KGe Structure:
AB_cP64_218_ei_ei-001

https://aflow.org/p/RUTB

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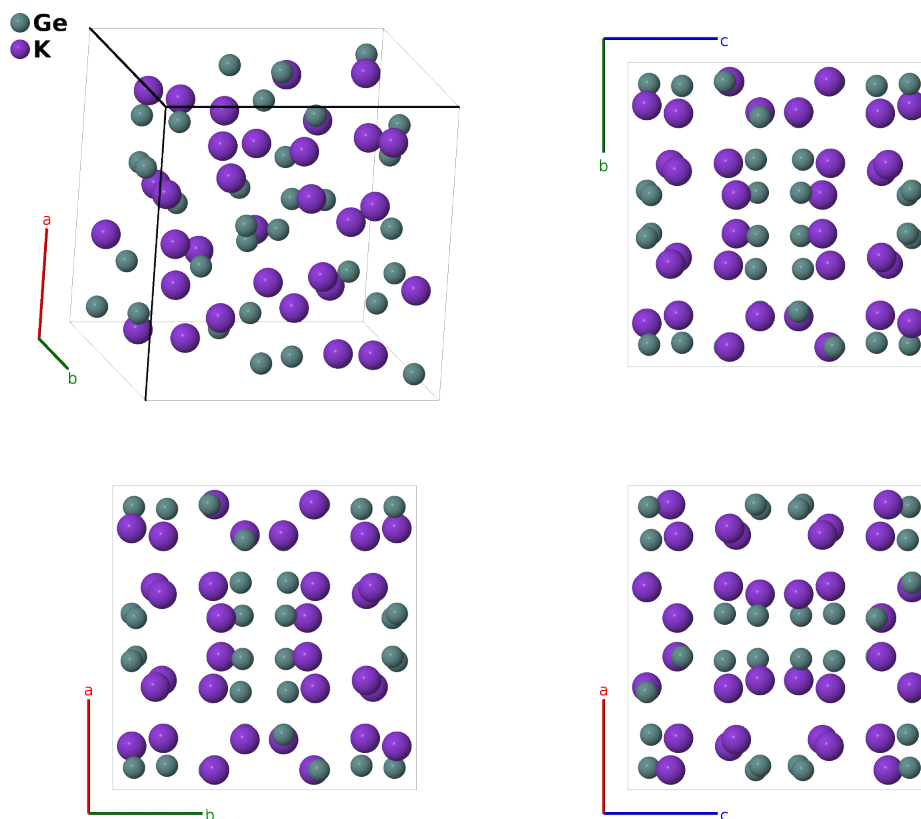
Prototype	GeK
AFLOW prototype label	AB_cP64_218_ei_ei-001
ICSD	43515
Pearson symbol	cP64
Space group number	218
Space group symbol	$P\overline{4}3n$
AFLOW prototype command	aflow --proto=AB_cP64_218_ei_ei-001
	--params=$a, x_1, x_2, x_3, y_3, z_3, x_4, y_4, z_4$

Other compounds with this structure

CsGe, CsSi, KSi, RbGe, RbSi

Simple Cubic primitive vectors

$$\mathbf{a_1} = a\,\hat{\mathbf{x}}$$

$$\mathbf{a_2} = a\,\hat{\mathbf{y}}$$

$$\mathbf{a_3} = a\,\hat{\mathbf{z}}$$
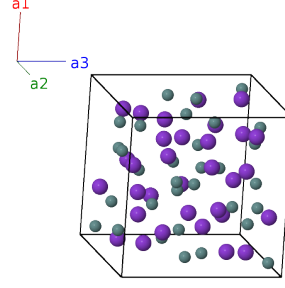
Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	$=$	$x_1\,\mathbf{a_1} + x_1\,\mathbf{a_2} + x_1\,\mathbf{a_3}$	$=$	$ax_1\,\hat{\mathbf{x}} + ax_1\,\hat{\mathbf{y}} + ax_1\,\hat{\mathbf{z}}$	(8e)	Ge I
$\mathbf{B_2}$	$=$	$-x_1\,\mathbf{a_1} - x_1\,\mathbf{a_2} + x_1\,\mathbf{a_3}$	$=$	$-ax_1\,\hat{\mathbf{x}} - ax_1\,\hat{\mathbf{y}} + ax_1\,\hat{\mathbf{z}}$	(8e)	Ge I
$\mathbf{B_3}$	$=$	$-x_1\,\mathbf{a_1} + x_1\,\mathbf{a_2} - x_1\,\mathbf{a_3}$	$=$	$-ax_1\,\hat{\mathbf{x}} + ax_1\,\hat{\mathbf{y}} - ax_1\,\hat{\mathbf{z}}$	(8e)	Ge I
$\mathbf{B_4}$	$=$	$x_1\,\mathbf{a_1} - x_1\,\mathbf{a_2} - x_1\,\mathbf{a_3}$	$=$	$ax_1\,\hat{\mathbf{x}} - ax_1\,\hat{\mathbf{y}} - ax_1\,\hat{\mathbf{z}}$	(8e)	Ge I
$\mathbf{B_5}$	$=$	$\left(x_1 + \frac{1}{2}\right)\mathbf{a_1} + \left(x_1 + \frac{1}{2}\right)\mathbf{a_2} + \left(x_1 + \frac{1}{2}\right)\mathbf{a_3}$	$=$	$a\left(x_1 + \frac{1}{2}\right)\hat{\mathbf{x}} + a\left(x_1 + \frac{1}{2}\right)\hat{\mathbf{y}} + a\left(x_1 + \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	Ge I
$\mathbf{B_6}$	$=$	$-\left(x_1 - \frac{1}{2}\right)\mathbf{a_1} - \left(x_1 - \frac{1}{2}\right)\mathbf{a_2} + \left(x_1 + \frac{1}{2}\right)\mathbf{a_3}$	$=$	$-a\left(x_1 - \frac{1}{2}\right)\hat{\mathbf{x}} - a\left(x_1 - \frac{1}{2}\right)\hat{\mathbf{y}} + a\left(x_1 + \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	Ge I
$\mathbf{B_7}$	$=$	$\left(x_1 + \frac{1}{2}\right)\mathbf{a_1} - \left(x_1 - \frac{1}{2}\right)\mathbf{a_2} - \left(x_1 - \frac{1}{2}\right)\mathbf{a_3}$	$=$	$a\left(x_1 + \frac{1}{2}\right)\hat{\mathbf{x}} - a\left(x_1 - \frac{1}{2}\right)\hat{\mathbf{y}} - a\left(x_1 - \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	Ge I
$\mathbf{B_8}$	$=$	$-\left(x_1 - \frac{1}{2}\right)\mathbf{a_1} + \left(x_1 + \frac{1}{2}\right)\mathbf{a_2} - \left(x_1 - \frac{1}{2}\right)\mathbf{a_3}$	$=$	$-a\left(x_1 - \frac{1}{2}\right)\hat{\mathbf{x}} + a\left(x_1 + \frac{1}{2}\right)\hat{\mathbf{y}} - a\left(x_1 - \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	Ge I
$\mathbf{B_9}$	$=$	$x_2\,\mathbf{a_1} + x_2\,\mathbf{a_2} + x_2\,\mathbf{a_3}$	$=$	$ax_2\,\hat{\mathbf{x}} + ax_2\,\hat{\mathbf{y}} + ax_2\,\hat{\mathbf{z}}$	(8e)	K I
$\mathbf{B_{10}}$	$=$	$-x_2\,\mathbf{a_1} - x_2\,\mathbf{a_2} + x_2\,\mathbf{a_3}$	$=$	$-ax_2\,\hat{\mathbf{x}} - ax_2\,\hat{\mathbf{y}} + ax_2\,\hat{\mathbf{z}}$	(8e)	K I
$\mathbf{B_{11}}$	$=$	$-x_2\,\mathbf{a_1} + x_2\,\mathbf{a_2} - x_2\,\mathbf{a_3}$	$=$	$-ax_2\,\hat{\mathbf{x}} + ax_2\,\hat{\mathbf{y}} - ax_2\,\hat{\mathbf{z}}$	(8e)	K I
$\mathbf{B_{12}}$	$=$	$x_2\,\mathbf{a_1} - x_2\,\mathbf{a_2} - x_2\,\mathbf{a_3}$	$=$	$ax_2\,\hat{\mathbf{x}} - ax_2\,\hat{\mathbf{y}} - ax_2\,\hat{\mathbf{z}}$	(8e)	K I
$\mathbf{B_{13}}$	$=$	$\left(x_2 + \frac{1}{2}\right)\mathbf{a_1} + \left(x_2 + \frac{1}{2}\right)\mathbf{a_2} + \left(x_2 + \frac{1}{2}\right)\mathbf{a_3}$	$=$	$a\left(x_2 + \frac{1}{2}\right)\hat{\mathbf{x}} + a\left(x_2 + \frac{1}{2}\right)\hat{\mathbf{y}} + a\left(x_2 + \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	K I
$\mathbf{B_{14}}$	$=$	$-\left(x_2 - \frac{1}{2}\right)\mathbf{a_1} - \left(x_2 - \frac{1}{2}\right)\mathbf{a_2} + \left(x_2 + \frac{1}{2}\right)\mathbf{a_3}$	$=$	$-a\left(x_2 - \frac{1}{2}\right)\hat{\mathbf{x}} - a\left(x_2 - \frac{1}{2}\right)\hat{\mathbf{y}} + a\left(x_2 + \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	K I
$\mathbf{B_{15}}$	$=$	$\left(x_2 + \frac{1}{2}\right)\mathbf{a_1} - \left(x_2 - \frac{1}{2}\right)\mathbf{a_2} - \left(x_2 - \frac{1}{2}\right)\mathbf{a_3}$	$=$	$a\left(x_2 + \frac{1}{2}\right)\hat{\mathbf{x}} - a\left(x_2 - \frac{1}{2}\right)\hat{\mathbf{y}} - a\left(x_2 - \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	K I
$\mathbf{B_{16}}$	$=$	$-\left(x_2 - \frac{1}{2}\right)\mathbf{a_1} + \left(x_2 + \frac{1}{2}\right)\mathbf{a_2} - \left(x_2 - \frac{1}{2}\right)\mathbf{a_3}$	$=$	$-a\left(x_2 - \frac{1}{2}\right)\hat{\mathbf{x}} + a\left(x_2 + \frac{1}{2}\right)\hat{\mathbf{y}} - a\left(x_2 - \frac{1}{2}\right)\hat{\mathbf{z}}$	(8e)	K I
$\mathbf{B_{17}}$	$=$	$x_3\,\mathbf{a_1} + y_3\,\mathbf{a_2} + z_3\,\mathbf{a_3}$	$=$	$ax_3\,\hat{\mathbf{x}} + ay_3\,\hat{\mathbf{y}} + az_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{18}}$	$=$	$-x_3\,\mathbf{a_1} - y_3\,\mathbf{a_2} + z_3\,\mathbf{a_3}$	$=$	$-ax_3\,\hat{\mathbf{x}} - ay_3\,\hat{\mathbf{y}} + az_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{19}}$	$=$	$-x_3\,\mathbf{a_1} + y_3\,\mathbf{a_2} - z_3\,\mathbf{a_3}$	$=$	$-ax_3\,\hat{\mathbf{x}} + ay_3\,\hat{\mathbf{y}} - az_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{20}}$	$=$	$x_3\,\mathbf{a_1} - y_3\,\mathbf{a_2} - z_3\,\mathbf{a_3}$	$=$	$ax_3\,\hat{\mathbf{x}} - ay_3\,\hat{\mathbf{y}} - az_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{21}}$	$=$	$z_3\,\mathbf{a_1} + x_3\,\mathbf{a_2} + y_3\,\mathbf{a_3}$	$=$	$az_3\,\hat{\mathbf{x}} + ax_3\,\hat{\mathbf{y}} + ay_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{22}}$	$=$	$z_3\,\mathbf{a_1} - x_3\,\mathbf{a_2} - y_3\,\mathbf{a_3}$	$=$	$az_3\,\hat{\mathbf{x}} - ax_3\,\hat{\mathbf{y}} - ay_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{23}}$	$=$	$-z_3\,\mathbf{a_1} - x_3\,\mathbf{a_2} + y_3\,\mathbf{a_3}$	$=$	$-az_3\,\hat{\mathbf{x}} - ax_3\,\hat{\mathbf{y}} + ay_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{24}}$	$=$	$-z_3\,\mathbf{a_1} + x_3\,\mathbf{a_2} - y_3\,\mathbf{a_3}$	$=$	$-az_3\,\hat{\mathbf{x}} + ax_3\,\hat{\mathbf{y}} - ay_3\,\hat{\mathbf{z}}$	(24i)	Ge II

$\mathbf{B_{25}}$	$=$	$y_3\,\mathbf{a}_1 + z_3\,\mathbf{a}_2 + x_3\,\mathbf{a}_3$	$=$	$ay_3\,\hat{\mathbf{x}} + az_3\,\hat{\mathbf{y}} + ax_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{26}}$	$=$	$-y_3\,\mathbf{a}_1 + z_3\,\mathbf{a}_2 - x_3\,\mathbf{a}_3$	$=$	$-ay_3\,\hat{\mathbf{x}} + az_3\,\hat{\mathbf{y}} - ax_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{27}}$	$=$	$y_3\,\mathbf{a}_1 - z_3\,\mathbf{a}_2 - x_3\,\mathbf{a}_3$	$=$	$ay_3\,\hat{\mathbf{x}} - az_3\,\hat{\mathbf{y}} - ax_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{28}}$	$=$	$-y_3\,\mathbf{a}_1 - z_3\,\mathbf{a}_2 + x_3\,\mathbf{a}_3$	$=$	$-ay_3\,\hat{\mathbf{x}} - az_3\,\hat{\mathbf{y}} + ax_3\,\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{29}}$	$=$	$\left(y_3 + \tfrac{1}{2}\right)\mathbf{a}_1 + \left(x_3 + \tfrac{1}{2}\right)\mathbf{a}_2 + \left(z_3 + \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$a\left(y_3 + \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(x_3 + \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(z_3 + \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{30}}$	$=$	$-\left(y_3 - \tfrac{1}{2}\right)\mathbf{a}_1 - \left(x_3 - \tfrac{1}{2}\right)\mathbf{a}_2 + \left(z_3 + \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$-a\left(y_3 - \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(x_3 - \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(z_3 + \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{31}}$	$=$	$\left(y_3 + \tfrac{1}{2}\right)\mathbf{a}_1 - \left(x_3 - \tfrac{1}{2}\right)\mathbf{a}_2 - \left(z_3 - \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$a\left(y_3 + \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(x_3 - \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(z_3 - \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{32}}$	$=$	$-\left(y_3 - \tfrac{1}{2}\right)\mathbf{a}_1 + \left(x_3 + \tfrac{1}{2}\right)\mathbf{a}_2 - \left(z_3 - \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$-a\left(y_3 - \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(x_3 + \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(z_3 - \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{33}}$	$=$	$\left(x_3 + \tfrac{1}{2}\right)\mathbf{a}_1 + \left(z_3 + \tfrac{1}{2}\right)\mathbf{a}_2 + \left(y_3 + \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$a\left(x_3 + \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(z_3 + \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(y_3 + \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{34}}$	$=$	$-\left(x_3 - \tfrac{1}{2}\right)\mathbf{a}_1 + \left(z_3 + \tfrac{1}{2}\right)\mathbf{a}_2 - \left(y_3 - \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$-a\left(x_3 - \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(z_3 + \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(y_3 - \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{35}}$	$=$	$-\left(x_3 - \tfrac{1}{2}\right)\mathbf{a}_1 - \left(z_3 - \tfrac{1}{2}\right)\mathbf{a}_2 + \left(y_3 + \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$-a\left(x_3 - \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(z_3 - \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(y_3 + \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{36}}$	$=$	$\left(x_3 + \tfrac{1}{2}\right)\mathbf{a}_1 - \left(z_3 - \tfrac{1}{2}\right)\mathbf{a}_2 - \left(y_3 - \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$a\left(x_3 + \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(z_3 - \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(y_3 - \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{37}}$	$=$	$\left(z_3 + \tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_3 + \tfrac{1}{2}\right)\mathbf{a}_2 + \left(x_3 + \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$a\left(z_3 + \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(y_3 + \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(x_3 + \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{38}}$	$=$	$\left(z_3 + \tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_3 - \tfrac{1}{2}\right)\mathbf{a}_2 - \left(x_3 - \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$a\left(z_3 + \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(y_3 - \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(x_3 - \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{39}}$	$=$	$-\left(z_3 - \tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_3 + \tfrac{1}{2}\right)\mathbf{a}_2 - \left(x_3 - \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$-a\left(z_3 - \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(y_3 + \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(x_3 - \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{40}}$	$=$	$-\left(z_3 - \tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_3 - \tfrac{1}{2}\right)\mathbf{a}_2 + \left(x_3 + \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$-a\left(z_3 - \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(y_3 - \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(x_3 + \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	Ge II
$\mathbf{B_{41}}$	$=$	$x_4\,\mathbf{a}_1 + y_4\,\mathbf{a}_2 + z_4\,\mathbf{a}_3$	$=$	$ax_4\,\hat{\mathbf{x}} + ay_4\,\hat{\mathbf{y}} + az_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{42}}$	$=$	$-x_4\,\mathbf{a}_1 - y_4\,\mathbf{a}_2 + z_4\,\mathbf{a}_3$	$=$	$-ax_4\,\hat{\mathbf{x}} - ay_4\,\hat{\mathbf{y}} + az_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{43}}$	$=$	$-x_4\,\mathbf{a}_1 + y_4\,\mathbf{a}_2 - z_4\,\mathbf{a}_3$	$=$	$-ax_4\,\hat{\mathbf{x}} + ay_4\,\hat{\mathbf{y}} - az_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{44}}$	$=$	$x_4\,\mathbf{a}_1 - y_4\,\mathbf{a}_2 - z_4\,\mathbf{a}_3$	$=$	$ax_4\,\hat{\mathbf{x}} - ay_4\,\hat{\mathbf{y}} - az_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{45}}$	$=$	$z_4\,\mathbf{a}_1 + x_4\,\mathbf{a}_2 + y_4\,\mathbf{a}_3$	$=$	$az_4\,\hat{\mathbf{x}} + ax_4\,\hat{\mathbf{y}} + ay_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{46}}$	$=$	$z_4\,\mathbf{a}_1 - x_4\,\mathbf{a}_2 - y_4\,\mathbf{a}_3$	$=$	$az_4\,\hat{\mathbf{x}} - ax_4\,\hat{\mathbf{y}} - ay_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{47}}$	$=$	$-z_4\,\mathbf{a}_1 - x_4\,\mathbf{a}_2 + y_4\,\mathbf{a}_3$	$=$	$-az_4\,\hat{\mathbf{x}} - ax_4\,\hat{\mathbf{y}} + ay_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{48}}$	$=$	$-z_4\,\mathbf{a}_1 + x_4\,\mathbf{a}_2 - y_4\,\mathbf{a}_3$	$=$	$-az_4\,\hat{\mathbf{x}} + ax_4\,\hat{\mathbf{y}} - ay_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{49}}$	$=$	$y_4\,\mathbf{a}_1 + z_4\,\mathbf{a}_2 + x_4\,\mathbf{a}_3$	$=$	$ay_4\,\hat{\mathbf{x}} + az_4\,\hat{\mathbf{y}} + ax_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{50}}$	$=$	$-y_4\,\mathbf{a}_1 + z_4\,\mathbf{a}_2 - x_4\,\mathbf{a}_3$	$=$	$-ay_4\,\hat{\mathbf{x}} + az_4\,\hat{\mathbf{y}} - ax_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{51}}$	$=$	$y_4\,\mathbf{a}_1 - z_4\,\mathbf{a}_2 - x_4\,\mathbf{a}_3$	$=$	$ay_4\,\hat{\mathbf{x}} - az_4\,\hat{\mathbf{y}} - ax_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{52}}$	$=$	$-y_4\,\mathbf{a}_1 - z_4\,\mathbf{a}_2 + x_4\,\mathbf{a}_3$	$=$	$-ay_4\,\hat{\mathbf{x}} - az_4\,\hat{\mathbf{y}} + ax_4\,\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{53}}$	$=$	$\left(y_4 + \tfrac{1}{2}\right)\mathbf{a}_1 + \left(x_4 + \tfrac{1}{2}\right)\mathbf{a}_2 + \left(z_4 + \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$a\left(y_4 + \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(x_4 + \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(z_4 + \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	K II
$\mathbf{B_{54}}$	$=$	$-\left(y_4 - \tfrac{1}{2}\right)\mathbf{a}_1 - \left(x_4 - \tfrac{1}{2}\right)\mathbf{a}_2 + \left(z_4 + \tfrac{1}{2}\right)\mathbf{a}_3$	$=$	$-a\left(y_4 - \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(x_4 - \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(z_4 + \tfrac{1}{2}\right)\hat{\mathbf{z}}$	(24i)	K II

$$\mathbf{B_{55}} = \left(y_4 + \tfrac{1}{2}\right)\mathbf{a}_1 - \left(x_4 - \tfrac{1}{2}\right)\mathbf{a}_2 - \left(z_4 - \tfrac{1}{2}\right)\mathbf{a}_3 = a\left(y_4 + \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(x_4 - \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(z_4 - \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

$$\mathbf{B_{56}} = -\left(y_4 - \tfrac{1}{2}\right)\mathbf{a}_1 + \left(x_4 + \tfrac{1}{2}\right)\mathbf{a}_2 - \left(z_4 - \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(y_4 - \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(x_4 + \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(z_4 - \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

$$\mathbf{B_{57}} = \left(x_4 + \tfrac{1}{2}\right)\mathbf{a}_1 + \left(z_4 + \tfrac{1}{2}\right)\mathbf{a}_2 + \left(y_4 + \tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_4 + \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(z_4 + \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(y_4 + \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

$$\mathbf{B_{58}} = -\left(x_4 - \tfrac{1}{2}\right)\mathbf{a}_1 + \left(z_4 + \tfrac{1}{2}\right)\mathbf{a}_2 - \left(y_4 - \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_4 - \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(z_4 + \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(y_4 - \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

$$\mathbf{B_{59}} = -\left(x_4 - \tfrac{1}{2}\right)\mathbf{a}_1 - \left(z_4 - \tfrac{1}{2}\right)\mathbf{a}_2 + \left(y_4 + \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(x_4 - \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(z_4 - \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(y_4 + \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

$$\mathbf{B_{60}} = \left(x_4 + \tfrac{1}{2}\right)\mathbf{a}_1 - \left(z_4 - \tfrac{1}{2}\right)\mathbf{a}_2 - \left(y_4 - \tfrac{1}{2}\right)\mathbf{a}_3 = a\left(x_4 + \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(z_4 - \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(y_4 - \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

$$\mathbf{B_{61}} = \left(z_4 + \tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_4 + \tfrac{1}{2}\right)\mathbf{a}_2 + \left(x_4 + \tfrac{1}{2}\right)\mathbf{a}_3 = a\left(z_4 + \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(y_4 + \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(x_4 + \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

$$\mathbf{B_{62}} = \left(z_4 + \tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_4 - \tfrac{1}{2}\right)\mathbf{a}_2 - \left(x_4 - \tfrac{1}{2}\right)\mathbf{a}_3 = a\left(z_4 + \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(y_4 - \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(x_4 - \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

$$\mathbf{B_{63}} = -\left(z_4 - \tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_4 + \tfrac{1}{2}\right)\mathbf{a}_2 - \left(x_4 - \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(z_4 - \tfrac{1}{2}\right)\hat{\mathbf{x}} + a\left(y_4 + \tfrac{1}{2}\right)\hat{\mathbf{y}} - a\left(x_4 - \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

$$\mathbf{B_{64}} = -\left(z_4 - \tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_4 - \tfrac{1}{2}\right)\mathbf{a}_2 + \left(x_4 + \tfrac{1}{2}\right)\mathbf{a}_3 = -a\left(z_4 - \tfrac{1}{2}\right)\hat{\mathbf{x}} - a\left(y_4 - \tfrac{1}{2}\right)\hat{\mathbf{y}} + a\left(x_4 + \tfrac{1}{2}\right)\hat{\mathbf{z}} \quad (24\mathrm{i}) \quad \mathrm{K\ II}$$

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