

The Century of the Atom and The Life of the Molecule

Physicists and chemists have been playing with atoms and molecules for centuries. The recent adventure into the world of nanoscience and nanotechnology has provided a new and exciting playground for us to manipulate materials with atomic and molecular precision and create more and more complex nanostructures that are either scientifically interesting or technologically important. One of the most challenging goals in this game is to be able to assemble atoms and molecules into an ensemble of identical nanostructures with specific size, shape, and position in the space. The concept of ‘constrained self-organization’ for the creating such an ensemble of nanostructures will be introduced and the applications of nanostructures created by certain ‘constrained self-organization’ process will be discussed.