Building scheme for ASV

1. Periodic Building Unit:

ASV can be built using the T20-unit consisting of two double 4-ring with two "dangling" T atoms (or four 4-1 units; bold in Figure 1). Neighboring T20 units, related along *a* and *c* by pure translations, are connected along *a* and *c* through distorted (fused) 6-rings as shown in the drawing of the two-dimensional Periodic Building Unit (PerBU) in Figure 1. [Compare this PerBU with those in **AST** and **UOZ**].
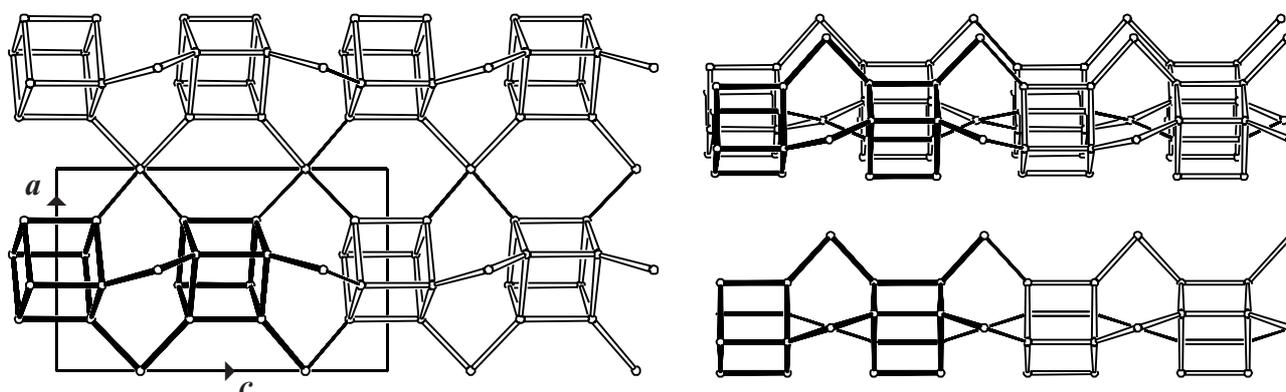
Figure 1. PerBU constructed from T20-units (built from four 4-1 units; left), and perspective view (top right) and parallel projection (bottom right) of the PerBU down *a*.

2. Connection mode:

Neighboring PerBUs, related by pure translations along *b*, are connected through the "dangling" T atoms. Cages of (fused) 4-rings, 6-rings and 12-rings are formed.
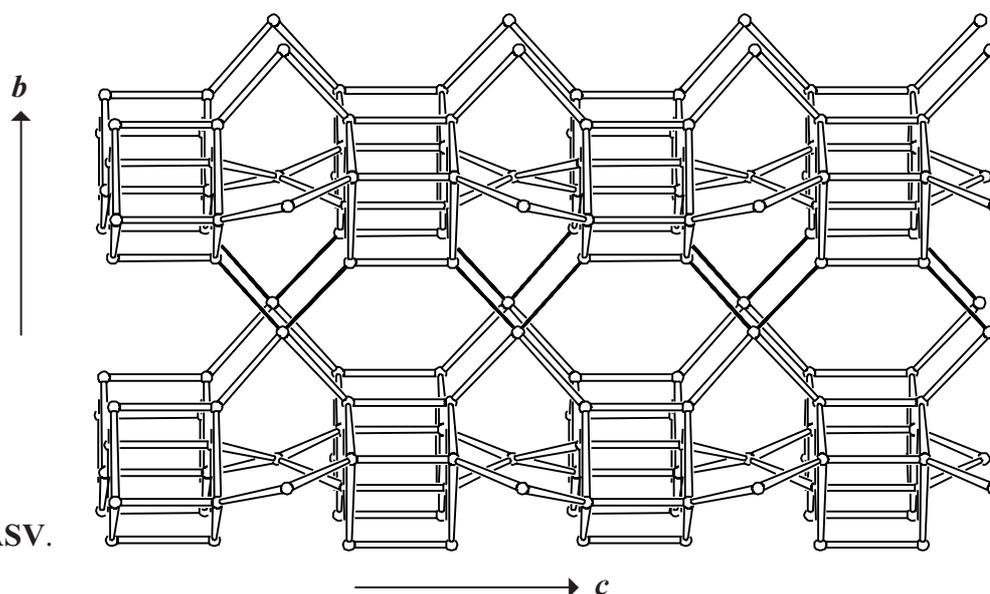
Figure 2. Perspective view along *a* of the connection mode in **ASV**.

3. Projections of the unit cell content:

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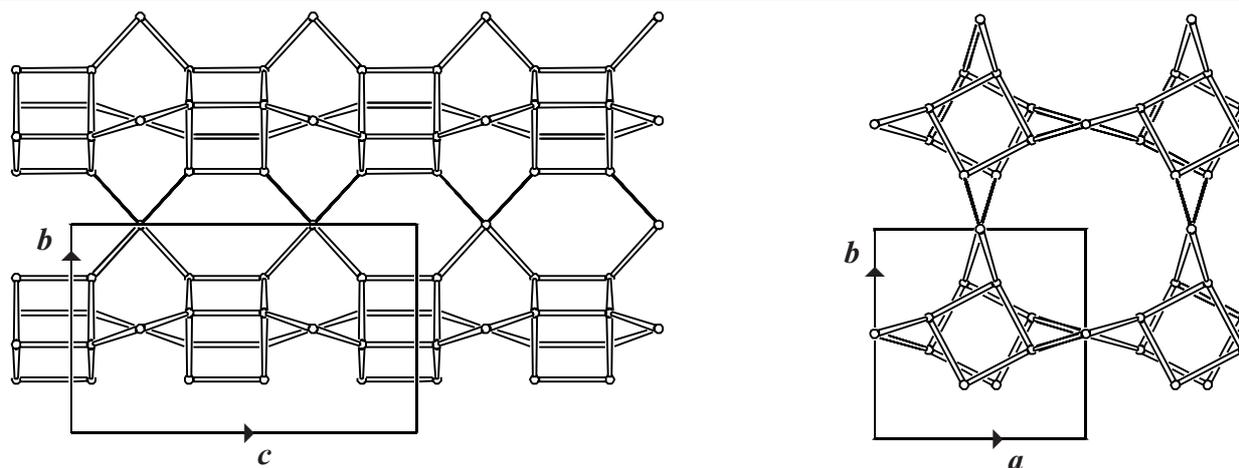
Figure 3. Projection of the unit cell content in **ASV** along *a* (left), and along *c* (right).

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4. Channels and/or cages:

The 12-ring channel in **ASV** is depicted in Figure 4 together with the **pore descriptor**. The channel wall consists of fused 4- and 6-rings.

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$\{1 \ [4^8 6^{16} 12^{2/2}] \ [001] \ (12\text{-ring})\}$
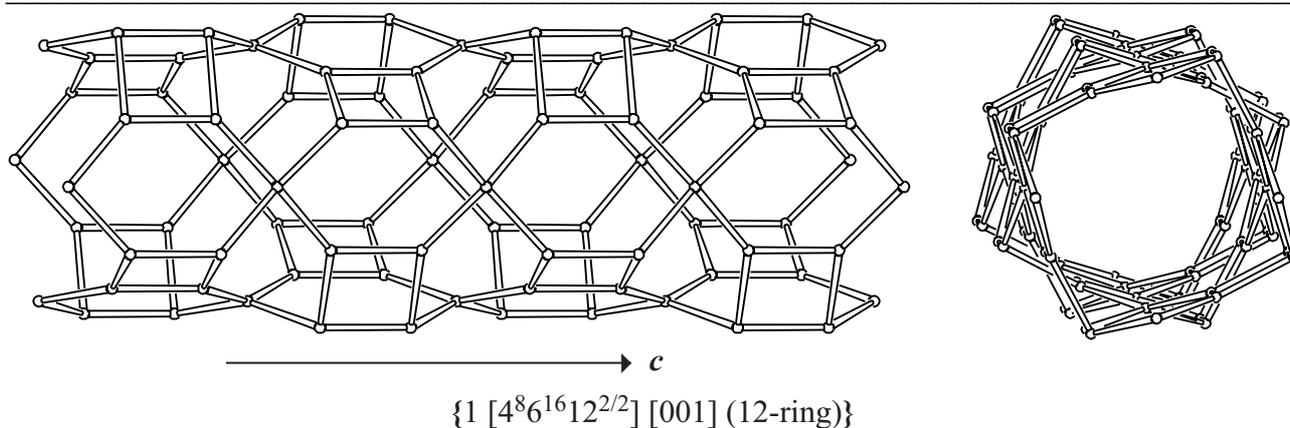
Figure 4. Channel in **ASV** viewed perpendicular to the channel axis *c* (left), and along the channel axis (right).

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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**).

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