

SSI2012  
JULY<sub>23</sub> – AUGUST<sub>3</sub>  
40<sup>TH</sup> SLAC SUMMER INSTITUTE

# THE ELECTROWEAK SCALE: Unraveling the Mysteries at the LHC

Exploration of the TeV scale holds the promise of addressing some of our most basic questions about Nature. The Large Hadron Collider at CERN has begun to probe this new energy frontier and data is rapidly accumulating. Perhaps the most serious question for the LHC to address is the origin of electroweak symmetry breaking. The 2012 SLAC Summer Institute will focus on recent LHC results and their implications for the Electroweak scale and beyond. Mornings will consist of lectures and in the afternoons, topical conference talks will alternate with discussion sessions, tours, and social events.

#### SCHOOL LECTURES:

Hadron Collider Environment  
LHC: The Machine  
LHC: The Detectors  
Higgs Searches  
Dark Matter Zoo  
Dark Matter Indirect Detection  
Dark Matter Direct Detection  
Dark Matter Properties at the LHC  
LHC Detector Upgrades  
Higgs at a Linear Collider  
The View Ahead

Historical Perspective  
Statistics for Discovery  
EWSB Basics  
Precision Higgs Theory  
BSM Higgs Theory  
Supersymmetry Basics  
The BSM Zoo  
Supersymmetry Searches  
Vector Boson Scattering  
Implications of Higgs Searches and Discovery  
40 Years of the SLAC Summer Institute

[www-conf.slac.stanford.edu/ssi/2012](http://www-conf.slac.stanford.edu/ssi/2012)

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**SPONSORSHIP:**  
The SLAC Summer Institute is hosted by Stanford University and co-sponsored by the US Department of Energy and the SLAC National Accelerator Laboratory.  
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