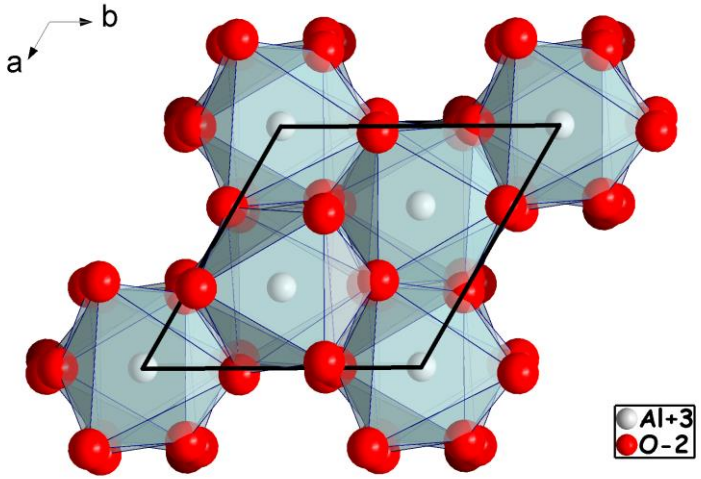
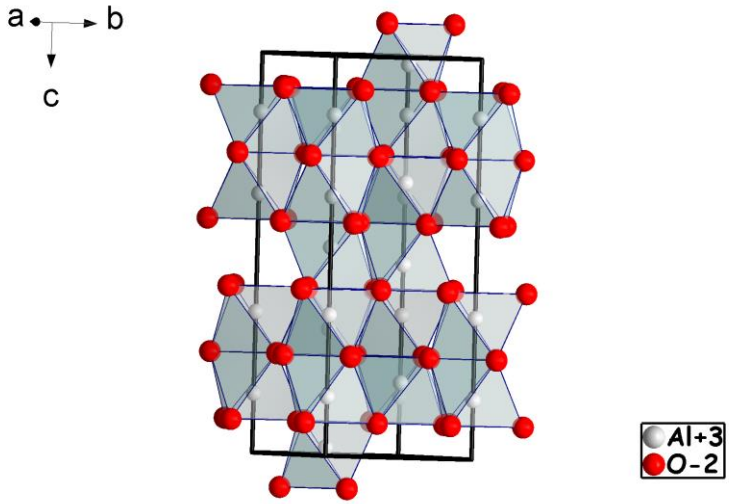
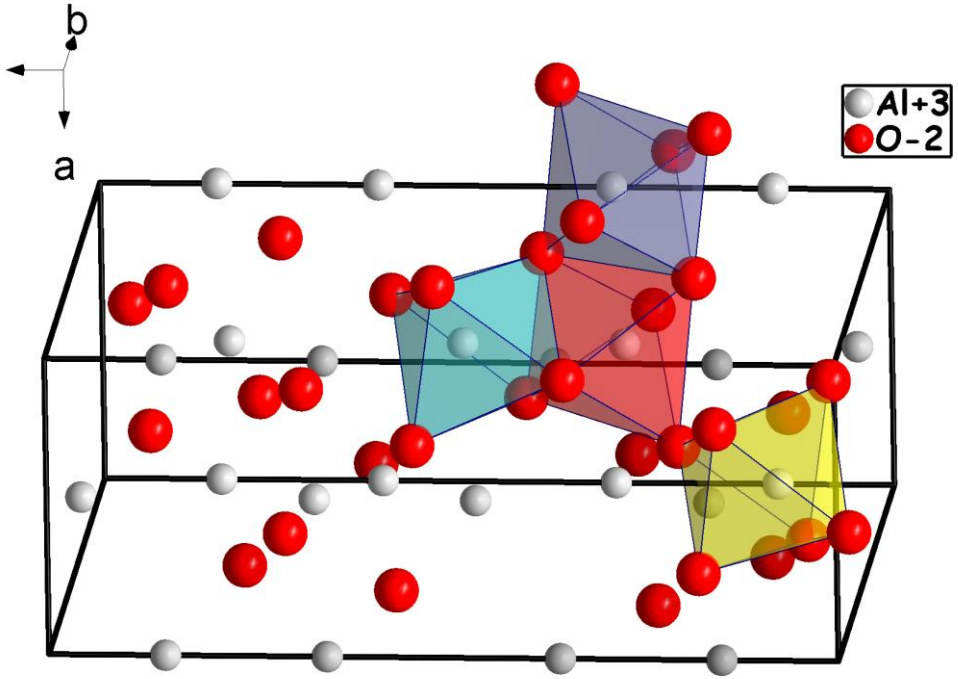
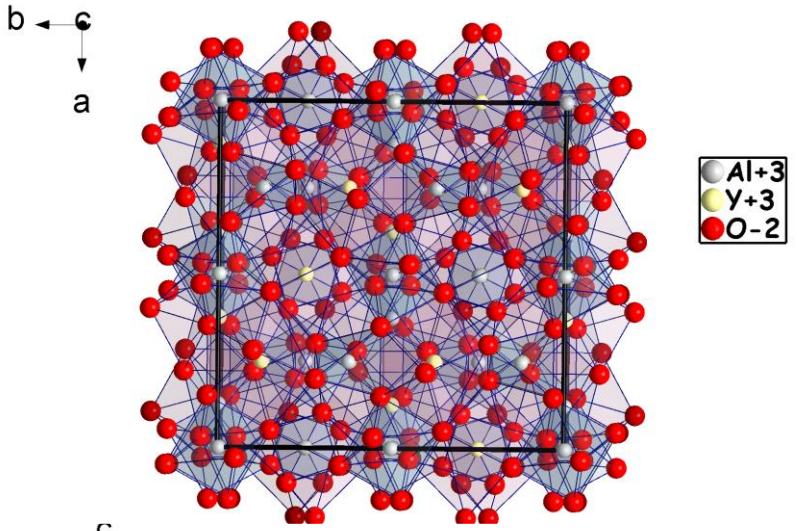
Corundum (Sapphire)
α-Al_2O_3

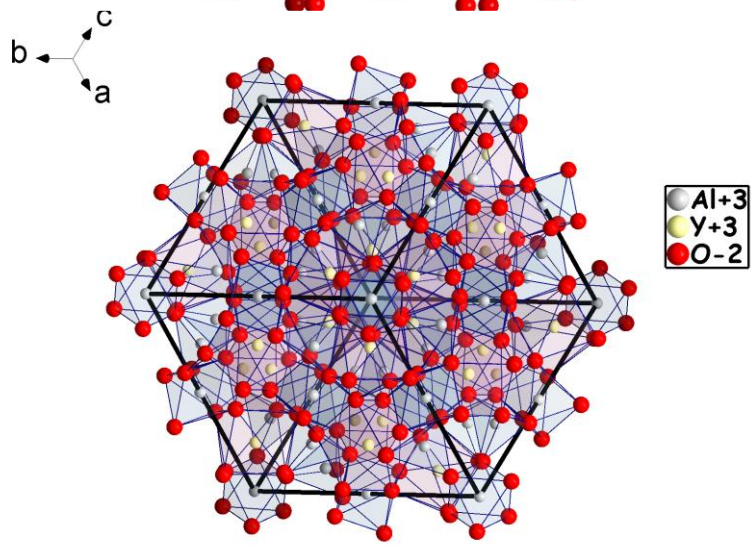


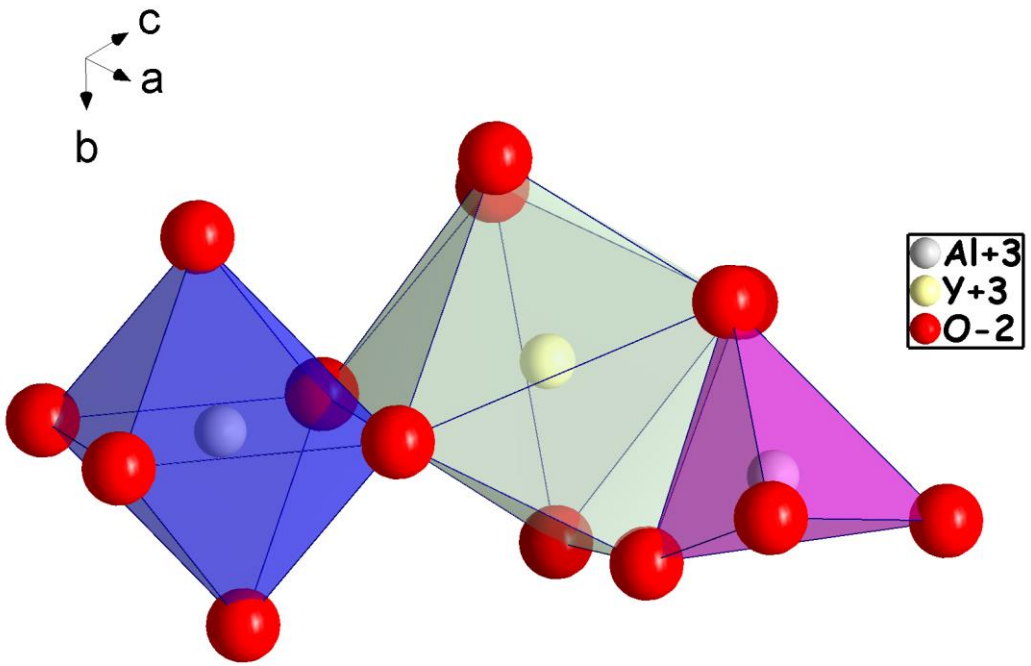




Yttrium-Aluminum Garnet (YAG)
$Y_3Al_5O_{12}$

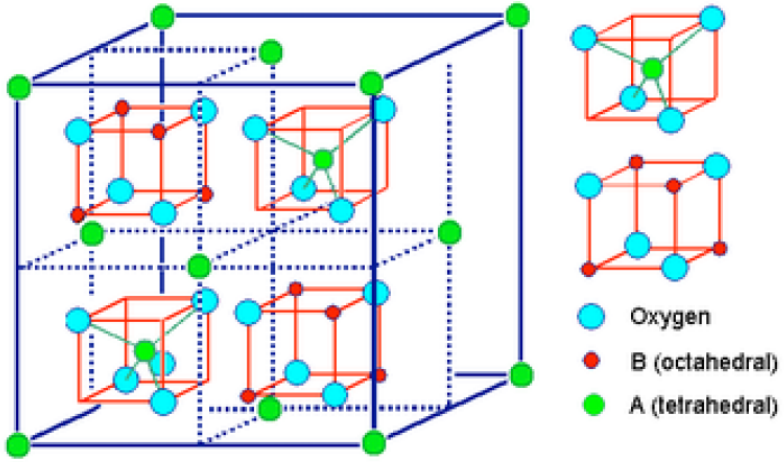


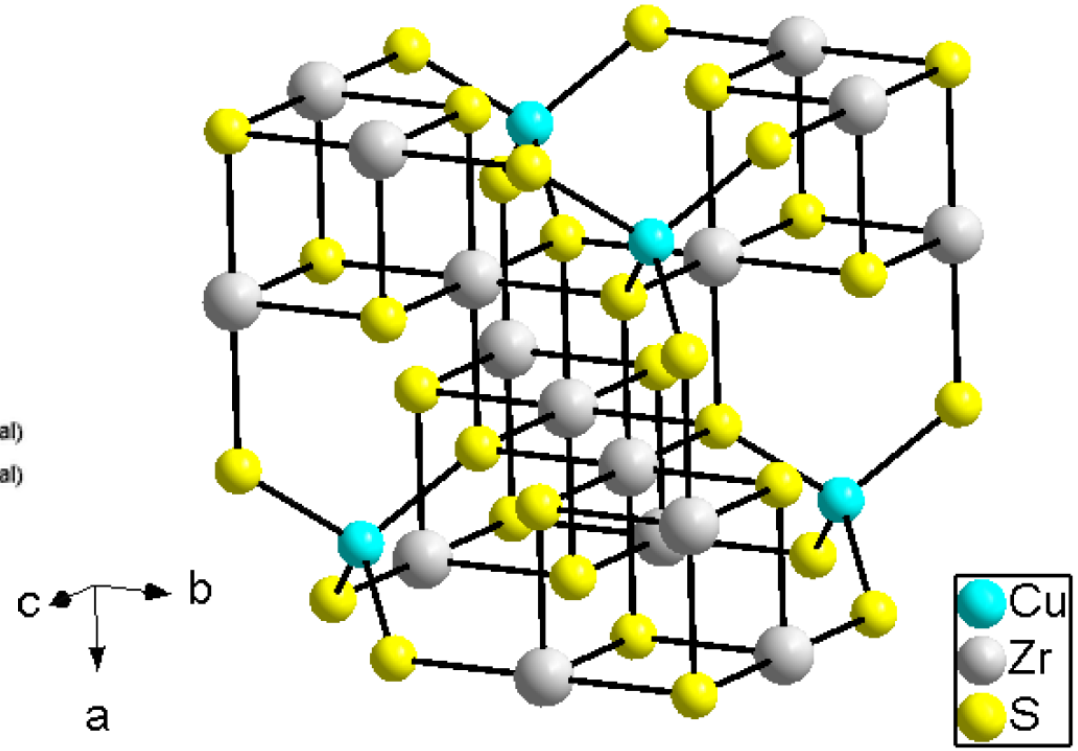




AB_2O_4 Structure (SPINEL)
$MgAl_2O_4$-Type

$A^{VI}B_2{}^{I}X_4$	$A^{I}B_2{}^{IV}X_4$	$A^{IV}B_2{}^{II}O_4$	$A^{II}B_2{}^{III}X_4$
K_2WO_4	$CuTi_2S_4$	Ni_2GeO_4	$MgFe_2O_4$



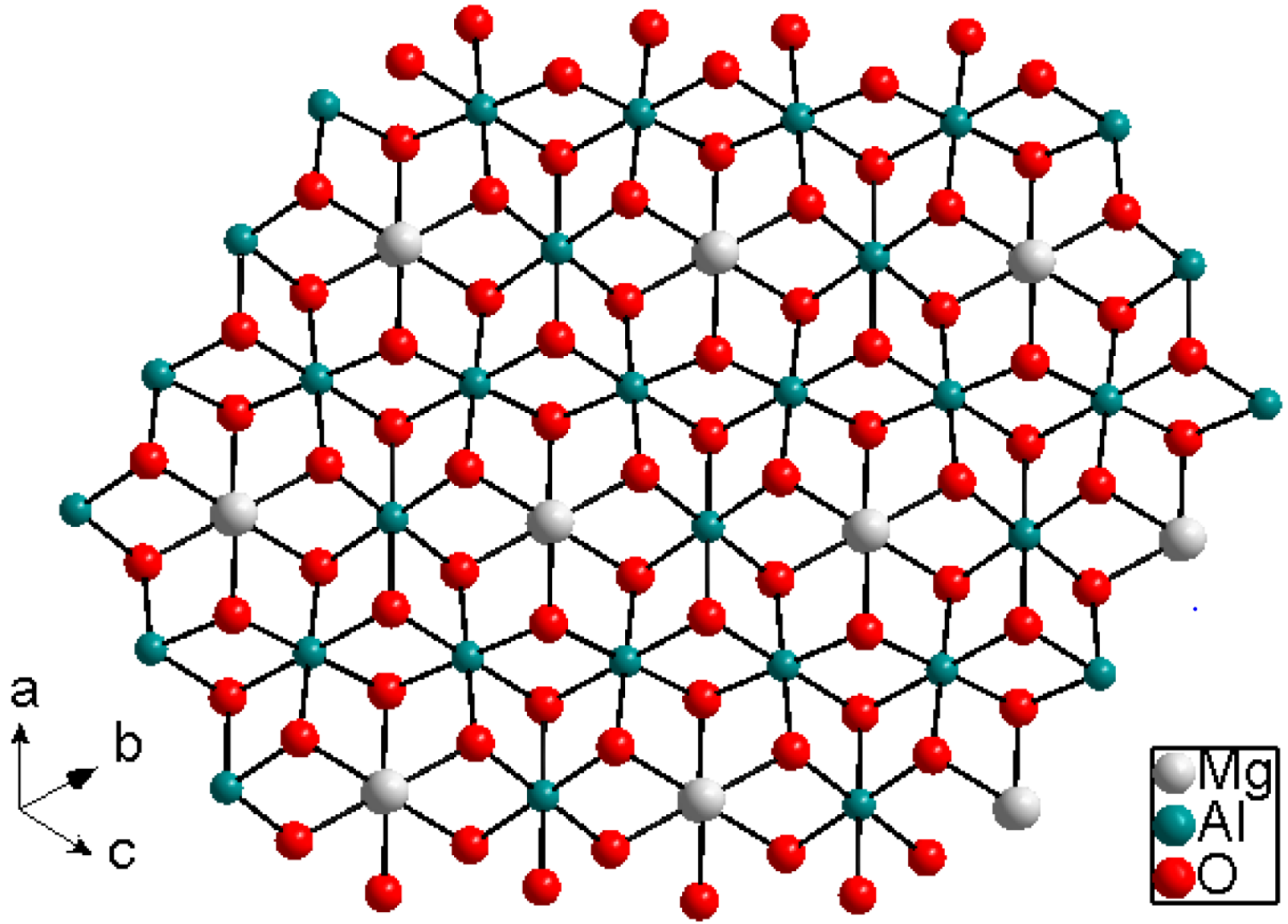


$MgZn_2Cl_4$

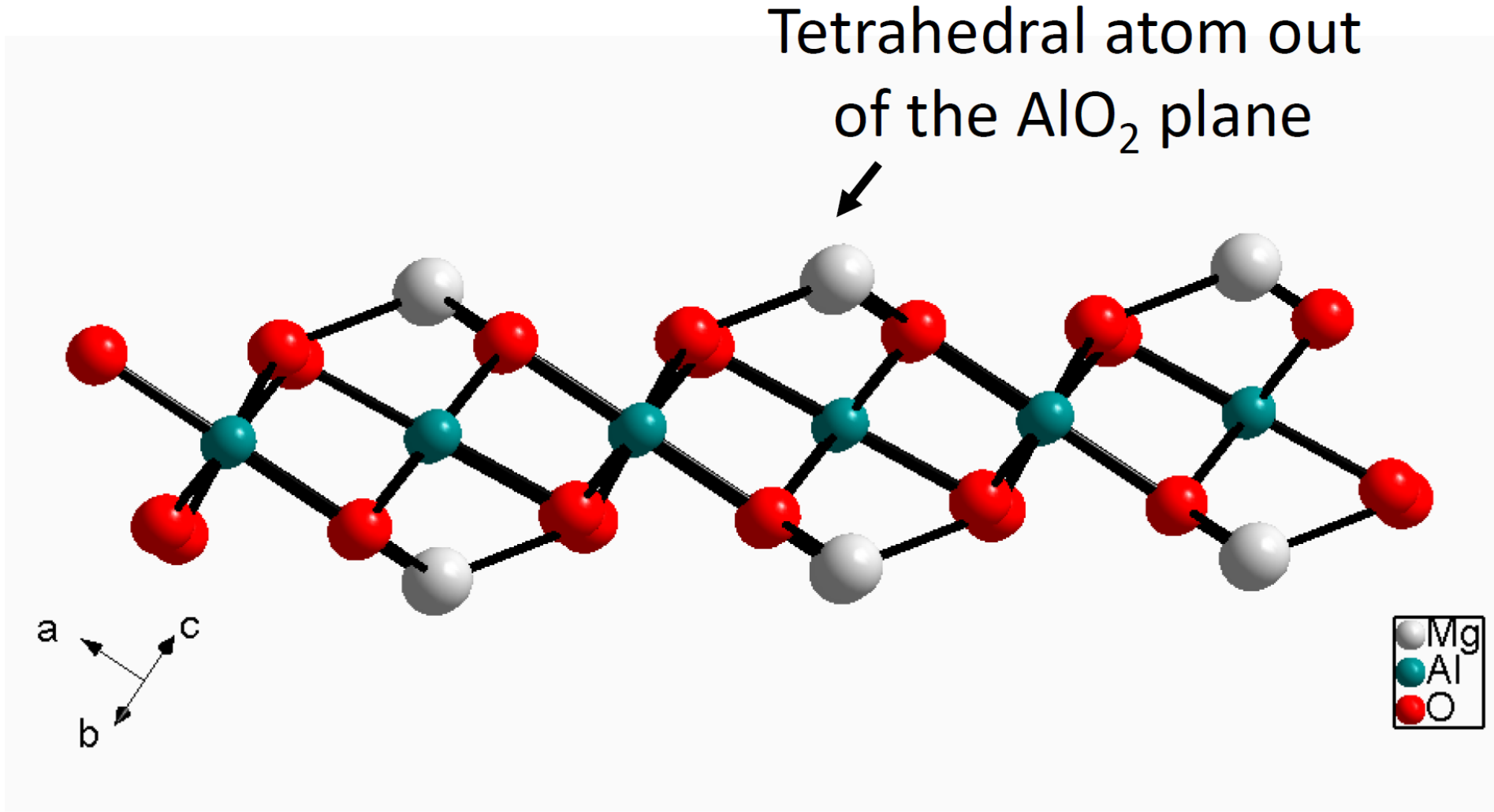
Li_2NiF_4 or $NiLi_2F_4$ "Inverse" spinel

$CuZr_2S_4$

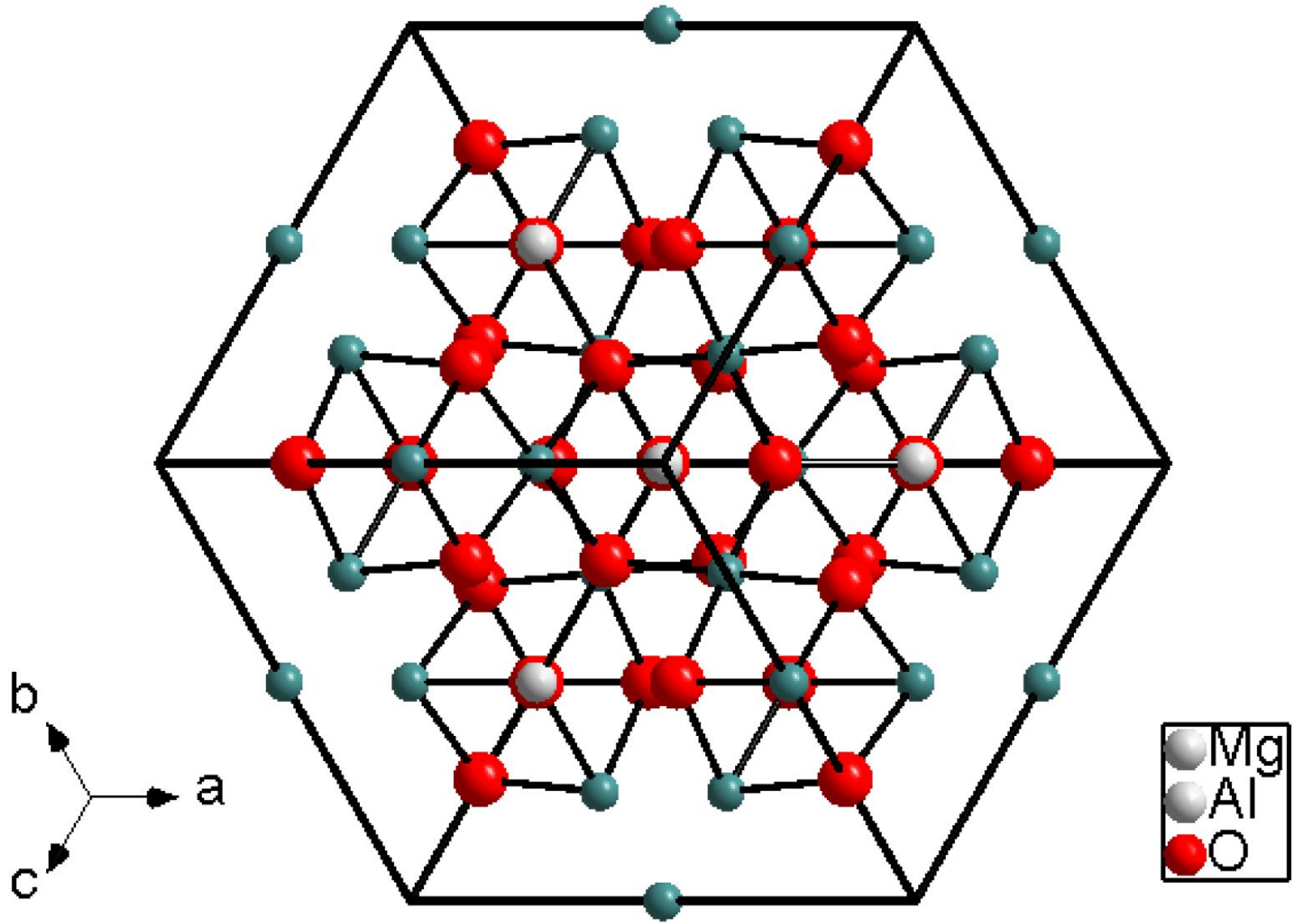
$MgAl_2O_4$-Spinel sheet



$MgAl_2O_4$-Spinel sheet



$MgAl_2O_4$-Spinel viewed down [111] direction of cube



Examples of spinel compounds

	STRUCTURE TYPE	SPACE GROUP	SPACE GROUP NUMBER
cF56	Al_2MgO_4	$Fd\bar{3}m$	227

REFERENCE

1968 13 P703 KRISTALLOGRAFIYA, N.G. Zorina et al.

Remarks: Origin at centre -3m, at 0.125, 0.125, 0.125 from -43m; also called Co_3O_4 type; mineral name spinel

a = 0.8075 b = c = [nm]

ALPHA = BETA = GAMMA = [DEGREE]

ORIGIN AT $\bar{3}m$

ATOMIC POSITIONS :

ATOMS	WYCKOFF NOTATION	SYMMETRY	x	y	z	OCCUPANCY
Al	16 (d)	$\bar{3}m$	0.5	0.5	0.5	1.00
Mg	8 (a)	$\bar{4}3m$	0.125	0.125	0.125	1.00
O	32 (e)	3m	0.251	0.251	0.251	1.00

$AgAlCr_4S_8$
$AgAl_5S_8$
$AgCr_4InSe_8$
$AgCrSe_4Sn$
$AgIn_5S_8$
$Ag_2MnS_8Sn_3$
Al_2CdS_4
$Al_2Cr_3CuS_8$
$Al_2Cr_3S_8Zn$
Al_4CuInS_8
$AlCuS_4Sn$
Al_2HgSe_4
$Al_3Mo_8S_{16}$
Al_2S_4Zn
As-Cr-Cu-Se
Cd-Co-Cr-S
Cd-Cr-In-S
$CdCr_2S_4$
$CdCr_2Se_4$
Cd-Cr-Se-Zn
$Cd_4EuS_{20}Yb_{10}$
$CdHo_2Se_4$
$CdLu_2S_4$
CdS_4Tm_2
$CdSe_4Sc_2$

$AgAl_4In_2S_8$
$Ag_2Cr_4GaS_8$
Ag-Cr-S-Se
$Ag_2FeS_8Sn_3$
Ag-In-S-Sn
$Ag_2NiS_8Sn_3$
Al-Cd-S-Zn
Al-Cr-Hg-Se
$AlCr_4CuS_8$
$Al_4CuInSe_8$
Al_5CuSe_8
Al_2MgO_4
Al_2O_3
Al_2Se_3
$AsIn_3S_3$
Cd-Cr-Cu-Se
Cd-Cr-In-Se
Cd-Cr-S-Se
$Cd_5Cr_9Se_{20}Sn$
$CdEr_2S_4$
Cd-Fe-S-Sn
$CdIn_2S_4$
$CdLu_2Se_4$
CdS_4Y_2
$CdSe_4Y_2$

$AgAl_4InSe_8$
$AgCr_4InS_8$
$AgCrS_4Sn$
Ag_2MgO_4
Ag_2InS_4Zr
Ag-S-Y-Zr
Al_2CdSe_4
Al_2CrS_4
$AlCr_4CuSe_8$
Al_5CuS_8
Al_2HgS_4
Al_2MnS_4
Al_2S_3
Al_2Se_4Zn
$CaIn_2S_4$
Cd-Cr-Fe-S
Cd-Cr-Mn-S
Cd-Cr-S-Zn
Cd-Cr-Se-Te
$CdEr_2Se_4$
$CdHo_2S_4$
$CdIn_2Se_4$
CdS_4Sc_2
CdS_4Yb_2
$CdSe_4Yb_2$

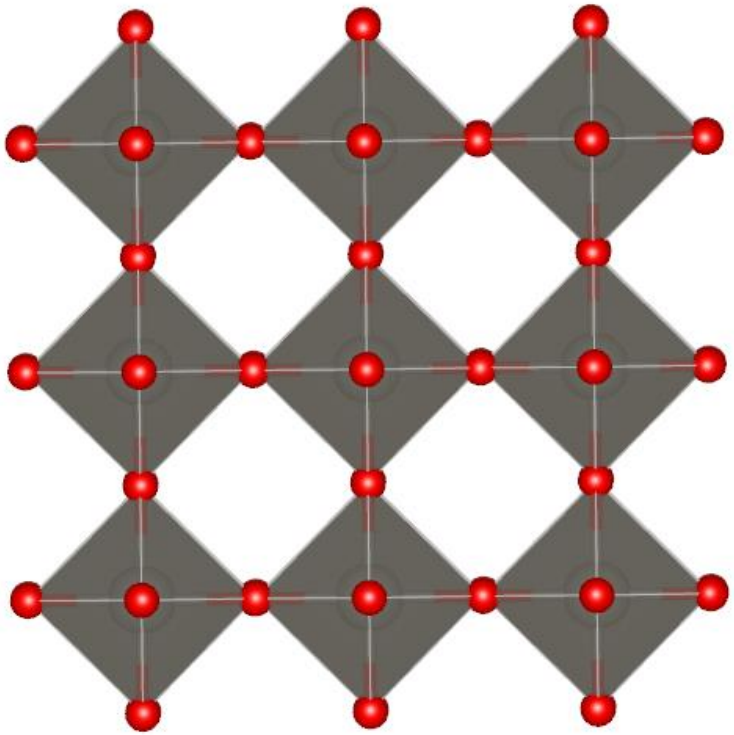
$CoCr_2S_4$
Co_2CuS_4
$CoIn_2S_4$
Co_2RhS_4
Cr-Cu-Fe-S
$Cr_4CuGaSe_8$
Cr-Cu-Hg-Se
Cr-Cu-Mn-S
Cr_2CuS_4
$CrCuS_4Ti$
$CrCuS_4Zr$
Cr-Cu-Se-Te
$CrCuSe_4Zr$
Cr-Fe-In-S
$CrFe_2S_4$
Cr-Fe-S-Zn
Cr-Hf-In-Se
Cr-Hg-S-Zn
$CrIn_2S_4$
Cr-Mn-S-Zn

Co-Cr-S-Se
$Co_3CuS_8Sn_2$
Co_2NiS_4
Co_3S_4
Cr-Cu-Fe-Se
$CrCuHfS_4$
Cr_4CuInS_8
Cr-Cu-Ni-S
Cr-Cu-S-Se
Cr-Cu-S-V
Cr_2CuSe_4
$CrCuSe_4Ti$
Cr_2CuTe_4
Cr-Fe-Ni-S
Cr_2FeS_4
Cr_4GaLiS_8
Cr_2HgS_4
Cr_2HgSe_4
Cr-In-S-Zn
Cr-S-Se-Zn

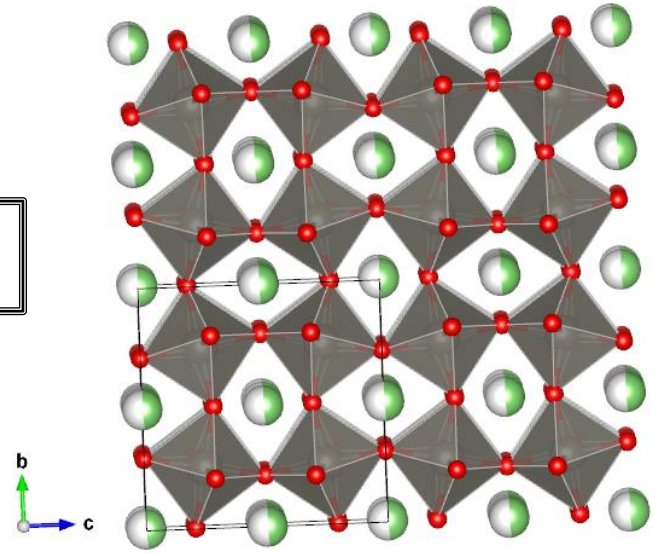
Co-Cr-S-Zn
$CoCuS_4Ti$
Co_3O_4
Co_3Se_4
Cr_4CuGaS_8
$CrCuHfSe_4$
$Cr_4CuInSe_8$
Cr-Cu-Rh-Se
$CrCuS_4Sn$
Cr-Cu-S-Zn
$CrCuSe_4Sn$
Cr-Cu-Se-Zn
Cr-Eu-Se-Zn
Cr-Fe-Rh-S
Cr-Fe-S-Se
Cr_3GaS_6
Cr-Hg-S-Se
Cr_4InLiS_8
Cr_2MnS_4
Cr_2S_4Zn

Tungsten Bronzes

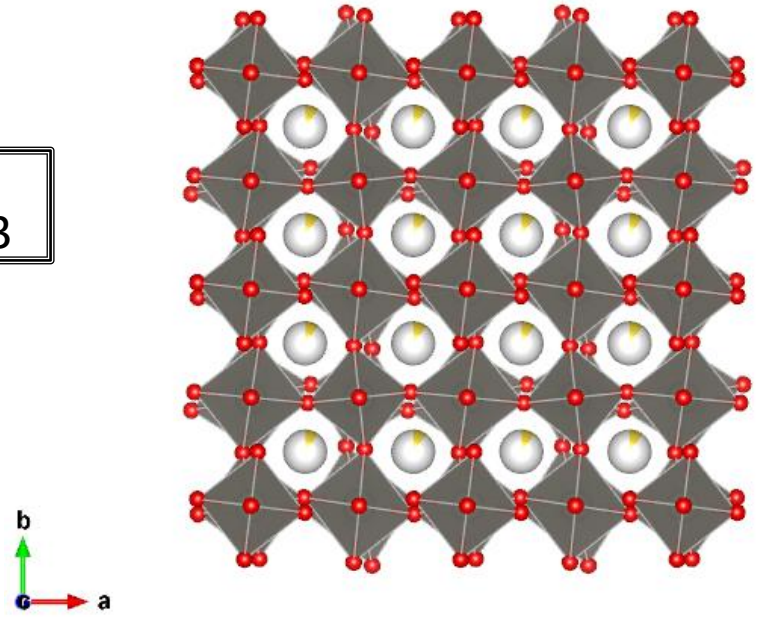
WO_3



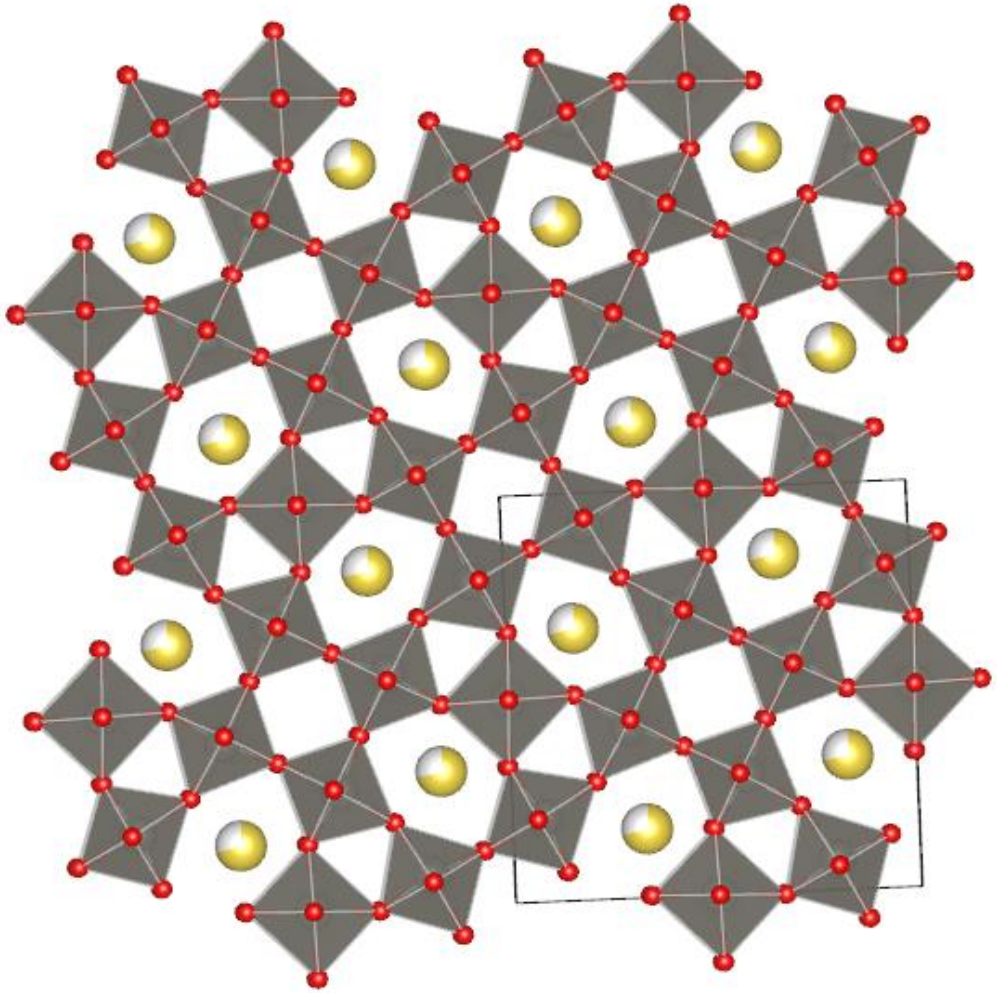
$Li_{1.44}W_4O_{12}$



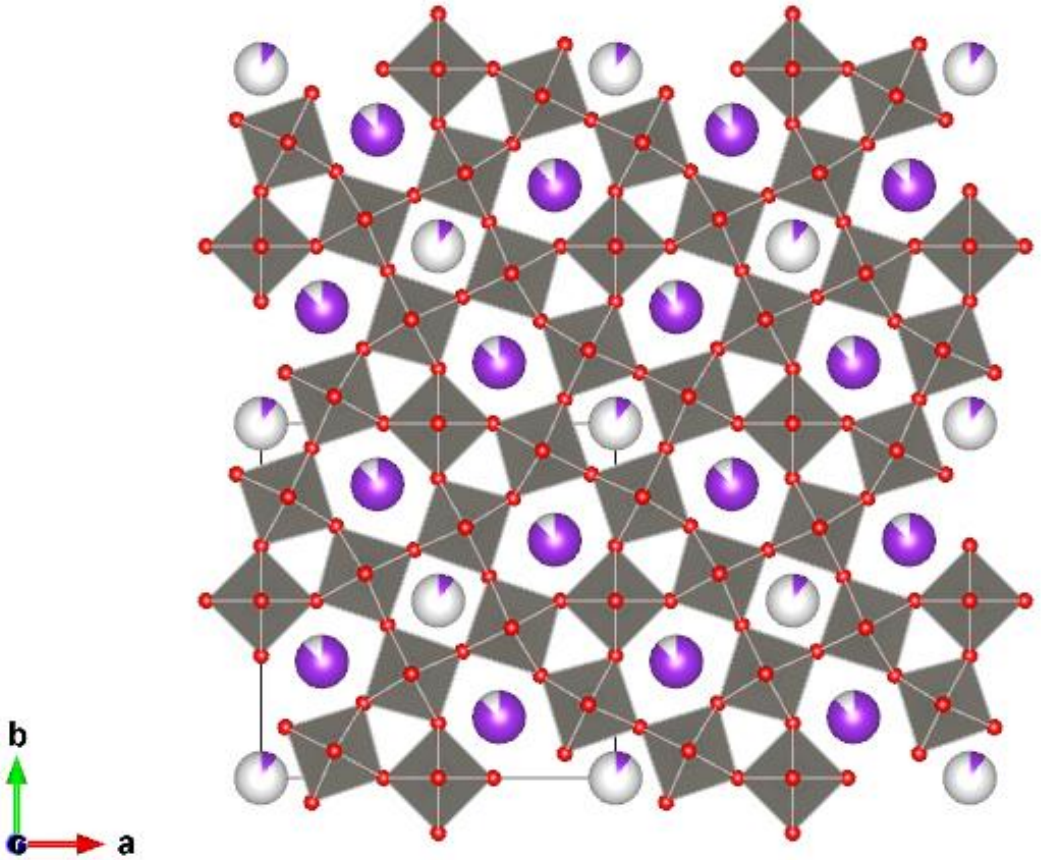
$Na_{0.1}WO_3$



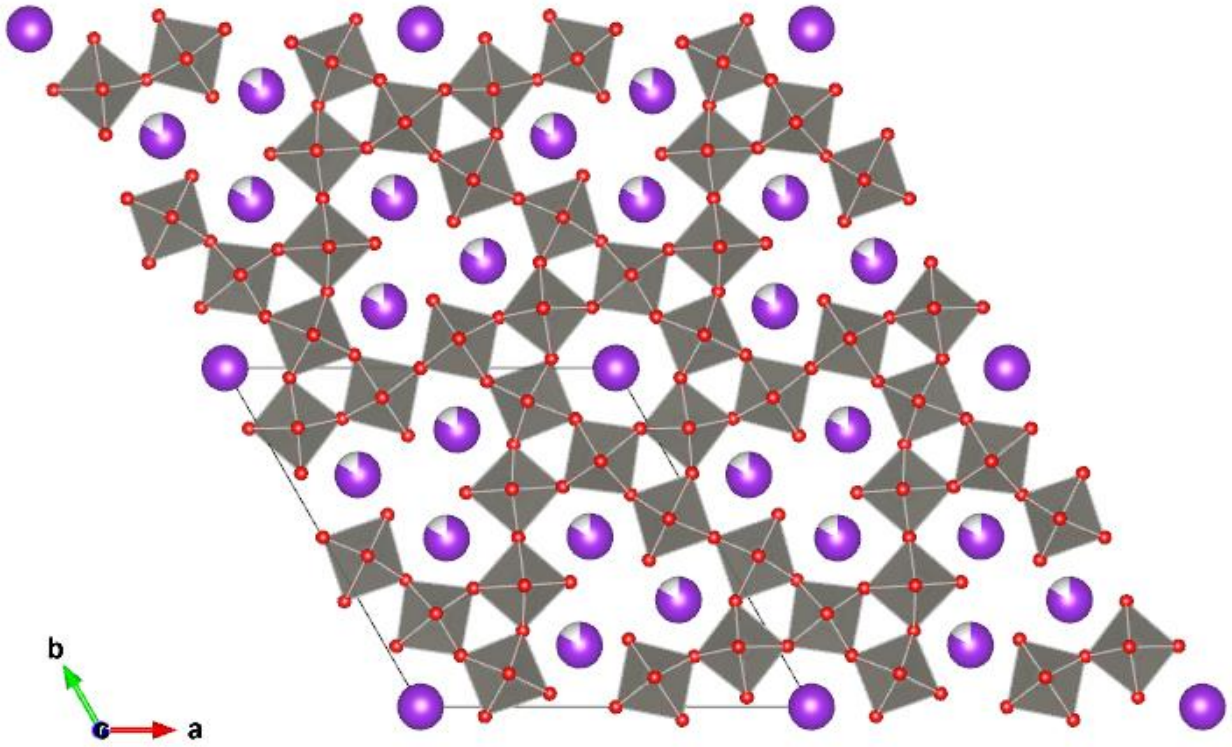
$Na_{1.4}W_5O_{15}$



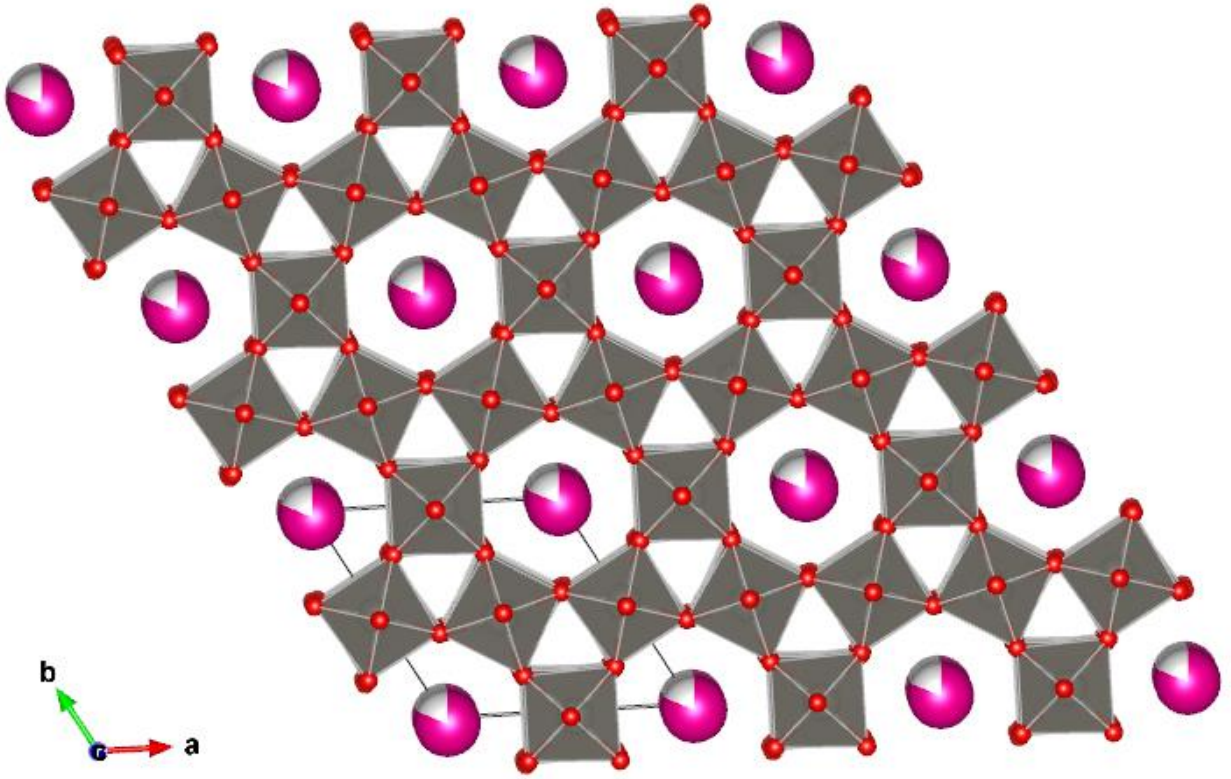
$K_{2.4}W_5O_{15}$



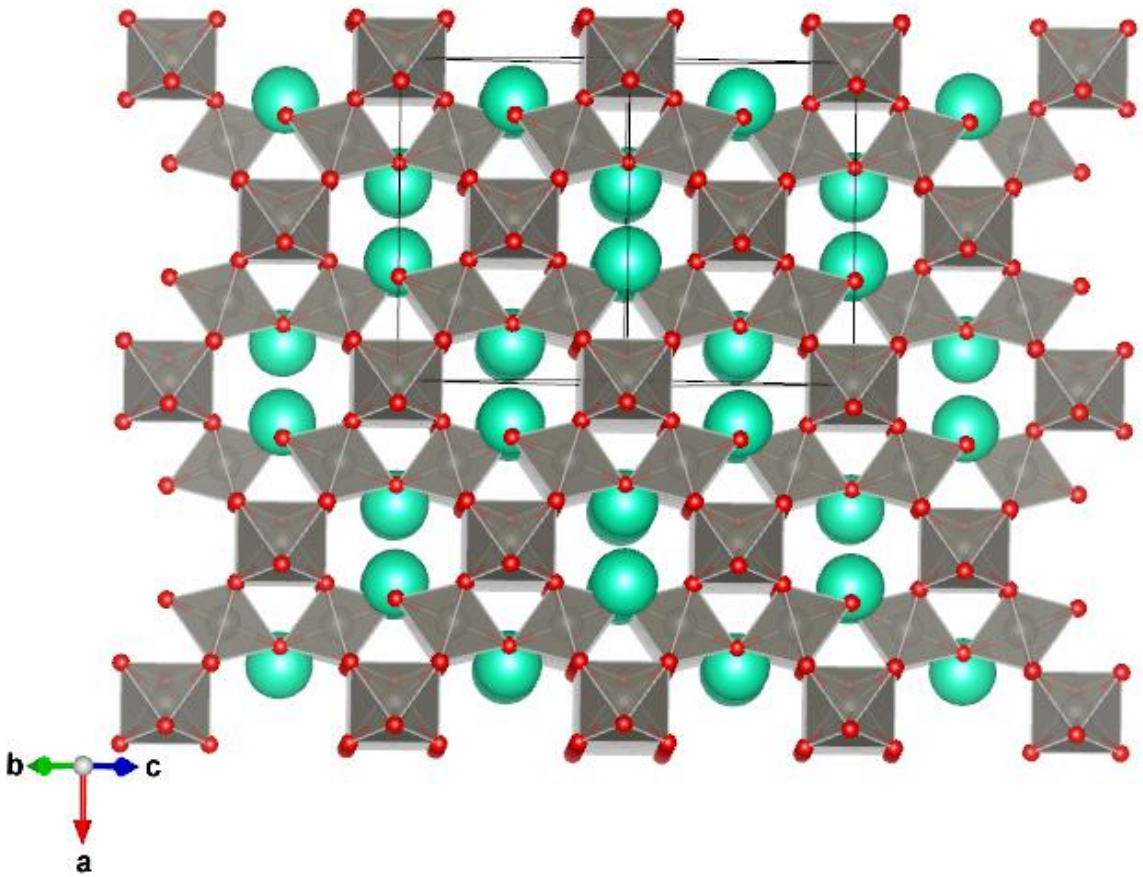
$K_6W_{12}O_{39}$



$Rb_{0.81}W_3O_9$



$Cs_{0.5}WO_3$



$Rb_{11}W_{16}O_{53.5}$

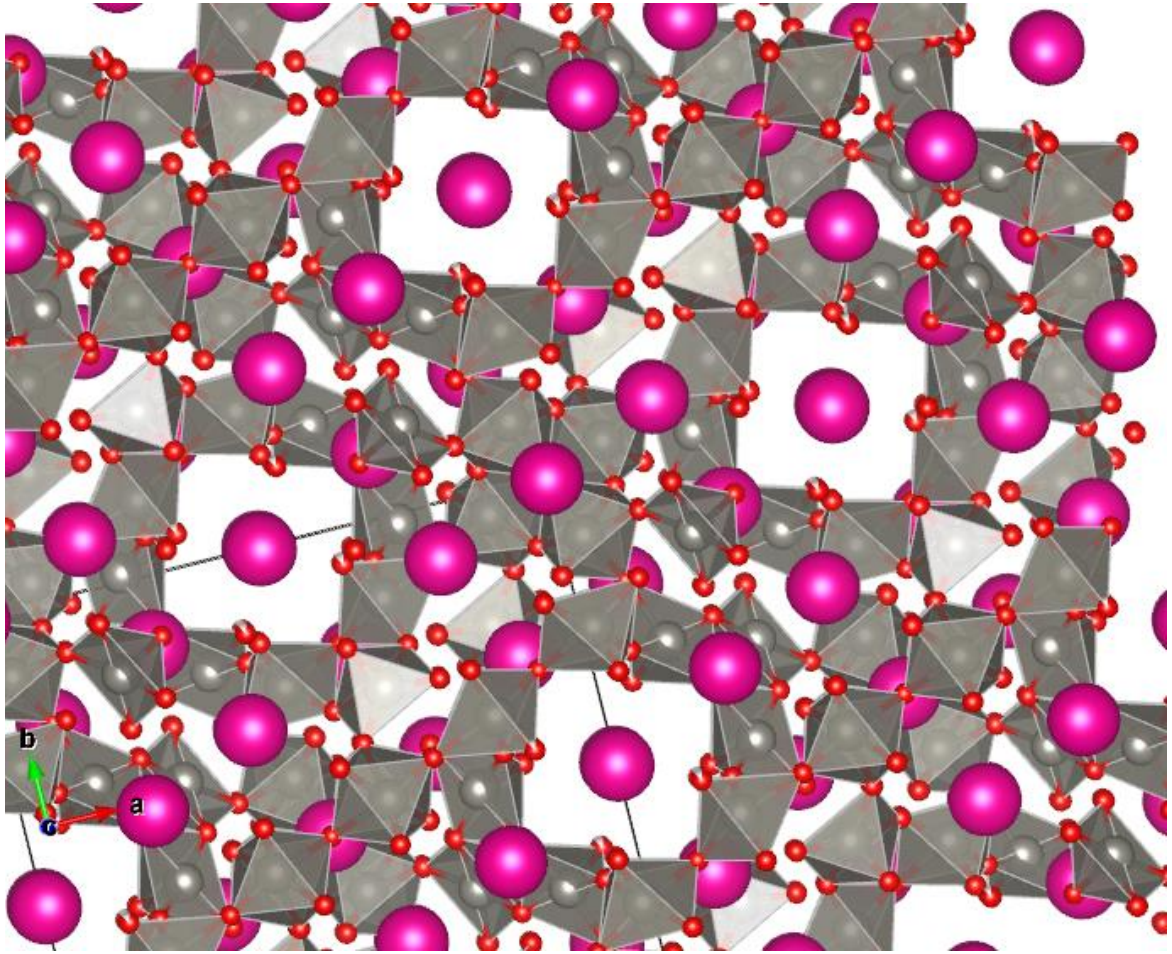
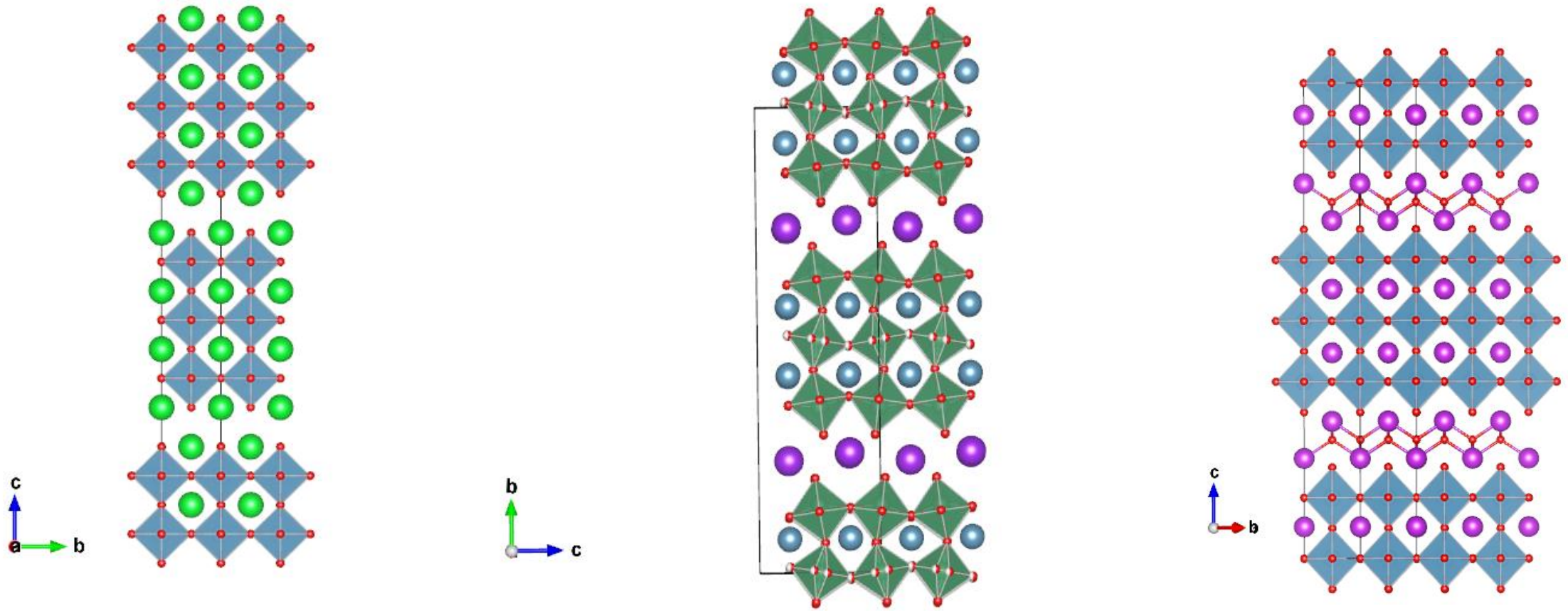


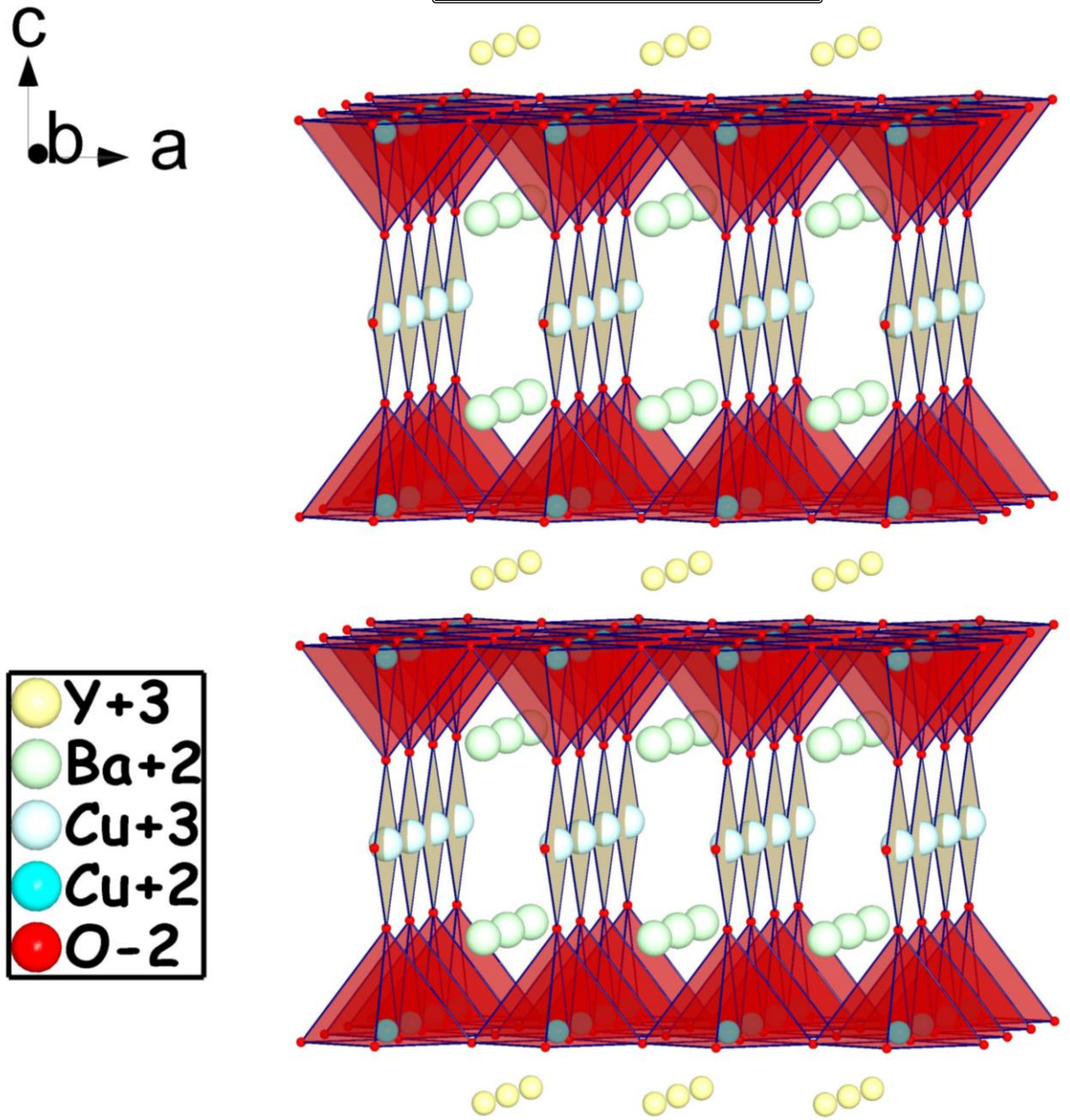
Table 1. Structural Configurations of the Three Types of ⟨100⟩ 2D Perovskites

	RP	DJ	AV	ACI
formula	$(A'A)_{n+1}B_nX_{3n+1}$	$A'A_{n-1}B_nX_{3n+1}$	$(Bi_2O_2)A_{n-1}B_nX_{3n+1}$	$(A'A)_{n+1}B_nX_{3n+1}$
stacking sequence	$[(A'X)(ABX)_n]$	$[(A')(A_{n-1}BX)_n]$	$[(Bi_2O_2)(A_{n-1}BX)_n]$	$[(A'X)(ABX)_n]$
centering of perovskite slabs[a]	*I* (1/2, 1/2, 1/2)	*P* (0,0,0)	*I* (1/2, 1/2, 1/2)	A/B/C (1/2, 0, 1/2)
n = 3 exemplar	$Sr_4Ti_3O_{10}$	$KCa_2Nb_3O_{10}$	$(Bi_2O_2)SrTa_2O_7$[b,c]	$(GA)(MA)_3Pb_3I_{10}$

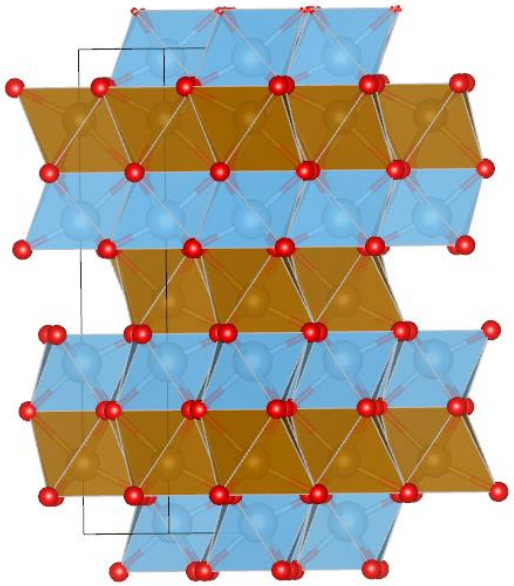
[a]In the aristotype, that is, ignoring octahedral tilts. [b]The n = 2 is chosen for clarity; for the n = 3 member, see ref 27. [c]Reference 74.



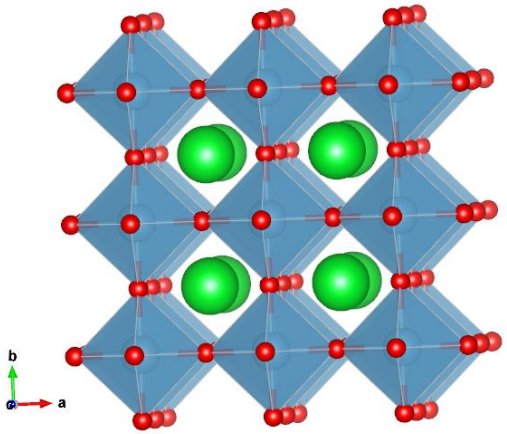
$YBa_2Cu_3O_7$



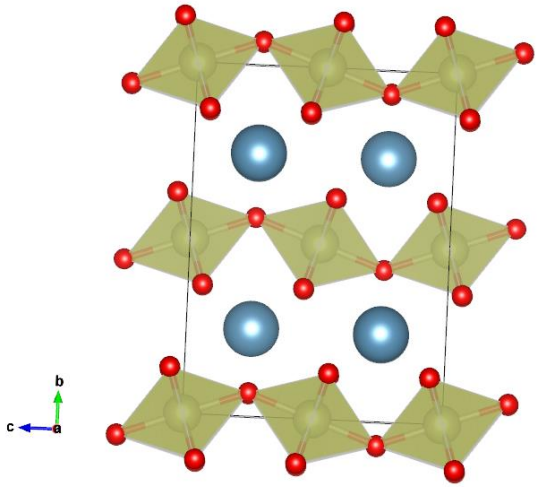
$FeTiO_3$



$SrTiO_3$



$CaIrO_3$



$LiNbO_3$