)\mathbf{a}_1-\left(y_{11}-\tfrac{1}{2}\right)\mathbf{a}_2-z_{11}\,\mathbf{a}_3 = a\left(x_{11}+\tfrac{1}{2}\right)\hat{\mathbf{x}}-b\left(y_{11}-\tfrac{1}{2}\right)\hat{\mathbf{y}}-cz_{11}\,\hat{\mathbf{z}} \quad (8c) \quad \text{Mo III}$$

$\mathbf{B_{85}}$	=	$-x_{11}\,\mathbf{a}_1 - y_{11}\,\mathbf{a}_2 - z_{11}\,\mathbf{a}_3$	=	$-ax_{11}\,\hat{\mathbf{x}} - by_{11}\,\hat{\mathbf{y}} - cz_{11}\,\hat{\mathbf{z}}$	(8c)	Mo III
$\mathbf{B_{86}}$	=	$\left(x_{11}+\frac{1}{2}\right)\,\mathbf{a}_1 + y_{11}\,\mathbf{a}_2 - \left(z_{11}-\frac{1}{2}\right)\,\mathbf{a}_3$	=	$a\left(x_{11}+\frac{1}{2}\right)\,\hat{\mathbf{x}} + by_{11}\,\hat{\mathbf{y}} - c\left(z_{11}-\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	Mo III
$\mathbf{B_{87}}$	=	$x_{11}\,\mathbf{a}_1 - \left(y_{11}-\frac{1}{2}\right)\,\mathbf{a}_2 + \left(z_{11}+\frac{1}{2}\right)\,\mathbf{a}_3$	=	$ax_{11}\,\hat{\mathbf{x}} - b\left(y_{11}-\frac{1}{2}\right)\,\hat{\mathbf{y}} + c\left(z_{11}+\frac{1}{2}\right)\,\hat{\mathbf{z}}$	(8c)	Mo III
$\mathbf{B_{88}}$	=	$-\left(x_{11}-\frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{11}+\frac{1}{2}\right)\,\mathbf{a}_2 + z_{11}\,\mathbf{a}_3$	=	$-a\left(x_{11}-\frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{11}+\frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{11}\,\hat{\mathbf{z}}$	(8c)	Mo III

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