

## **Non-Equilibrium Solids**

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Two kinds of non-equilibrium solids will be discussed in this tutorial: jammed systems and structural glasses. The former are completely out of equilibrium and relevant for granular materials such as sands, powders, etc. The most simple model is an assembly of hard spheres that are crunched rapidly together. Some of the properties of the solids created in this way are truly remarkable and different from the usual ones of crystals. The latter are instead half-way between equilibrium and non-equilibrium systems. Glasses found in nature are clearly out of equilibrium solids. On the other hand, there is a widespread conjecture that they might be related to a new equilibrium state of matter, i.e. amorphous solids displaying a kind of long-range order which is neither periodic nor quasi-periodic.