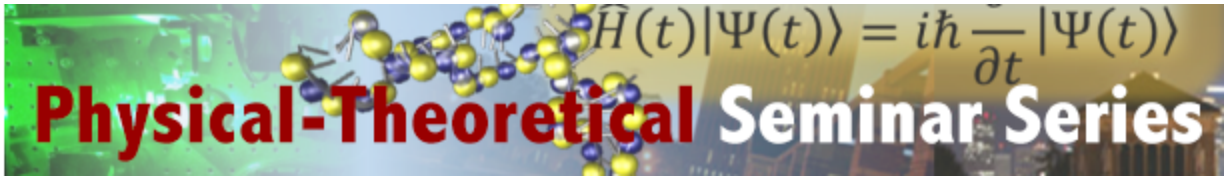

Monday, October 23, 2017, 12:00 pm
Seaver Science Library, Room 150
SSC Auditorium next to the library

Professor Naomi Ginsberg

Department of Chemistry
University of California Berkeley

Tracking the Nanoscale Dynamics of Ultrafast Electronic Energy Flow and Non-equilibrium Phase Transitions in Energy Materials

My research group interrogates dynamic nanoscale processes in energy-related materials, especially those involved in solar light harvesting, as is the case in photosynthesis. We primarily consider materials intended for next-generation photovoltaics, all formed through deposition from the solution-phase or using solution-phase self-assembly. We aim to elucidate how these materials' physical structure determines their emergent optoelectronic properties. Ultimately, establishing such structure-function relationships will lead to specific solution-phase approaches to material formation that generate optimally performing functional materials.

I will take you first on a journey to discover the nature of energy landscapes in disordered, electronically-coupled molecular aggregates, and second, to elucidate the manner by which light can lead to steady-state charge carrier traps by inducing local changes in structure and composition in solid solutions of halides in hybrid perovskite photovoltaics. I will also show how the delineation between our two operationally different classes of microscopies has begun to blur through cross-pollination. As such, correlating dynamic structures with dynamic functions is becoming increasingly tangible.

Suggested reading:
Penwell, S. B.; Ginsberg, L. D. S.; Noriega, R.; Ginsberg, N. S. "Resolving ultrafast exciton migration in organic solids at the nanoscale", *Nature Materials* (2017). DOI: 10.1038/nmat4975
Bischak, C. G.; Hetherington, C. L.; Wu, H.; Aloni, S.; Ogletree, F. D.; Limmer, D. T.; Ginsberg, N.S. "Origin of reversible photoinduced phase separation in hybrid perovskites", *Nano Letters* (2017). DOI: 10/102/acs.nanolett.6b04453

Hosted by Professor Anna Krylov

The scientific community is invited

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