

Nicholas Schade

“Nick”



Graduate Institution: Harvard University

Location: Somerville, Massachusetts

Graduate Discipline: Soft condensed matter physics, metamaterials

Hometown: Andover, Massachusetts

Research Interests:

I am interested in the physics of self-assembly and metamaterials. Scientists have never before been able to create a bulk metamaterial exhibiting negative refractive index in the visible range. Such a material would have important technical applications, from stealth technology and exotic lens characteristics to novel approaches to electronics. My research goals are to use colloidal self-assembly techniques to design and construct a nanostructure whose electric and magnetic properties can be tuned with precision over a range of frequencies, into the near infrared and visible bands.

About me:

I have begun my studies at Harvard with two professional goals. First, I want to contribute to the scientific community through original research in soft condensed matter physics and materials science. Second, I intend to make an impact on science education by developing physics curricula, providing educational consulting, and continuing to work with students so I can help inspire and train the next generation of scientists and engineers.

I graduated in 2005 with a BS in mathematical physics from Brown, where I conducted research in biophysics with Prof. James Valles. After college, I spent a few years working at MIT Lincoln Laboratory, where I helped perform systems analysis for US Air Force leadership and developed algorithms for new sensors as part of the laboratory's rapid prototyping effort. I received a Lincoln Laboratory team award and a letter of gratitude from the Secretary of the Air Force for this work. I also spent one year as a full-time high school physics teacher; I taught AP Physics, Physical Science, and Electronic Engineering. Now I am working with Prof. Vinothan Manoharan at Harvard and my research recently has focused on DNA as a self-assembly mechanism for colloidal clusters. Outside of research and classes, I enjoy playing in kickball and ultimate Frisbee leagues and I tutor students in physics and mathematics at the high school and undergraduate levels.



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