SSI2014
August 4-15, 2014
42ND SLAC Summer Institute

Shining Light on DARK MATTER

The 2014 SLAC Summer Institute will focus on the quest to identify dark matter. Observations indicate that 85% of the matter in the universe is non-luminous and point towards the existence of cold dark matter particles. However, all evidence so far is based on dark matter's gravitational interactions and its particle identity remains a deep mystery. The development of a variety of probes to illuminate the nature of dark matter has made this one of the most vibrant frontiers today. Morning lectures will cover all aspects of dark matter, from observational evidence for its existence, to its role in cosmic evolution and structure, to direct, indirect and collider searches. In the afternoons, topical conference talks will alternate with discussion sessions, student projects, tours, and social events.

SCHOOL LECTURES:

Dark Matter and Why we believe in it: Doug Finkbeiner (Harvard)
Cosmology Basics: Scott Dodelson (Fermilab)
Particle Dark Matter: Kathryn Zurek (Michigan)
Searching for Dark Matter at the LHC: Daniel Whiteson (UC Irvine)
Direct Detection I: Dan Akerib (Case Western)
Direct Detection II: Prisca Cushman (Minnesota)
Indirect Detection: Jennifer Siegal-Gaskins (Caltech)
Structure Formation: Tom Abel (SLAC)
Astrophysics Constraints on Dark Matter: Louis Strigari (Indiana)
Lensing Constraints on Dark Matter: Simona Vegetti (MPA Garching)
Dark Matter in the CMB: Tracey Slatyer (MIT)
Dark Matter in the Milky Way: Jo Bovy (IAS)
Dark Matter in Galaxy Clusters: Marusa Bradac (UC Davis)
Axions: Theory: Michael Dine (UC Santa Cruz)
Axions: Experiment: Leslie Rosenberg (Washington)
Dark Sectors: Natalia Toro (Perimeter)
Dark Photon Searches: Matthew Graham (SLAC)
Complementarity of Dark Matter Searches: Tim Tait (UC Irvine)
The View Ahead: Neal Weiner (NYU)

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SPONSORSHIP:
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