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PROGRAMMABLE SELF-ASSEMBLY OF BIO-ABIONIC HYBRID MATERIALS

Yonggang Ke

Associate Professor of Biomedical Engineering
Emory University and Georgia Institute of Technology

Abstract: A key challenge in nanotechnology is the design, manufacture, and integrate nanomaterials and nanodevices. Self-assembled nanomaterials are believed to be critical in our search of sustainable fabrication and new materials. Towards this end, DNA nanotechnology has attracted significant attentions due to its programmability and its precise control of matter at nanoscale. By combining DNA self-assembly with functional molecules and materials, we can create a rich repository of hybrid nanomaterials and nanomachines. For instance, these DNA nanostructures can be formed and integrated with metals and semiconductors, with a true spatial three-dimensional resolution of a few nanometers, far exceeding conventional lithographic approaches.

Bio: Yonggang Ke is an Associate Professor of Biomedical Engineering at Emory University. He received his BSc in Chemistry from Peking University in 1999, and his PhD in Chemistry from Arizona State University in 2009 under the supervision of Prof. Hao Yan. From 2009 to 2014, he was a postdoctoral fellow at Harvard University, working with Prof. William Shih and Prof. Peng Yin. Since 2014, he has been working in the Wallace H. Coulter Department of Biomedical Engineering at Emory University and Georgia Tech.