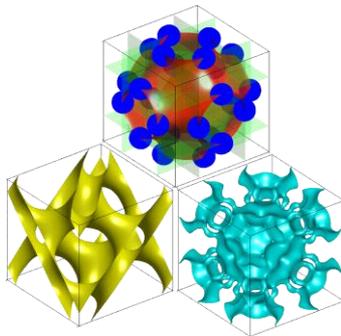


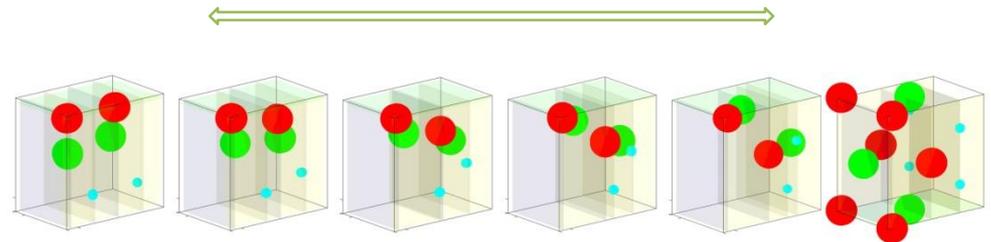
# Computer-Aided Nano-Design

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- Computational tools have played important roles in product and process design.
- Computer-aided design software tools are the major enabling technologies and contributors of the success of well-established commercial products such as cars, airplanes, and semiconductor chips.
- The objective of this research is to develop new computational modeling and simulation tools with underlying scientific rigors to enable future engineers to design nano-engineered multiscale systems in a virtual prototyping environment.
- GPUs are used to accelerate the computation of geometric models and visualization.



- A new *periodic surface* modeling scheme supports efficient feature-based construction and visualization of super-porous structures and crystals



- The *periodic surface* model also enables a geometry-guided physics-based phase transition simulation for design of phase-change materials.