Building scheme for AST

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

1. Periodic Building Unit:

Cubic **AST** can be built using T10-units consisting of a double 4-ring (D4R) with two "dangling" T atoms (or two 4-1 units; bold in Figure 1). The D4Rs of the T10-units are connected through the "dangling" T atoms into a two-dimensional Periodic Building Unit (PerBU) shown in Figure 1.

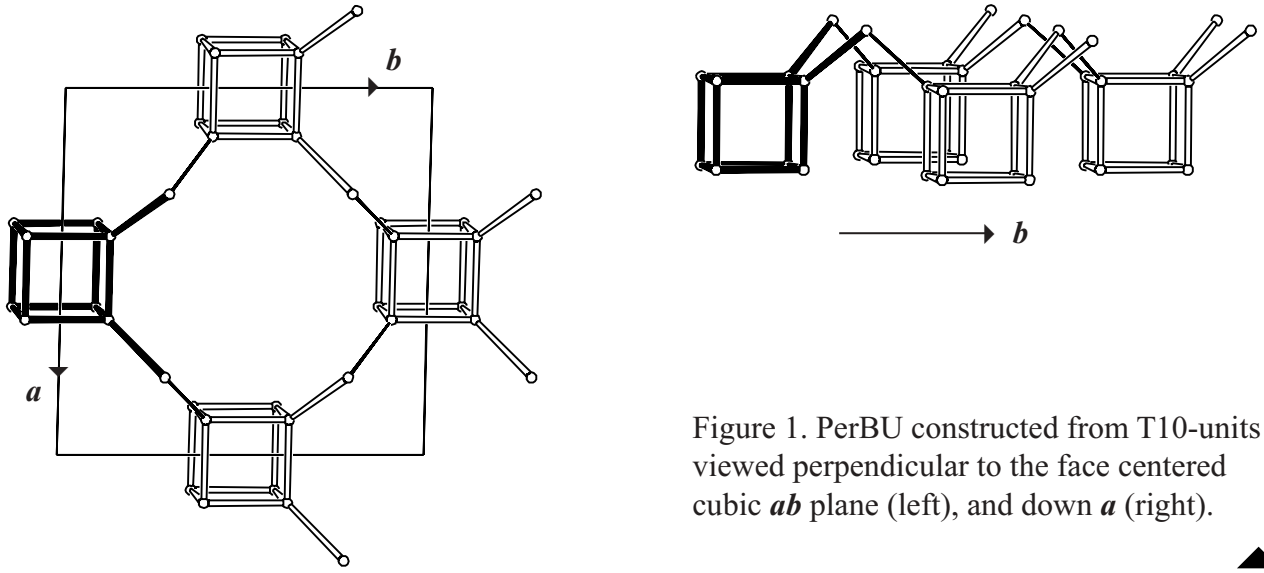


Figure 1. PerBU constructed from T10-units viewed perpendicular to the face centered cubic ***ab*** plane (left), and down ***a*** (right).

2. Connection mode:

Neighboring PerBUs, related by a shift of ½ ***b*** (or ½ ***a***), are connected through the "dangling" T atoms. Cages of (fused) 6-rings and 4-rings are formed.

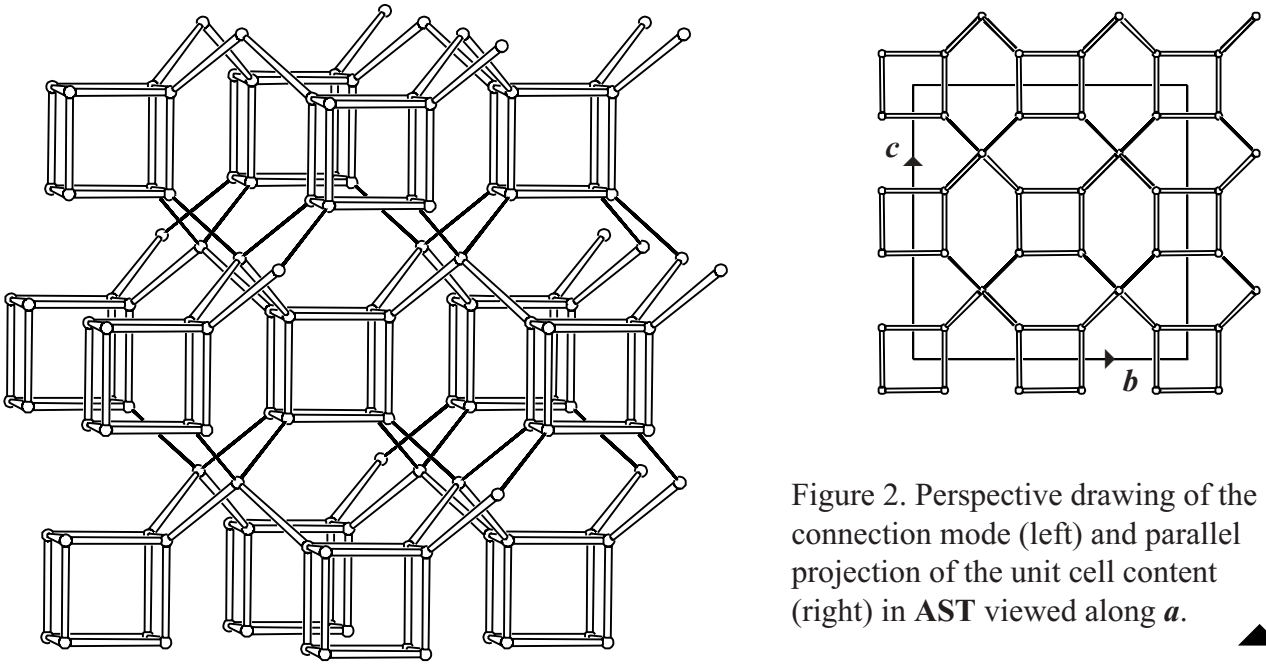
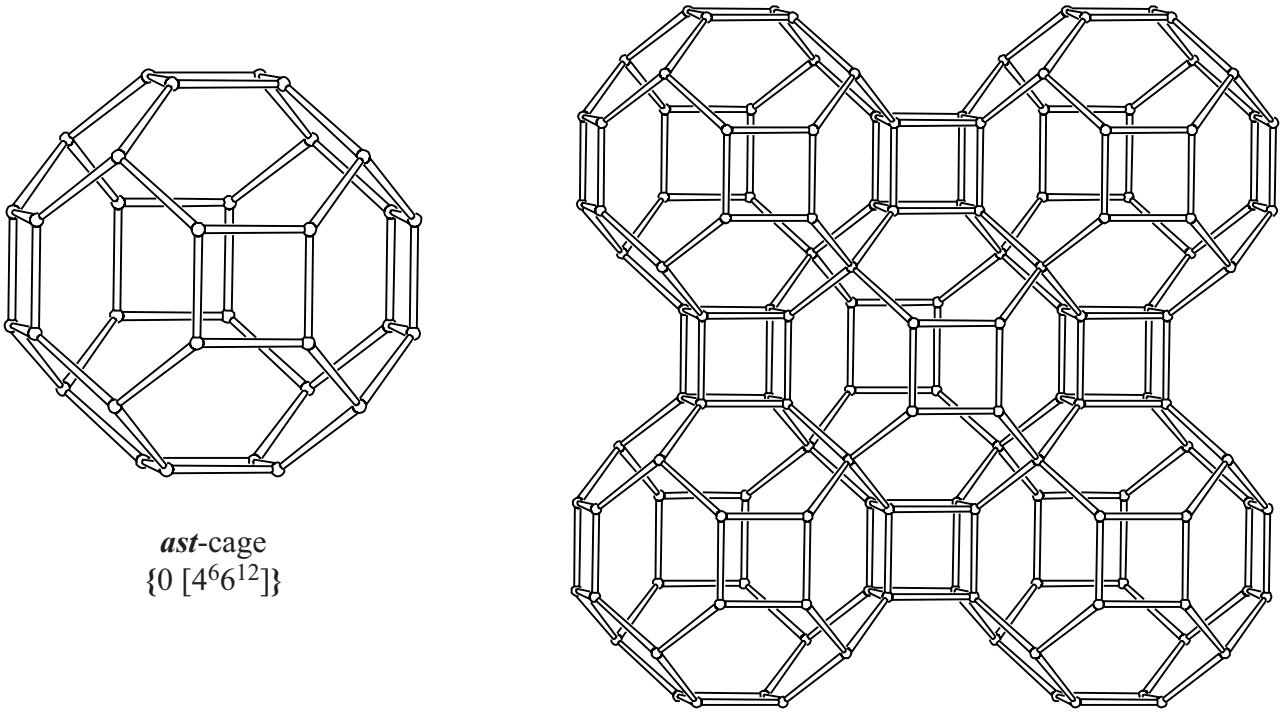


Figure 2. Perspective drawing of the connection mode (left) and parallel projection of the unit cell content (right) in **AST** viewed along ***a***.

3. Projections of the unit cell content: See Figure 2.

4. Channels and/or cages:

The cage in **AST** is depicted in Figure 3 together with its **pore descriptor**. The framework can also be constructed by fusion of these cages [see also **Alternative description**]. The apertures are formed by 6-rings only.



ast-cage
{0 [$4^6 6^{12}$]}

Figure 3. Cage (left) and fused cages (right) seen in perspective view along ***a***. One cube face is shown.

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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**).

Alternative description of* AST *using (modified) cavities
Several framework types, like **AST**, can be built using (modified) cavities (see Figure 3).
In the **INTRO** pages links are given to a detailed description of a sub-set of framework types that contain (modified) cavities (choose: **Cages**). There is also a link provided to a summary of the PerBUs used in the building schemes of these framework types (choose: **Appendix**; **Figure 11**).