# Building scheme for UTL

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:

**UTL** can be built using a building unit consisting of 38 T atoms (bold in Figure 1). The T38-unit is composed of two subunits related by a 2-fold axis parallel to ***b*** and are connected through two 4-rings. The subunit consists of two 1-5-1 units which are connected through a (finite) "saw-like" chain of five T atoms in such a way that (fused) 5- and 6-rings are formed. The one-dimensional Periodic Building Unit (PerBU) is obtained when T38-units, related by pure translations along ***c***, are connected along ***c*** as shown in Figure 1. An elliptic 14-ring channel parallel to ***c*** and 12-rings perpendicular to ***b*** are formed.

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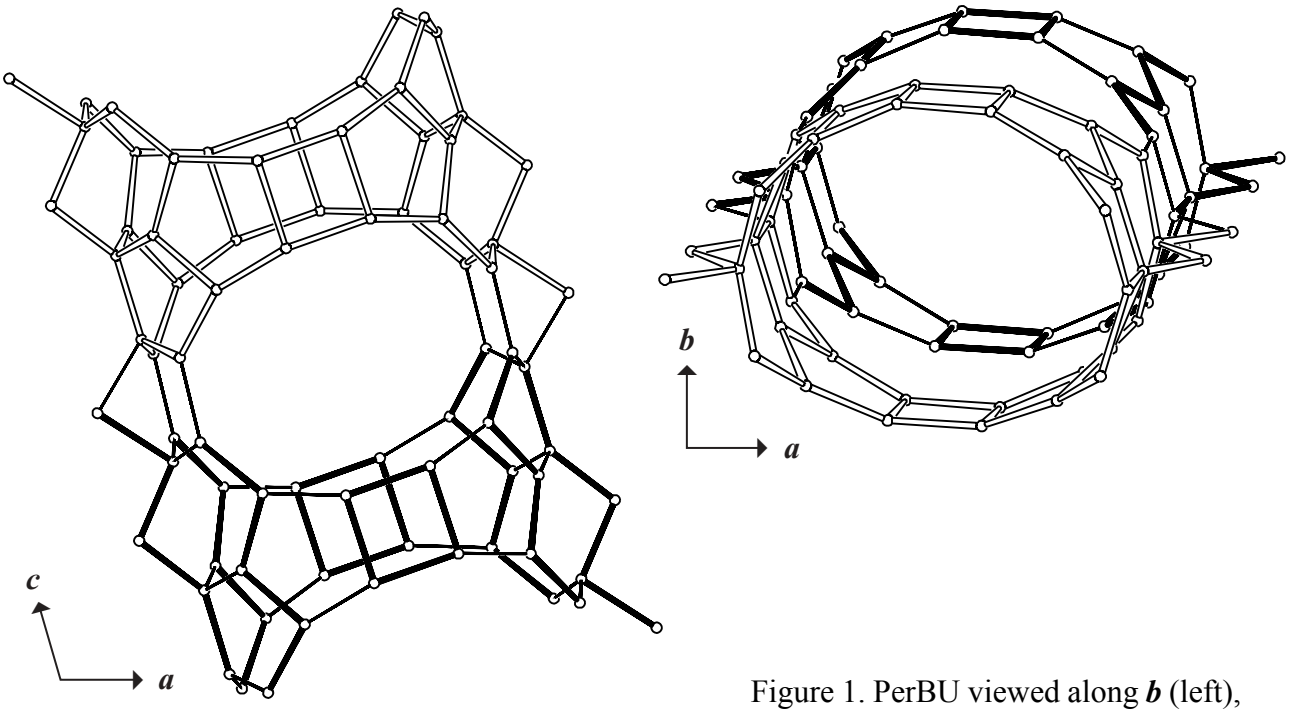


Figure 1. PerBU viewed along ***b*** (left), and along ***c*** (right).

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## 2. Connection mode:

Neighboring PerBUs, related by pure translations along ***b***, and by shifts of ½(***a*** + ***b***) along ***a***, are connected as illustrated in Figure 2 on next page. For clarity only, only one repeat unit of the PerBU along ***c*** is drawn.

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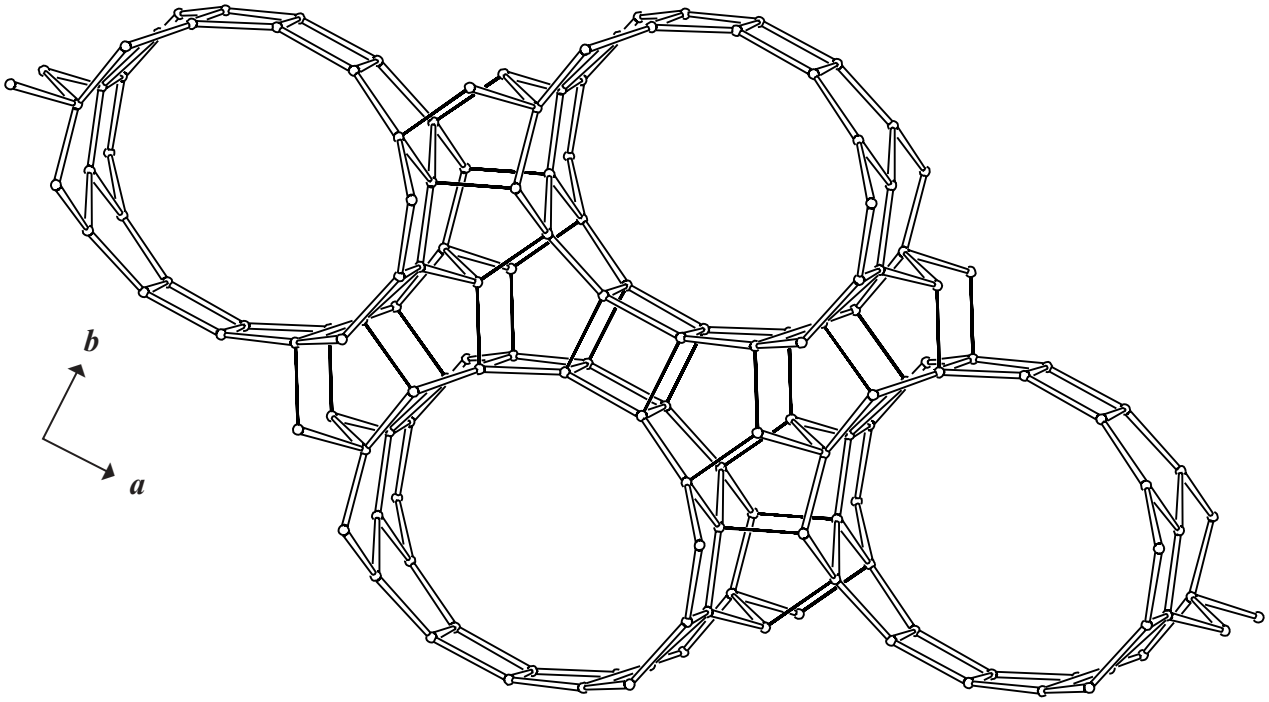


Figure 2. Connection mode in **UTL** viewed along ***c***.

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

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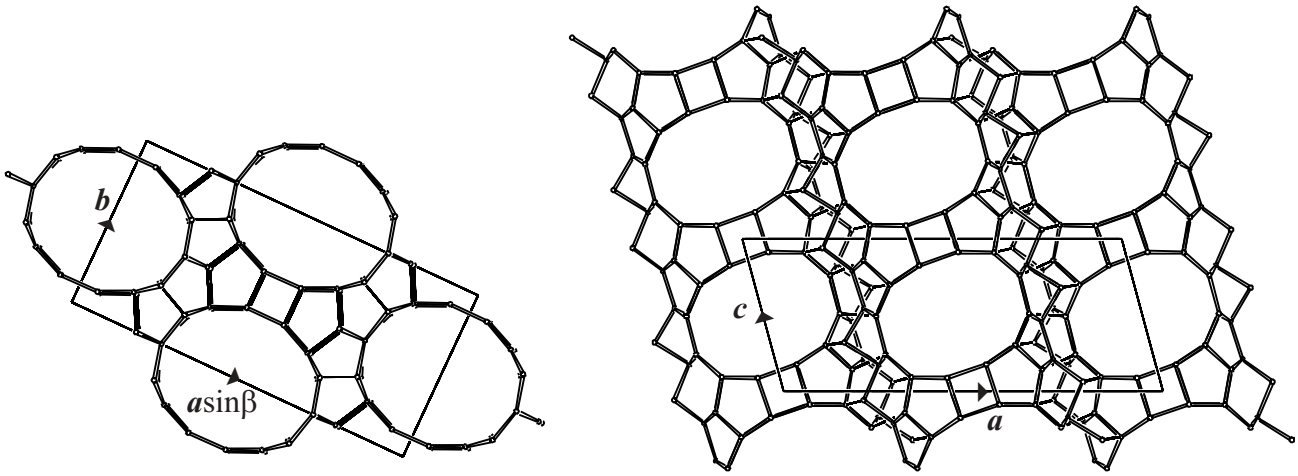


Figure 3. Unit cell content projected along ***c*** (left), and along ***b*** (right).

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**4. Channels and/or cages:**

14-Ring channels parallel to ***c*** and 12-ring channels parallel to ***b*** intersect. The channels are depicted in Figure 4 on next page. The **pore descriptor** is added. The fusion of channels is illustrated in Figure 5 on next page.

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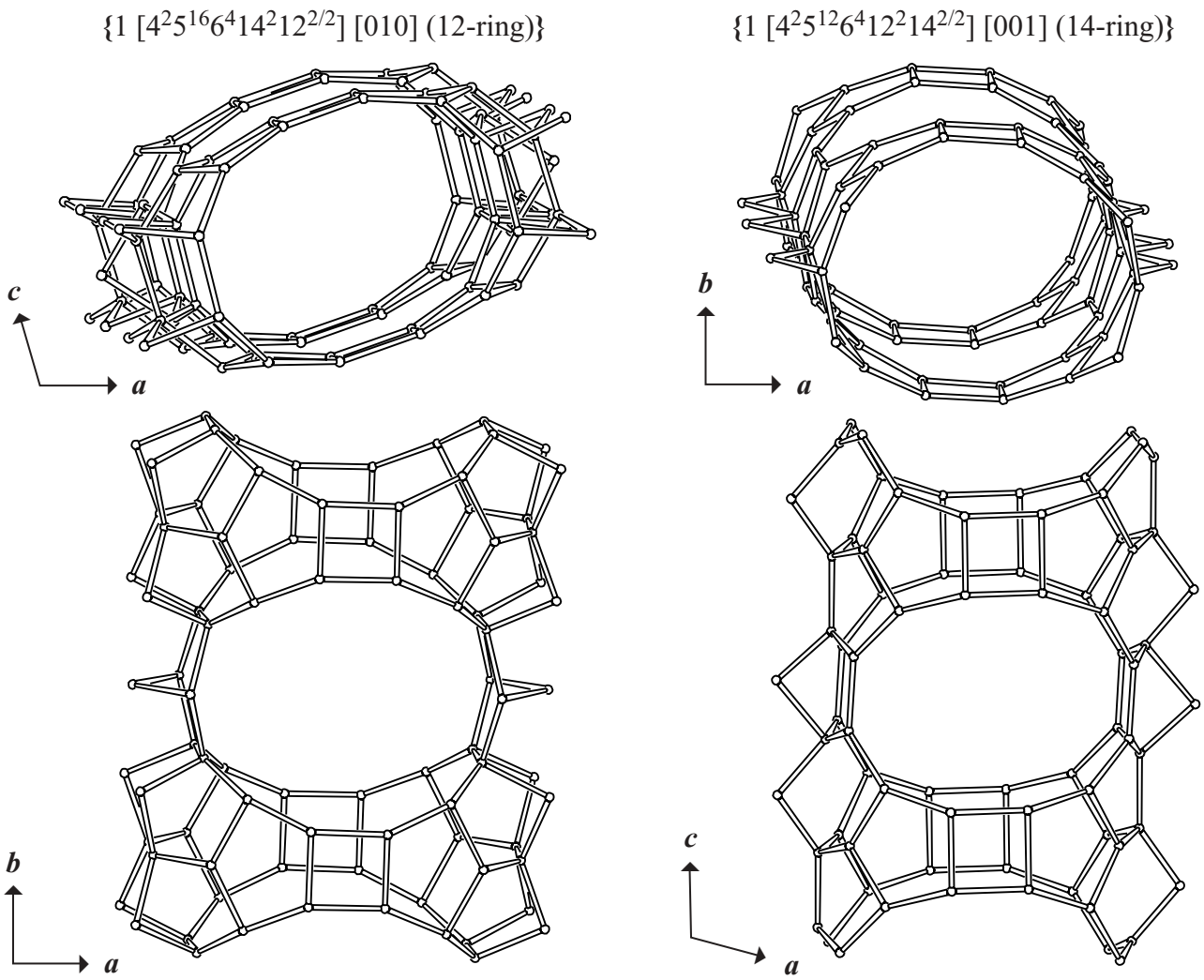


Figure 4. 12-Ring channel (left) and 14-ring channel (right; see also Figure 1) viewed along the channel axis (top) and perpendicular to the channel axis (bottom).

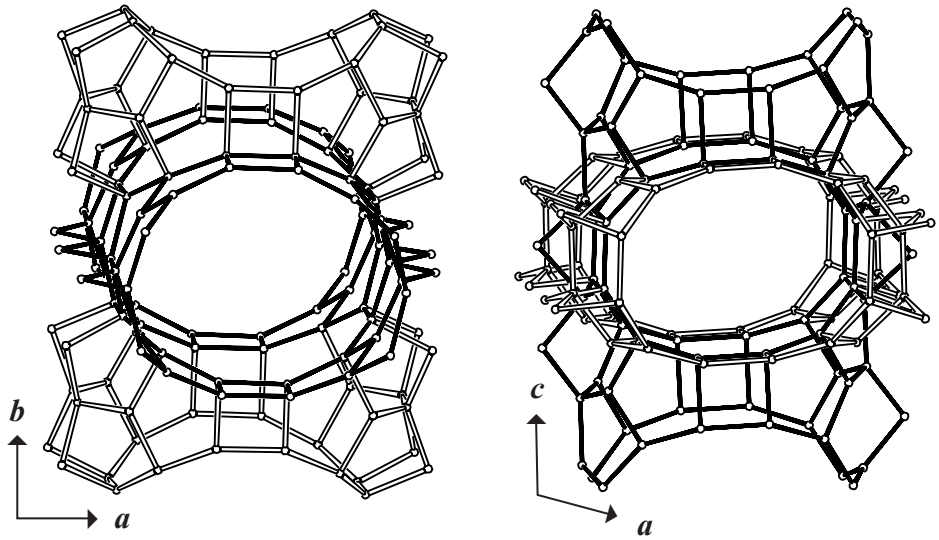


Figure 5. Fusion of channels in **UTL** viewed along the 14-ring channel axis parallel to ***c*** (left), and along the 12-ring channel axis parallel to ***b*** (right).

## 5. Supplementary information:

***Other miscellaneous framework types***

In the **INTRO** pages links are given to detailed descriptions of these framework types (choose: **Miscellaneous**). 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 12**).