

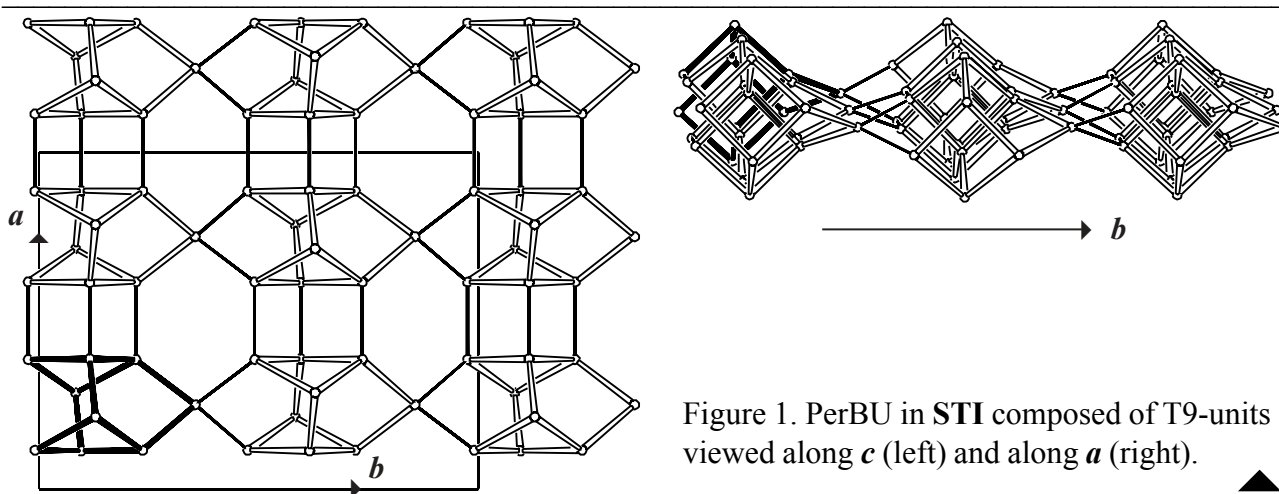
Building scheme for STI



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

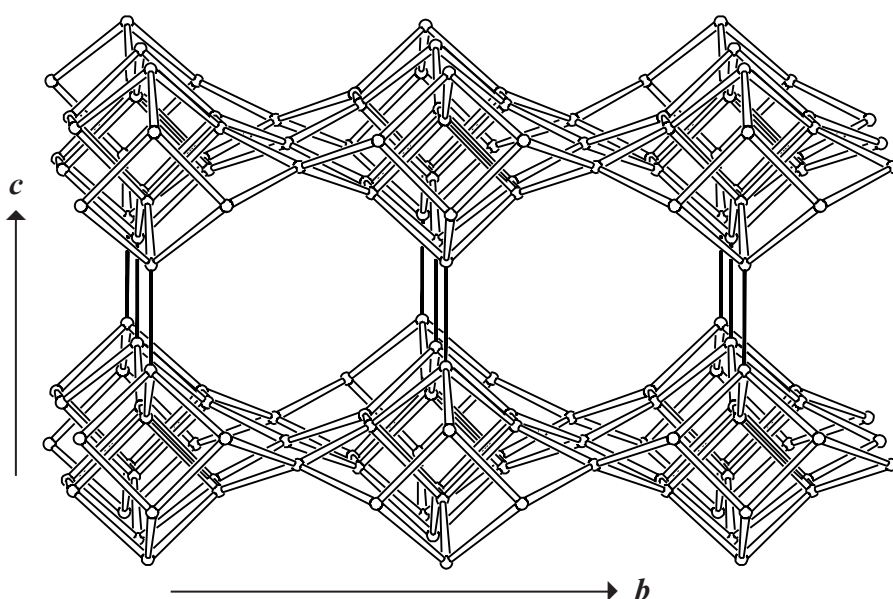
1. Periodic Building Unit:

The Periodic Building Unit (PerBU) in **STI** equals the ab layer shown in Figure 1. The PerBU is composed of units of 9 T atoms (in bold). The T9-unit consists of a two-fold (1,3)-connected double 4-ring and an additional bridging T atom (a 4-4=1 unit). T9-units, related by a rotation of 180° about b are connected into a chain along b through the bridging T atoms. Neighboring chains, related by a shift of $\frac{1}{2}b$, are connected along a through 4-rings as shown in Figure 1.



2. Connection mode:

Neighboring PerBUs, related by a shift of $\frac{1}{2}b$, are connected along c through single T-T bonds. 10-Ring channels along a , and 8-ring channels along b are formed.



3. Projections of the unit cell content:

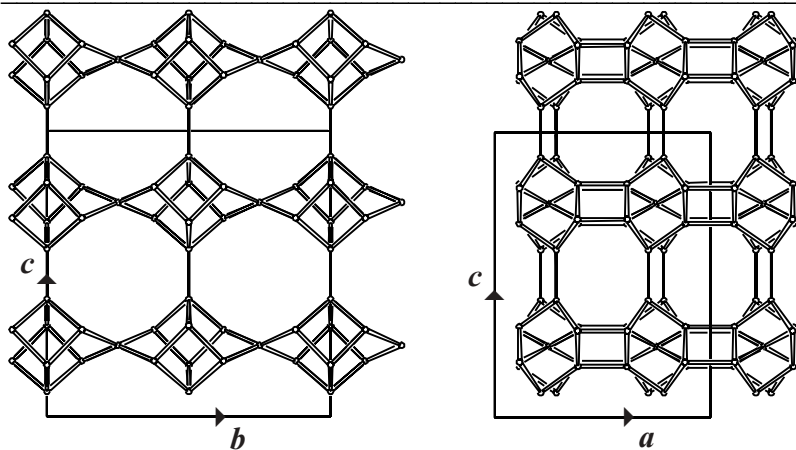
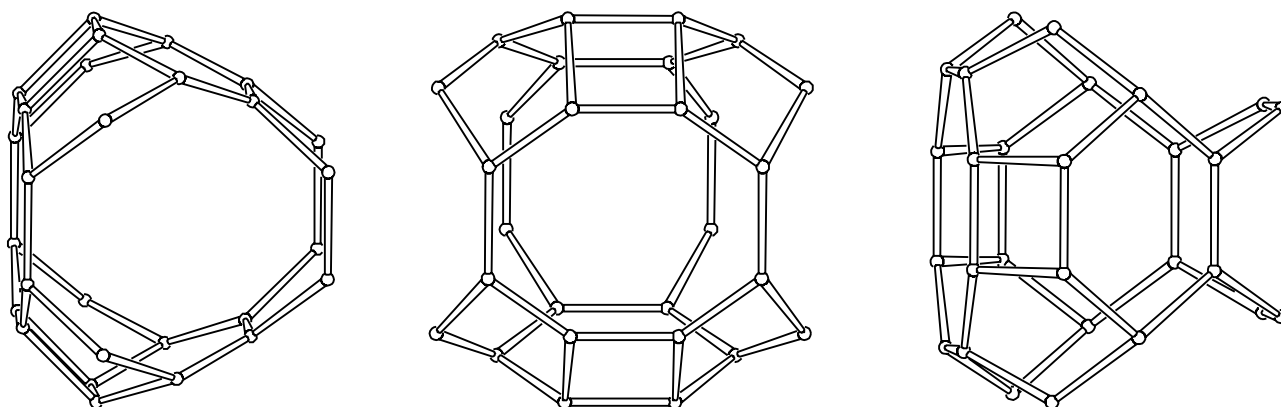


Figure 3. Cell content viewed along a (left), and along b (right).

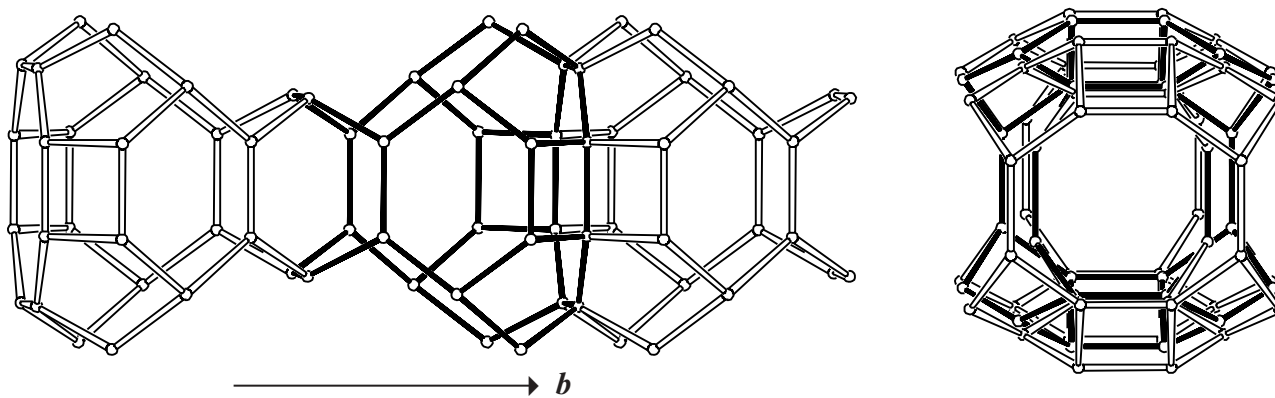
4. Channels and/or cages:

The channel intersection is shown in Figure 4(a) together with the **pore descriptor**. Channel intersections are linked into 8-ring channels parallel to b and into 10-ring channels parallel to a as illustrated in Figure 4(b).



Cavity with pore descriptor: $\{2 [4^2 5^4 6^2 8^2 10^2] [100] (10\text{-ring}), [010] (8\text{-ring})\}$

(a)



(b1)

Figure 4. (a): Cavity, with pore descriptor, viewed (from left to right) along a , b and c ; (b1): Fused cavities viewed along c (left), and along the 8-ring channel axis b (right). [Figure 4 is continued on next page]

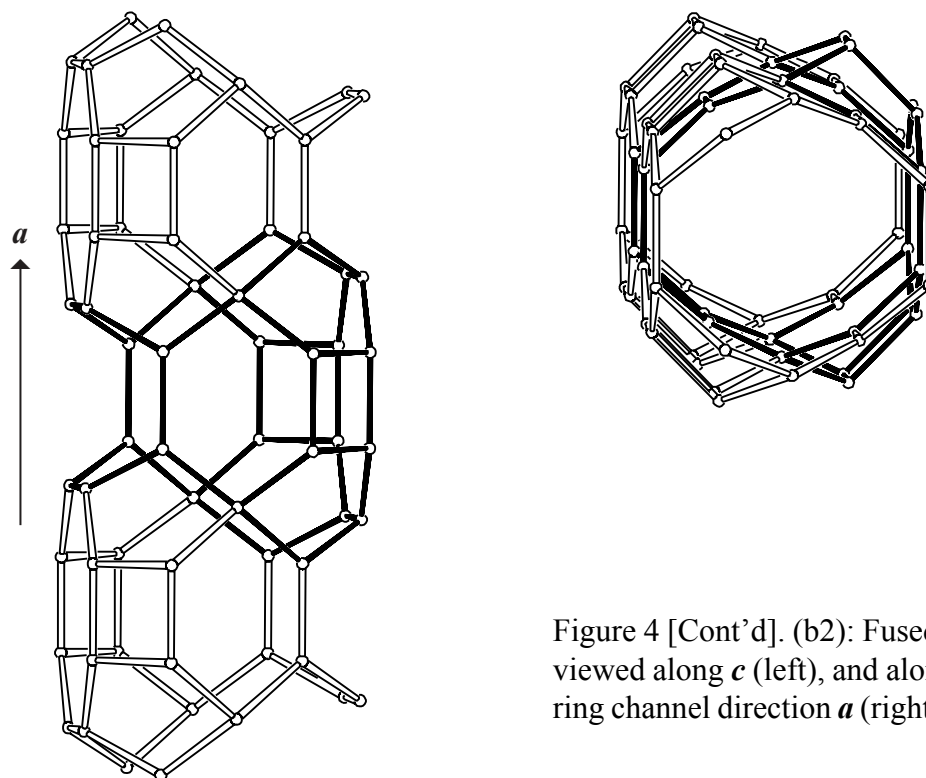


Figure 4 [Cont'd]. (b2): Fused cavities viewed along c (left), and along the 10-ring channel direction a (right).



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**).

