BONDS GENERATOR

With help of this module the heterogeneous structures of solids or liquid bonds can be created. In *Fig. 1* some examples of structures are illustrated.
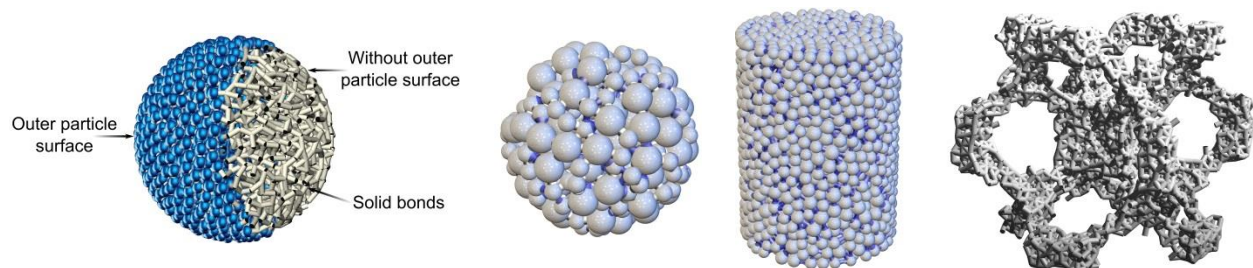

Figure 1. Examples of networks of solid bonds.

To generate bonds between primary particles a set of classes should be defined in the bonds generator tab. The bonds will be generated according to the order in which they are defined. For each bond class following parameters should be specified:

- *Class:* bond's class name can be modified;
- *Type:* choose the type of bond between particles: solid or liquid;
- *Material:* selection of bond material (from currently opened materials database)
- *Diameter:* specification of bond diameter. Diameter of bond D_b cannot be larger than smaller diameter of contact partners $D_{p,min}=min\{D_{p1}, D_{p2}\}$. Therefore, if specified diameter $D_b>D_{p,min}$ then for current particles p_1 and p_2 bond diameter will be automatically reduced to $D_{p,min}$;
- *Min and Max Distance:* these parameters are criteria for bond generation. Bond is generated if distance between particle surfaces satisfy condition $L_{min} \leq Dist \leq L_{max}$. Note: distance can have negative values (overlap between particles)
- *Overlay:* allows to create more than one bond between same particles. If overlay is allowed, then bond will be generated even some bond has been previously defined between this particles. If overlay is not allowed, then bond will be generated only if there was no bond between these particles;
- *Bonds:* total number of created bonds of the selected class;
- *Material Specific:* additional material-dependent criteria can be specified. If this parameter is enabled, then current type of bonds will be generated only between particles of specific materials. Simultaneous selection of several materials is allowed.

If periodic boundary conditions are enabled, then bonds can be generated over periodic boundaries.