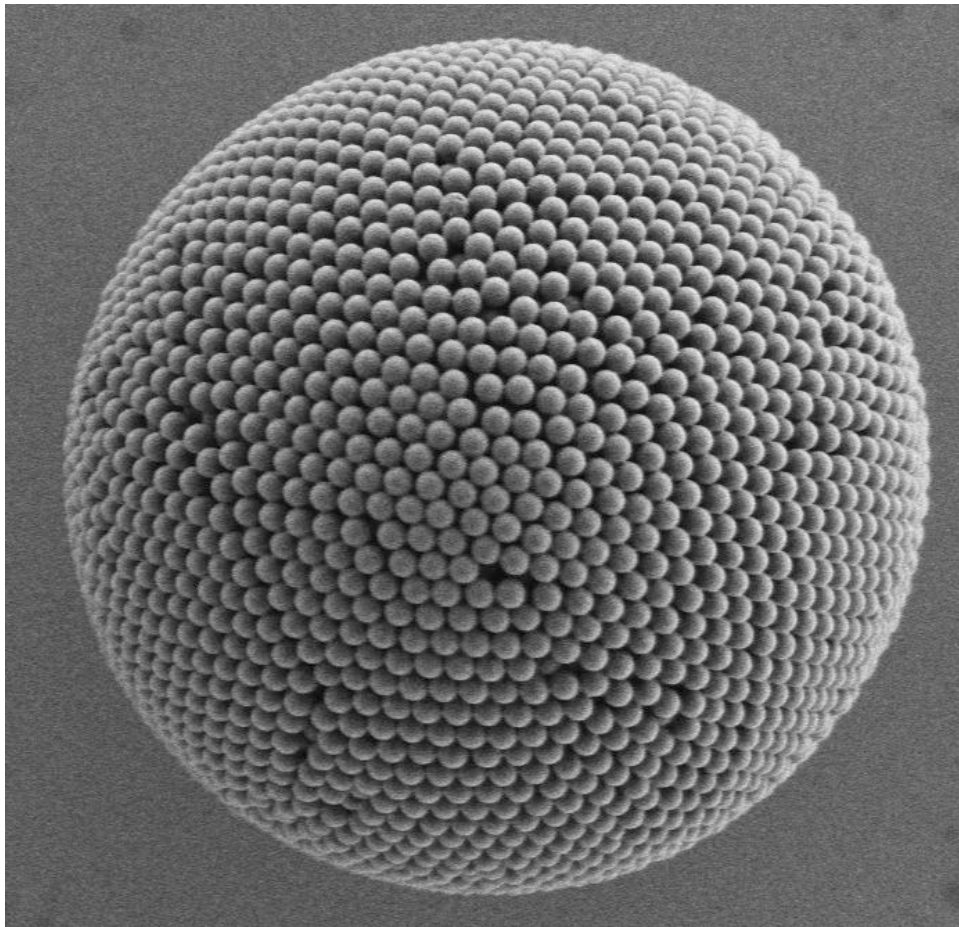


Colloidal Self-Assembly: From Simple Building Blocks to Functional Materials

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The astonishing variety of functionalities found in nature is almost always based on a self-assembly of relatively simple building blocks over multiple length scales. This concept continues to inspire scientists that seek possibilities to create functional materials in a cheap, fast and simple way. Colloidal particles are interesting in that respect as they can be synthesized with high uniformity and precision to yield building blocks with nanoscale dimensions. In the simplest case, such particles are of spherical shape and do not have any special properties by themselves. However, their uniform size allows such spheres to assemble into highly ordered superstructures, very much like oranges or apples on display in a supermarket. In my presentation, I will discuss strategies to assemble particles into desired superstructures and present examples on how functional, macroscopic properties can emerge from the ordered arrangement of these simple, nanoscale building blocks.

