Snowmass Summary Session: Introduction

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U.S. DEPARTMENT OF ENERGY
Office of Science

SLAC NATIONAL ACCELERATOR LABORATORY

Multi-step planning process for US HEP program

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- HEP Facilities Subpanel: Winter 2013
  - » Advise DOE/SC on the scientific impact and technical maturity of planned and proposed SC Facilities (>$100M)
- DPF/CSS2013 “Snowmass”: Fall 2012 to summer 2013
  - » Identify compelling HEP science opportunities
  - » Not a prioritization but can make scientific judgments
  - » Extended set of working group/subgroup meetings (57) culminating in “Snowmass” meeting in Minneapolis
- HEPAP/P5: Fall 2013 to spring 2014
  - » Develop new strategic plan and priorities for US HEP under various funding scenarios
- Parallel to European & Japanese planning efforts

Broad effort organized around seven working groups

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Working Group	Targeted subgroups [Total]	Conveners
Energy Frontier	Higgs Boson [6]	Brock (MSU) & Peskin (SLAC)
Intensity Frontier	Neutrinos [6]	Hewett (SLAC) & Weerts (ANL)
Cosmic Frontier	Direct DM, Indirect DM, complementarity, DE & CMB [6]	Feng (UCI) & Ritz (UCSC)
Facility Capabilities	Frontier lepton & gamma colliders [8]	Barletta (MIT) & Gilchriese (LBNL)
Instrumentation Frontier	Sensors, detector systems, DAQ & electronics [6]	Demarteau (ANL), Nicholson (Mt. Holyoke), Lipton (Fermilab)
Computing Frontier	Astrophysics & Cosmology [12]	Bauerdick (Fermilab) & Gottlieb (Indiana)
Education & Outreach		Bardeen (Fermilab) & Cronin-Hennessy (Minn)

Bringing community together at Snowmass meeting

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Time	29 July	30 July	31 July	1 Aug	2 Aug	3 Aug	4 Aug	5 Aug	6 Aug
morning	Grand Plenaries	**Subgroup Parallel Sessions and Joint Parallel Sessions**						Grand Plenaries	
early afternoon		**Subgroup Parallel Sessions and Joint Parallel Sessions**							
late afternoon		Grand Plenary Sessions and Discussions							
evening		**Parallel DISCUSSIONS**							

- Output:
  - ~240-page Snowmass Book with 30 page overall summary
  - SLAC-hosted repository for community white papers

Topics for colloquia and panels

- Dark Matter
- Higgs Boson, Higgs sector and naturalness
- Neutrino mass, mixing and Grand Unification
- Precision frontier: Finding new physics through loops and radiative corrections
- Cosmic surveys: Dark energy, inflation, neturino, etc
- New light weakly-coupled particles
- Energies beyond the LHC: goals and techniques
- High Energy Cosmic Particles
- Quark, Lepton Flavor and CP
- Opportunities with high intensity accelerators beyond the current era: physics goals and accelerator technologies
- Transformative technologies for instrumentation and data

Overall Impressions

- Snowmass report and supporting white papers
  - A lot of real work done in pre-meetings, so report will be a very valuable resource to community
- Progress in broader science appreciation
  - Colloquia were to varying degrees successful in communicating science opportunities
- Some new ideas now more seriously under consideration
  - Examples are B-mode CMB strategy and CTA