

UIC COLLOQUIUM

Department of Physics

Wednesday, September 13, 2017

Visualizing Quantum Matter

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Abstract: Everything around us, everything each of us has ever experienced, and virtually everything underpinning our technological society and economy is governed by quantum mechanics. Yet this most fundamental physical theory of nature often feels as if it is a set of somewhat eerie and counterintuitive ideas of no direct relevance to our lives. Why is this? One reason is that we cannot perceive the strangeness (and astonishing beauty) of the quantum mechanical phenomena all around us by using our own senses. I will describe the recent development of techniques that allow us to image electronic quantum phenomena directly at the atomic scale. As examples, we will visually explore the previously unseen and very beautiful forms of quantum matter making up electronic liquid crystals and high temperature superconductors and find that they are closely related. I will discuss the implications for fundamental physics research and also for advanced materials and new technologies, arising from quantum matter visualization.

The Department of Physics Colloquium will be held at 3pm in 138 SES.

**Refreshments will be served from 2:45 pm to 3pm outside of room 138 SES*