

Status Report:
NSF AC Subcommittee Concerning P5

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On behalf of the subcommittee

Membership

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A Strategic Plan for U.S. Particle Physics

- Fall 2012 – Summer 2013
 - “Snowmass” process: particle physics community effort to develop the long-term physics aspirations
- Summer 2013 – May 2014
 - NSF MPS Directorate / DOE Office of Science charged HEPAP (High Energy Physics Advisory Panel) to form a subpanel to develop an executable strategic plan
 - P5 (Particle Physics Project Prioritization Panel) process
- May 2014
 - P5 Report “Building for Discovery: Strategic Plan for U.S. Particle Physics in the Global Context”
 - 10-year plan within the context of a 20-year global vision

P5 Report

- Recommends a global program
 - with projects at all scales
 - from the largest international projects to mid- and small-scale projects
- Lists as the highest priority for large projects
 - LHC Phase 2 Upgrades in the near term
 - LBNF (Long Baseline Neutrino Facility) in its timeframe

Charge to the subcommittee (1/2)

1. Based on the science drivers identified in the P5 report, how should the NSF target its investments in such a way that they maximize the NSF impact and visibility? Should the Physics Division target specific areas or should it invest broadly?
2. What criteria should the Physics Division use to balance support between small-scale, mid-scale and large projects?
3. How should the Division of Physics define a unique role in areas of common interest with DOE?

The committee is not expected to revisit the P5 charge, priority, or conclusions, but to focus on the balance of NSF investments.

Charge to the subcommittee (2/2)

NSF is considering an investment in LHC Phase 2 Upgrades, ranging from the Midscale to the MREFC level, and Midscale investments in other scientific priority areas identified by P5. For this scenario:

4. Would proposed investments of this type best capture the strengths of NSF and result in NSF funding having a significant and identifiable impact in the field? What criteria should be used to determine whether or not the Physics Division should pursue this scenario?
5. What are the opportunity costs of such an investment strategy? Would required investments outside the MREFC budget line before, during, and after a construction project allow enough flexibility to respond to new, unforeseen particle physics opportunities? Is the balance between facility investments (pre-construction, construction, and operations and maintenance) and PI-driven research awards appropriate for particle physics at the NSF?

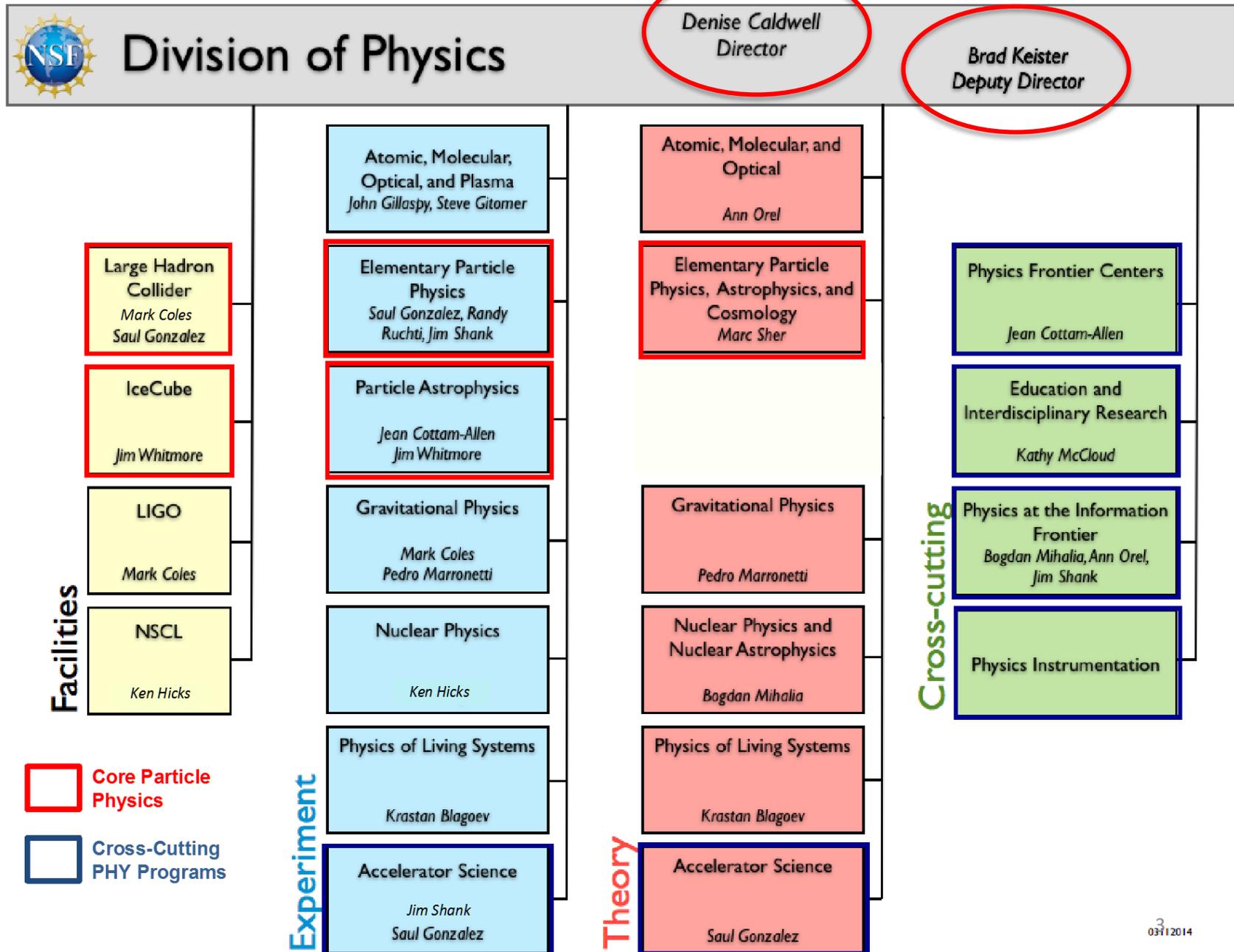
Announcement to the particle physics community

- September 28
 - Denise Caldwell at the HEPAP meeting
- September 30
 - Subcommittee chair's message to APS Divisions
 - Particles & Fields, Physics of Beams, Astrophysics
 - Public web site
 - <http://p5response.uchicago.edu/>
 - Information about the subcommittee
 - Mechanism to receive feedback from the community

Subcommittee meetings

- 5 teleconf. Meetings
 - ~2 hour long
 - NSF participants
 - Physics Division Director and Deputy Director
 - Program Directors
- Face-to-face meeting
 - November 1-2 in DC
- Plan to have weekly teleconf. meetings
 - November and December

Tremendous support from NSF



1st meeting: September 26

- FACA briefing
 - Denise Caldwell
- Charge to the subcommittee
 - Denise Caldwell
- Overview
 - NSF Physics Division: Denise Caldwell
 - Particle Physics (EPP, PA, and NP): NSF program directors
- Discussions with chair of MPS AC
 - Juan de Pablo
- NSF funding schemes
 - MREFC (Major Research Equipment and Facilities Construction) and its impacts: Mark Coles

2nd meeting: September 30

- Mission of the Physics Division
 - Denise Caldwell
- NSF funding schemes
 - Mid-Scale Program and MRI (Major Research Instrumentation)
- Particle physics budget, NSF university group activities / roles
 - Elementary Particle Physics: Randy Ruchti, Jim Shank
 - Particle Astrophysics: Jim Whitmore, Jean Allen
- Understanding the P5 report
 - discussions with Steve Ritz (P5 Chair) and Andy Lankford (HEPAP Chair)

3rd meeting: October 6

- Devoted to MREFC
 - Invited Steve Kahn (LSST), U.S. ATLAS / CMS leaders (15 people), U.S. LBNF leaders (4 people)
- Presentations and Discussions: Lessons learned
 - LIGO experience: Jay Marx
 - LSST experience: Steve Kahn
- Presentations and Discussions: Large scale projects
 - LHC Phase-II Upgrades: Mike Tuts / Anders Ryd
 - LBNF: Milind Diwan

Request input from the community

- Future large / medium scale projects recommended by P5 (five projects)
- 5-page document addressing:
 - importance for NSF
 - distinct roles of NSF
 - leadership roles by NSF groups
 - appropriate NSF cost
 - NSF funding schemes: R&D, construction and operations, separately
 - broader impacts

4th meeting: October 16

- Constructing the face-to-face meeting agenda
- Input from the large-medium project community
 - 5 page documents
- Discussions

5th meeting: October 24

- NSF responses for 29 P5 recommendations
 - Denise Caldwell
- Face-to-face meeting
 - Finalizing the agenda
 - Preparation of the face-to-face meeting
- Discussions

Face-to-face meeting
November 1-2

Face-to-Face Meeting Agenda on Saturday, November 1

Time	Topic
8:30 – 10:00 am	<p>Presentations by NSF program directors on five science drivers identified by the Snowmass / P5 and theory</p> <ul style="list-style-type: none">• (NSF point of view) NSF's strength; NSF's flagship projects/programs; importance specific projects/programs for NSF; distinct roles of NSF in those projects/programs
10:30 – 11:30 am	<p>Driving philosophy for how NSF invests in HEP</p> <ul style="list-style-type: none">• (NSF point of view) the best and most exciting science; a unique visible role; supporting the best researchers, diversifying the portfolio, encouraging young researchers; <p>NSF vision on its participation / roles in global projects</p> <ul style="list-style-type: none">• from 20th century NSF to 21st century NSF
11:30 am – 12:00	Revisit the charge
1:00 – 2:30 pm	<p>LHC Phase-II Upgrades</p> <ul style="list-style-type: none">• distinct roles of NSF, various funding mechanisms, impacts on other programs
3:00 – 5:00 pm	Budget exercise (#1)
6:00 – 9:00 pm	Subgroup meetings

Face-to-Face Meeting Agenda on Sunday, November 2

Time	Topic
8:30 – 10:00 am	Discussing elements of the report in a general way. <ul style="list-style-type: none">• Who is the audience for the report?• Structure• Focus• Connection to P5 report, NSF missions• ...
10:30 – 12:00 pm	Subcommittee: subgroup presentations <ul style="list-style-type: none">• Large scale projects• Mid scale projects• Small scale projects
1:00 – 3:00 pm	Budget exercise (#2) <ul style="list-style-type: none">• Flat at the FY2014 level through 2024• Flat-flat through 2024 (~3% decrease / year from FY2014)
3:30 – 4:30 pm	Summary of the face-to-face meeting <ul style="list-style-type: none">• Action items / next steps• Presentation at the MPS AC meeting on November 3
4:30 pm	Adjourn the meeting

Next steps

- November 3, 2014
 - Status report at the November MPS AC meeting
- Weekly meetings
 - November and December
- Goals:
 - Produce a “polished” draft report by the end of December
 - Submit it to the MPS AC by early January 2015
- January 23, 2015
 - Report at the January MPS AC meeting
- We are on track to achieve the goals and the schedule