Photonics Forum

March 30, 2016

11:45 a.m. - 1:15 p.m.

9th Floor

Room 901

Photonics Center

8 Saint Mary's Street

Lunch will be served!

Photonics Faculty: Dr. Keith Brown

Mesoscopic Soft Matter: Where Top-down Meets Bottom-up

Through decades of diligent work and investment, the semiconductor industry has developed a set of top-down fabrication tools that allow one to rapidly construct billions of devices by writing them one layer at a time. In contrast, many natural processes in biology occur from the bottom-up where ordered materials emerge from a disordered mixture of reactants. Despite the amazing structures that are made using these approaches, they each have limitations. For instance, top-down fabrication is compatible with a limited palette of materials that precludes many soft and biological materials while the products of bottom-up assembly are largely limited to periodic structures. In this talk, we explore merging the strengths of top-down and bottom-up approaches with a particular focus on determining what new scientific questions can be answered using this hybrid strategy.

Dr. Keith A. Brown is an Assistant Professor of Mechanical Engineering, Materials Science & Engineering, and Physics at Boston University. He earned a Ph.D. in Applied Physics at Harvard University under the guidance of Robert M. Westervelt and an S.B. in physics from MIT. Following his doctoral work, he was an International Institute for Nanotechnology postdoctoral fellow with Chad A. Mirkin at Northwestern University. Dr. Brown's research focuses on how to structure soft materials at the nanoscale and how to explore the new properties that emerge at this mesoscale between individual molecules and bulk materials.

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