Building scheme for MTT and TON

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:

MTT and **TON** can be built using the zigzag chain (bold in Fig.1(left)). The repeat distance along the zigzag chain is about 5.2 Å. The repeat unit consists of 2 T atoms. Six zigzag chains form an infinite building unit (Fig.1 (left)). This infinite building unit can also be built using 5-1 units (bold in Fig.1 (middle); see **Alternative description**). The Periodic Building Unit (PerBU) is obtained when infinite building units, related by pure translations along **x**, are connected into the layer shown in Figure 1 (right). [Compare this PerBU with the PerBUs in **MTW**, **SFE**, **SFH**, **SFN** and **SSY**]

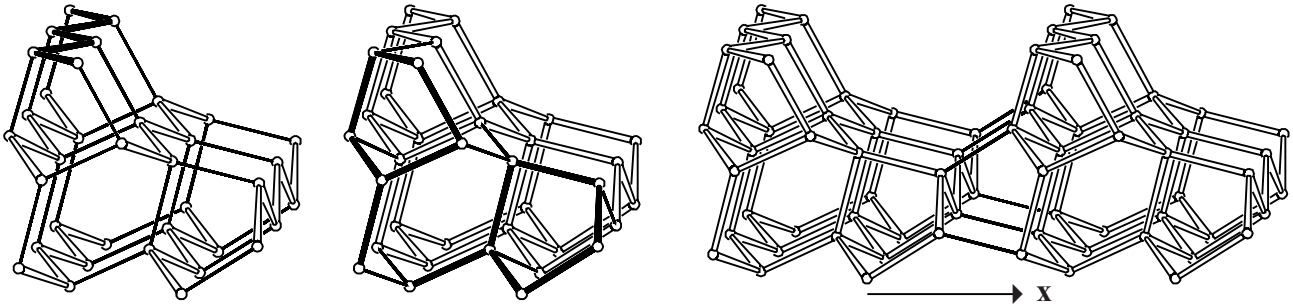

Figure 1. Infinite building unit constructed from six zigzag chains (left) and from 5-1 units (middle), and PerBU obtained when infinite building units are connected along **x** (right).

2. Connection mode:

Neighboring PerBUs can be connected along **y** through (fused) 5- and 6-rings in two different ways:
(1): neighboring PerBUs are related by pure translations along **y**;
(2): neighboring PerBUs are related by a rotation of 180º about the plane normal **y**.

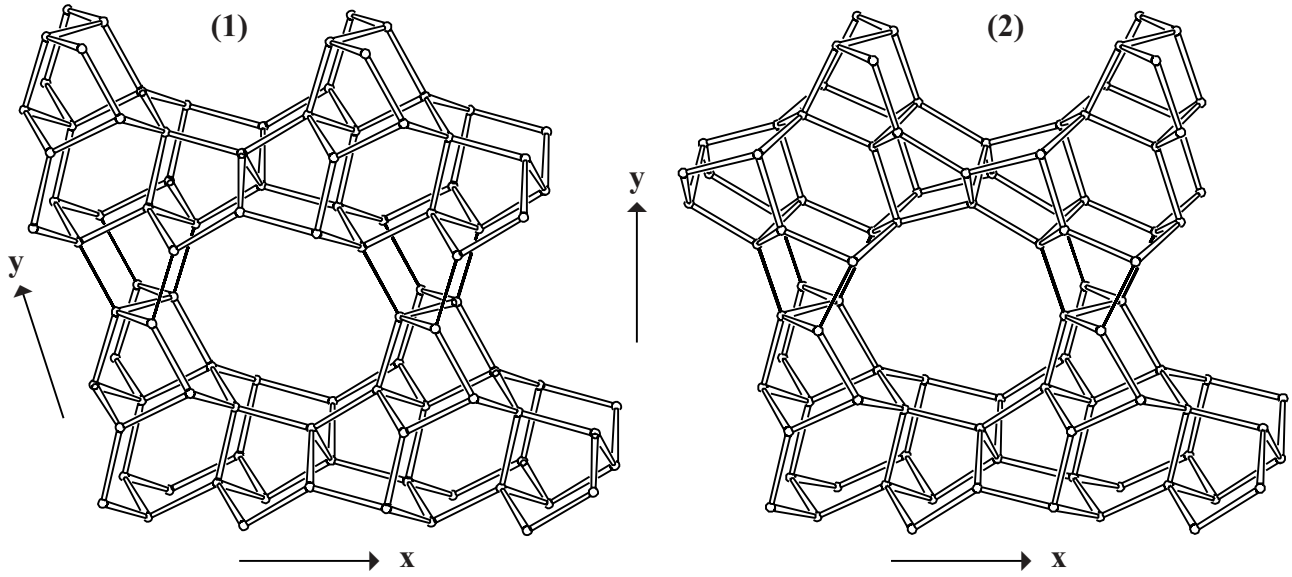

Figure 2. Connection mode **(1)** in **TON** (left) and connection mode **(2)** in **MTT** (right) viewed along **z**. Only two repeat units of the PerBUs are drawn for clarity.

3. Projections of the unit cell content:

Pure **TON** and **MTT**, shown in Figure 3, are obtained when neighboring PerBUs are exclusively related by translations and by 2-fold screw axes, respectively.

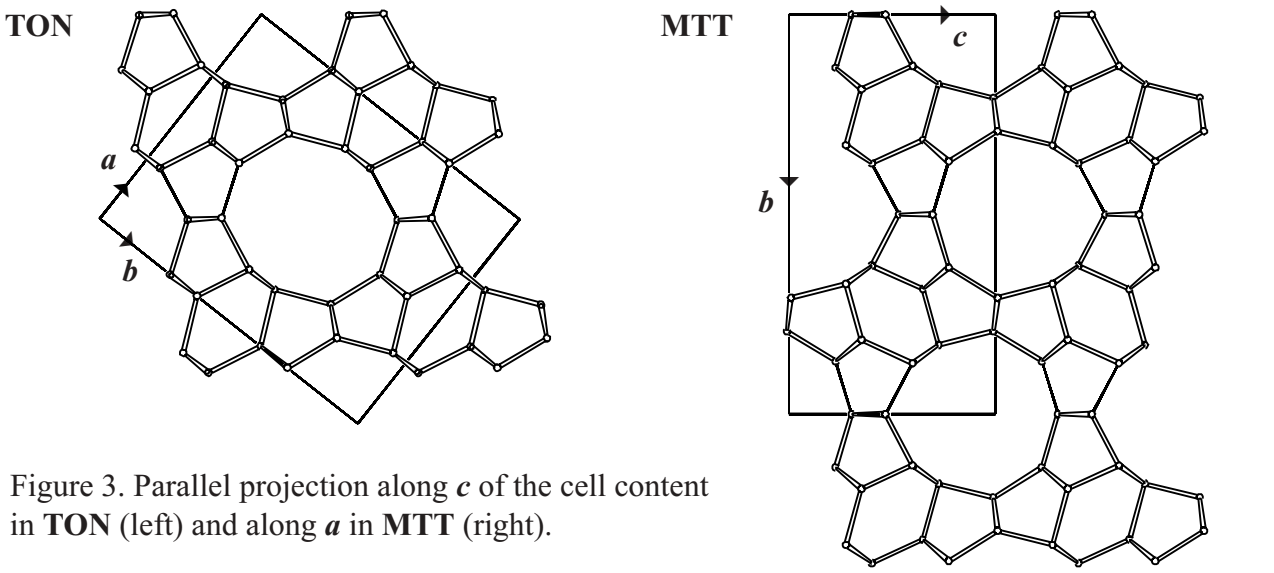

Figure 3. Parallel projection along ***c*** of the cell content in **TON** (left) and along ***a*** in **MTT** (right).

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4. Channels and/or cages:

The one-dimensional non-interconnecting 10-ring channels in **TON** and **MTT** are depicted in Figure 4. The **pore descriptor** is added. The 10-ring channels in both framework types have the same pore descriptor.

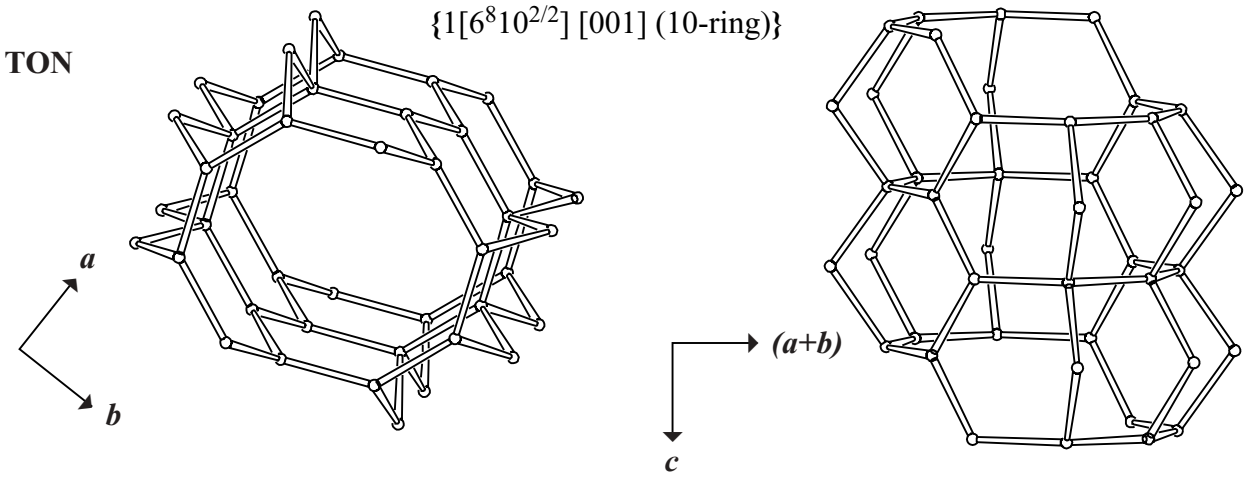

Figure 4. Channel in **TON** in perspective view along ***c*** (top left), and along (***a*** - ***b***) (top right).
[Figure 4 is continued on next page]

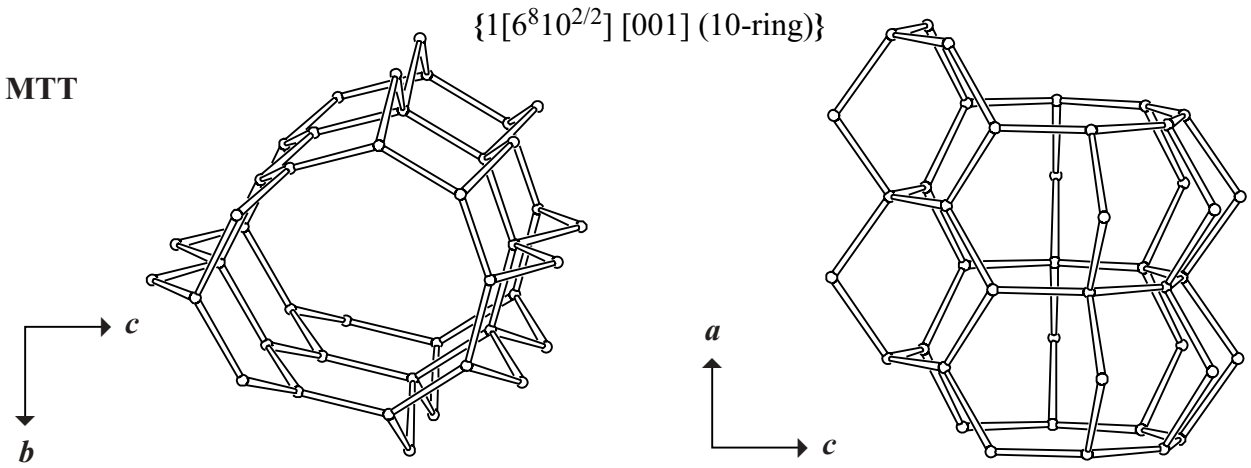

Figure 4 [Cont'd]. Channel in **MTT** viewed along ***a*** (left), and along ***b*** (right).

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5. Supplementary information:

In **TON** (fused) 6-ring layers are parallel to (110) (See Figure 2; connection mode **1**). **TON** can as well be obtained when these 6-ring layers are connected through additional zigzag chains. Compare this latter connection mode with the connection modes in **BIK**, **CAS** and **JBW**. In **MTT** the 6-ring layers are disrupted.

Other framework types containing zigzag chains
In several framework types at least one of the unit cell dimensions is about n*5.2 Å (where n = 1, 2, 3, etc.). In many cases this indicates the presence of zigzag chains.
In the **INTRO** pages links are given to detailed descriptions of these framework types (choose: **Zigzag chains**). There is also a link to a summary of the Periodic Building Units used in the building schemes of these framework types (choose: **Appendix**; **Figure 1**).

Alternative description using (modified) 5-rings
Several framework types, like **MTT** and **TON**, can be constructed using (modified) 5-rings.
In the **INTRO** pages links are given to detailed descriptions of these framework types (choose: **5-Rings**). There is also a link provided to a summary of the Periodic Building Units used in the building schemes of these framework types (choose: **Appendix**; **Figure 6**).