Ho_2CoGa_8 Structure: AB8C2_tP11_123_a_ehi_g-003

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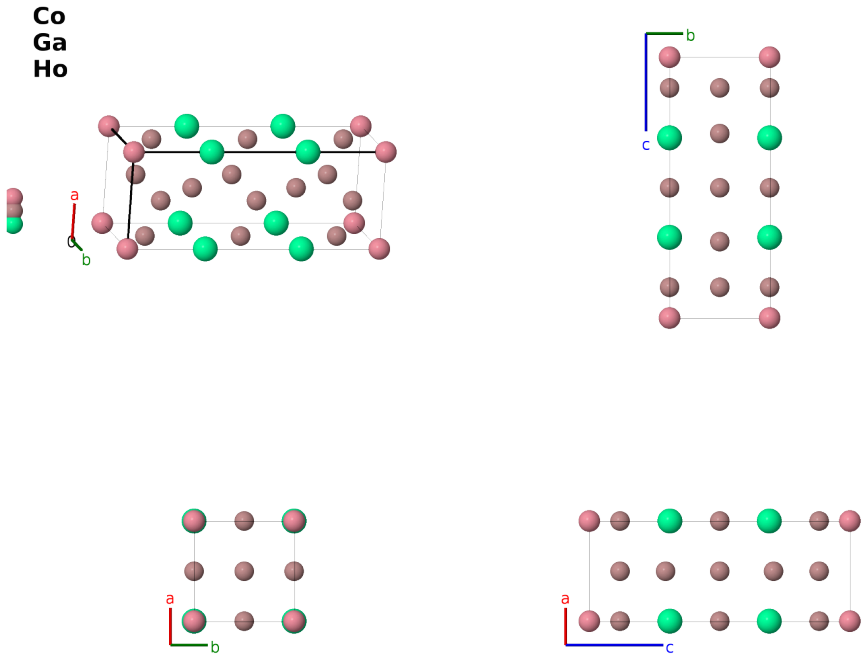
https://aflow.org/prototype-encyclopedia/G7WP

https://aflow.org/prototype-encyclopedia/AB8C2_tP11_123_a_ehi_g-003



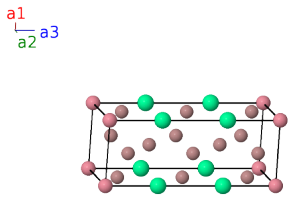
Prototype	$CoGa_8Ho_2$
AFLOW prototype label	AB8C2_tP11_123_a_ehi_g-003
ICSD	198243
CCDC	1925146
Pearson symbol	tP11
Space group number	123
Space group symbol	$P4/mmm$
AFLOW prototype command	`aflow --proto=AB8C2_tP11_123_a_ehi_g-003 --params=`$a, c/a, z_3, z_4, z_5$

Other compounds with this structure

Ce_2CoIn_8, Ce_2PdIn_8, Ce_2PtIn_8, Ce_2RhIn_8, Dy_2CoGa_8, Dy_2CoIn_8, Dy_2FeGa_8, Er_2CoGa_8, Er_2CoIn_8, Er_2FeGa_8, Gd_2CoGa_8, Gd_2CoIn_8, Ho_2CoGa_8, Ho_2CoIn_8, Ho_2DyGa_8, Ho_2ErGa_8, Ho_2FeGa_8, Ho_2GdGa_8, Ho_2LuGa_8, Ho_2RhIn_8, Ho_2SmGa_8, Ho_2TbGa_8, Ho_2TmGa_8, Ho_2YGa_8, In_2AsPt_8, Nd_2CoIn_8, Nd_2CoPd_8, Ce_2CoIn_8, Ce_2PdIn_8, Ce_2PtIn_8, Dy_2CoGa_8, Dy_2CoIn_8, Dy_2FeGa_8, Er_2CoGa_8, Er_2CoIn_8, Er_2FeGa_8, Gd_2CoGa_8, Gd_2CoIn_8, Ho_2CoGa_8, Ho_2CoIn_8, Ho_2FeGa_8, Ho_2RhIn_8, In_2AsPt_8, In_2SePd_8, Lu_2CoGa_8, Lu_2FeGa_8, Nd_2CoIn_8, Nd_2PdIn_8, Pr_2CoIn_8, Pr_2PdIn_8, Sm_2CoGa_8, Sm_2CoIn_8, Sm_2PdIn_8, Tb_2CoGa_8, Tb_2FeGa_8, Tm_2CoGa_8, Tm_2CoIn_8, Tm_2FeGa_8, U_2RuGa_8, U_2RhIn_8, Y_2CoGa_8, Y_2CoIn_8, Yb_2IrIn_8, Zn_2SePd_8

Simple Tetragonal primitive vectors

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



Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	=	0	=	0	(1a)	Co I
$\mathbf{B_2}$	=	$\frac{1}{2}\,\mathbf{a}_2 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{y}} + \frac{1}{2}c\,\hat{\mathbf{z}}$	(2e)	Ga I
$\mathbf{B_3}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}c\,\hat{\mathbf{z}}$	(2e)	Ga I
$\mathbf{B_4}$	=	$z_3\,\mathbf{a}_3$	=	$cz_3\,\hat{\mathbf{z}}$	(2g)	Ho I
$\mathbf{B_5}$	=	$-z_3\,\mathbf{a}_3$	=	$-cz_3\,\hat{\mathbf{z}}$	(2g)	Ho I
$\mathbf{B_6}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + z_4\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} + cz_4\,\hat{\mathbf{z}}$	(2h)	Ga II
$\mathbf{B_7}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 - z_4\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}a\,\hat{\mathbf{y}} - cz_4\,\hat{\mathbf{z}}$	(2h)	Ga II
$\mathbf{B_8}$	=	$\frac{1}{2}\,\mathbf{a}_2 + z_5\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{y}} + cz_5\,\hat{\mathbf{z}}$	(4i)	Ga III
$\mathbf{B_9}$	=	$\frac{1}{2}\,\mathbf{a}_1 + z_5\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + cz_5\,\hat{\mathbf{z}}$	(4i)	Ga III
$\mathbf{B_{10}}$	=	$\frac{1}{2}\,\mathbf{a}_2 - z_5\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{y}} - cz_5\,\hat{\mathbf{z}}$	(4i)	Ga III
$\mathbf{B_{11}}$	=	$\frac{1}{2}\,\mathbf{a}_1 - z_5\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} - cz_5\,\hat{\mathbf{z}}$	(4i)	Ga III

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