

1. Periodic Building Unit – 2. Connection mode – 3. Parallel projections of the unit cell
4. Channels and/or cages – 5. Supplementary information

1. Periodic Building Unit:

AFR and **SFO** can be built using double 4-rings (D4Rs) with one disconnected edge (a 4-4- unit; bold in Figure 1). D4Rs, related by a pure translation along c are connected into chains parallel to c . Neighboring chains, related by a rotation of 180° about b , are linked into the undulating bc layer. This two-dimensional Periodic Building Unit (PerBU) is depicted in Figure 1. [The PerBU can as well be built using 6-2 units; compare this PerBU with those in **OWE** and **ZON**].

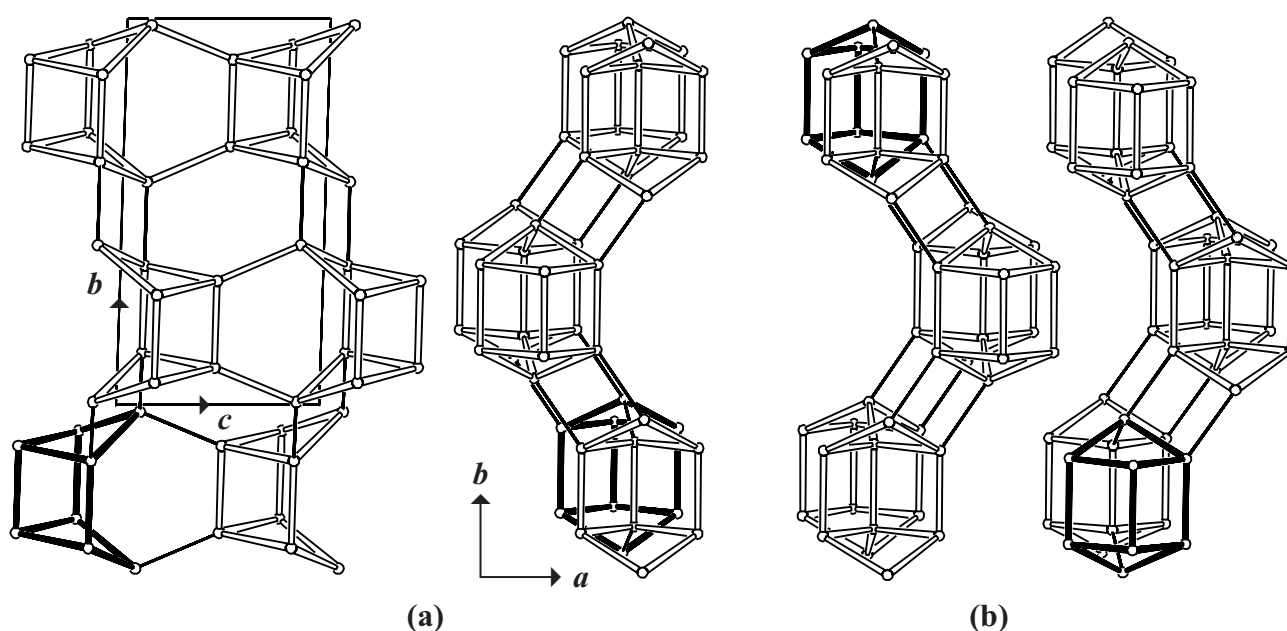


Figure 1. (a): PerBU in **AFR** and **SFO** viewed along a (left), and along c (right); (b): PerBU viewed along c after a rotation of 180° about c (left), or about b (right) has been applied. ▲

2. Connection mode:

Neighboring PerBUs can be connected through 4-rings in two ways as illustrated in Figure 2 on next page:

- (1): Neighboring PerBUs are related by a rotation of 180° about c (or, equivalently, by a mirror plane perpendicular to a);
- (2): Neighboring PerBUs are related by a rotation of 180° about b .

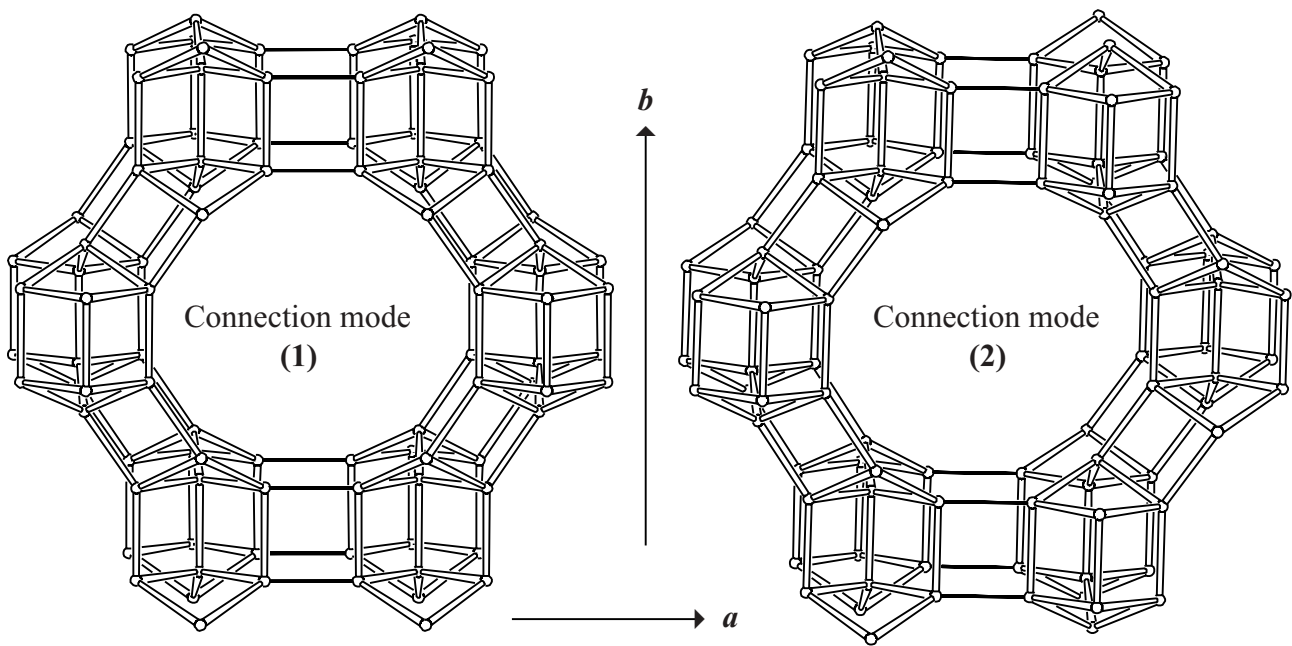


Figure 2. Connection mode (1) in AFR and connection mode (2) in SFO viewed along c . ▲

3. Projections of the unit cell content: See Figure 3.

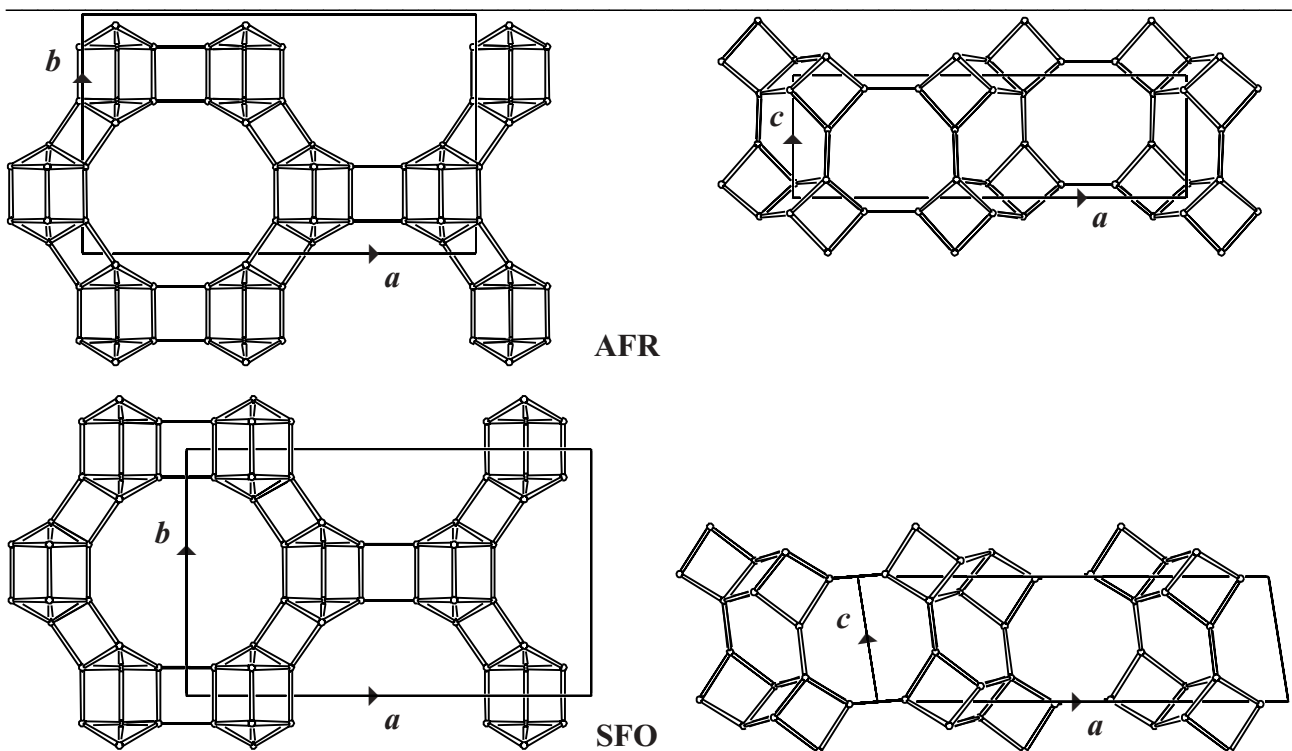


Figure 3. Parallel projection of the unit cell content in AFR (top) and SFO (bottom) viewed along c (left) and along b (right) ▲

4. Channels and/or cages:

The channel intersections are shown in Figure 4 on next page together with their **pore descriptor**. The intersections are connected into 8-ring channels along b and 12-ring channels along c as illustrated in Fig. 5 on next page.

The intersections in both framework types have the same pore descriptor:
 $\{2 [4^{10}6^48^212^2] [010] (8\text{-ring}), [001] (12\text{-ring})\}$

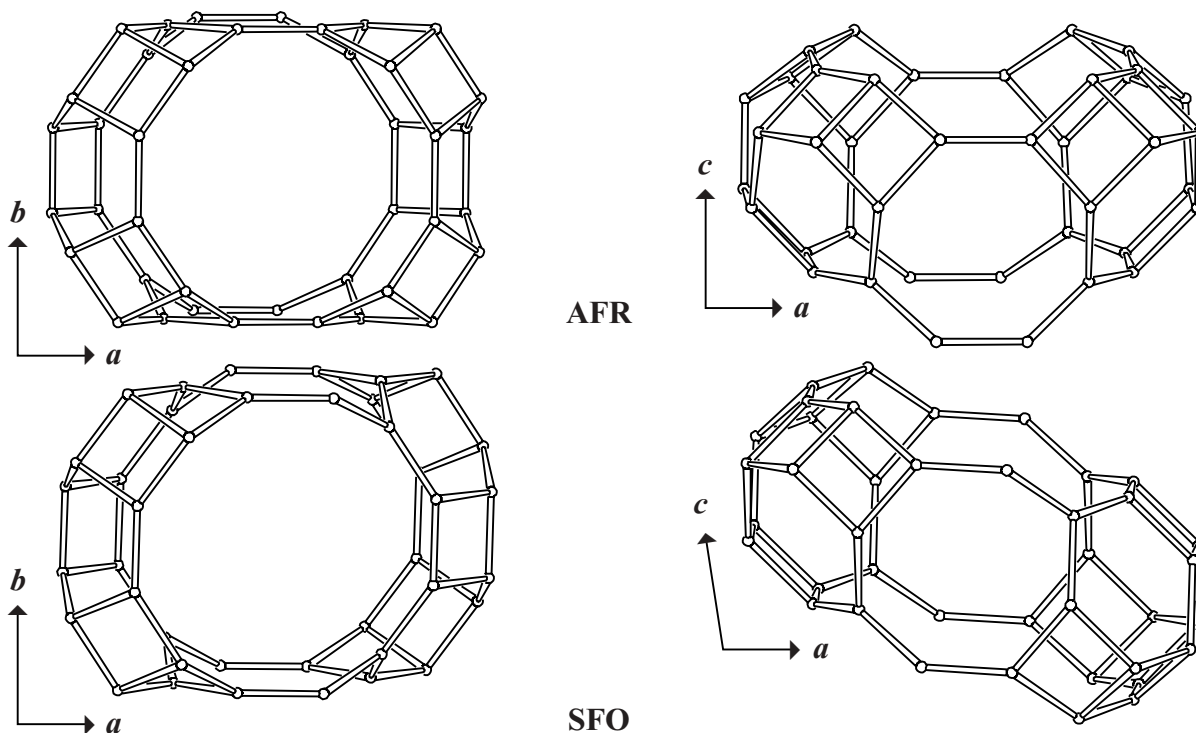


Figure 4. Channel intersection in AFR (top) and SFO (bottom) viewed along c (left) and b (right).

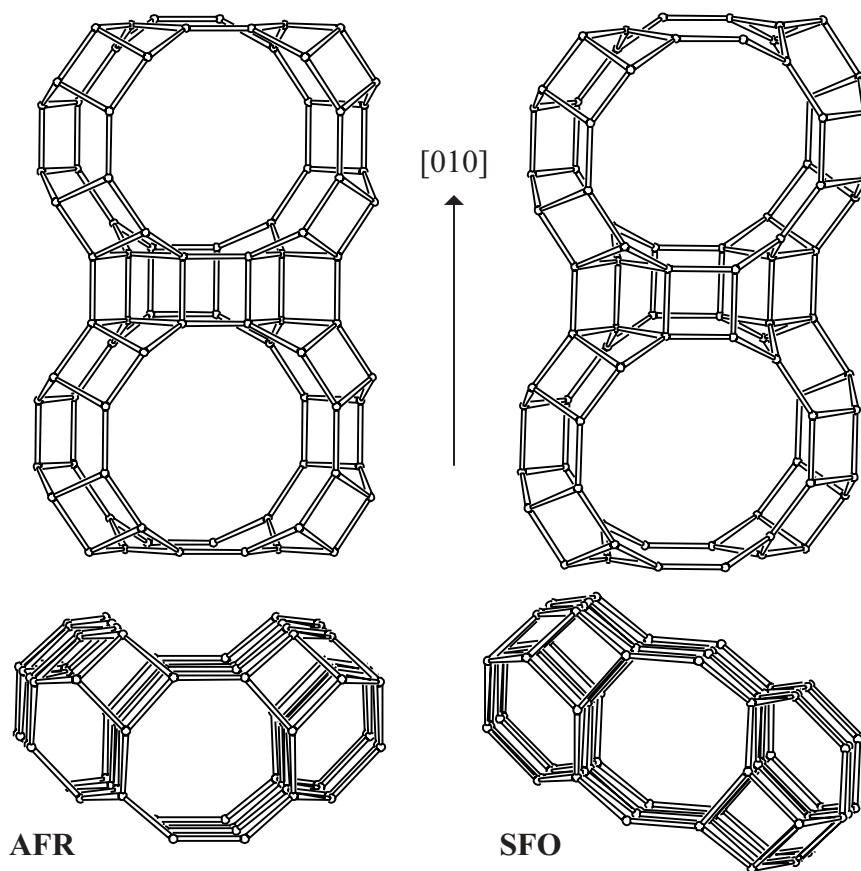


Figure 5. Connection of channel intersections parallel to b in AFR (left) and in SFO (right) viewed along c (top) and along b (bottom). [Figure 5 is continued on next page]

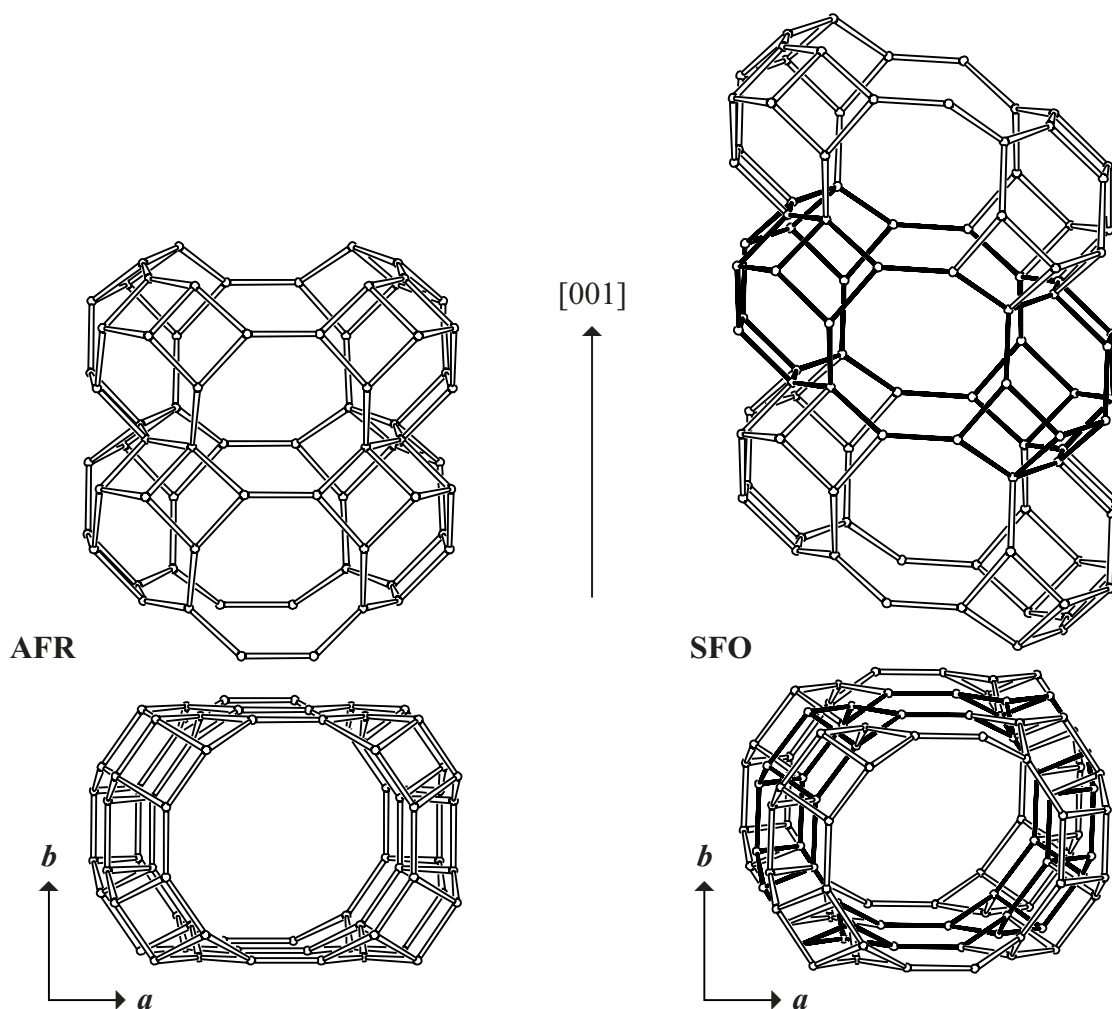


Figure 5 [Cont'd]. Fusion of channel intersections parallel to c in AFR (left) and in SFO (right) viewed along b (top) and along c (bottom). ▲

5. Supplementary information:

Other framework types containing (modified) double 4-rings (D4Rs)

Double 4-rings (D4Rs) can be connected in several other ways. In some cases the 4-rings of the D4Rs are not 4-fold connected and/or additional T atoms are needed to build the framework.

In the [INTRO](#) pages links are given to a detailed description of a sub-set of framework types that contain (modified) D4Rs (choose: **Double 4-rings**). There is also a link provided to a summary of the PerBUs used in the building schemes of these framework types (choose: **Appendix; Figure 5**). ▲