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National Science Foundation
DIRECTORATE FOR
Mathematical & Physical Sciences (MPS)

HEPAP ORIENTATION
PART II
March 4, 2006

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Physics (PHY)

- PHY Home
- About PHY
- Funding Opportunities
- Awards
- News
- Events
- Discoveries
- Publications
- Career Opportunities

Elementary Particle Physics (EPP)

CONTACTS

Add Jon Kotcher! ***Where is Jim Whitmore?***

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DUE DATES

Full Proposal Target Date: September 27, 2006

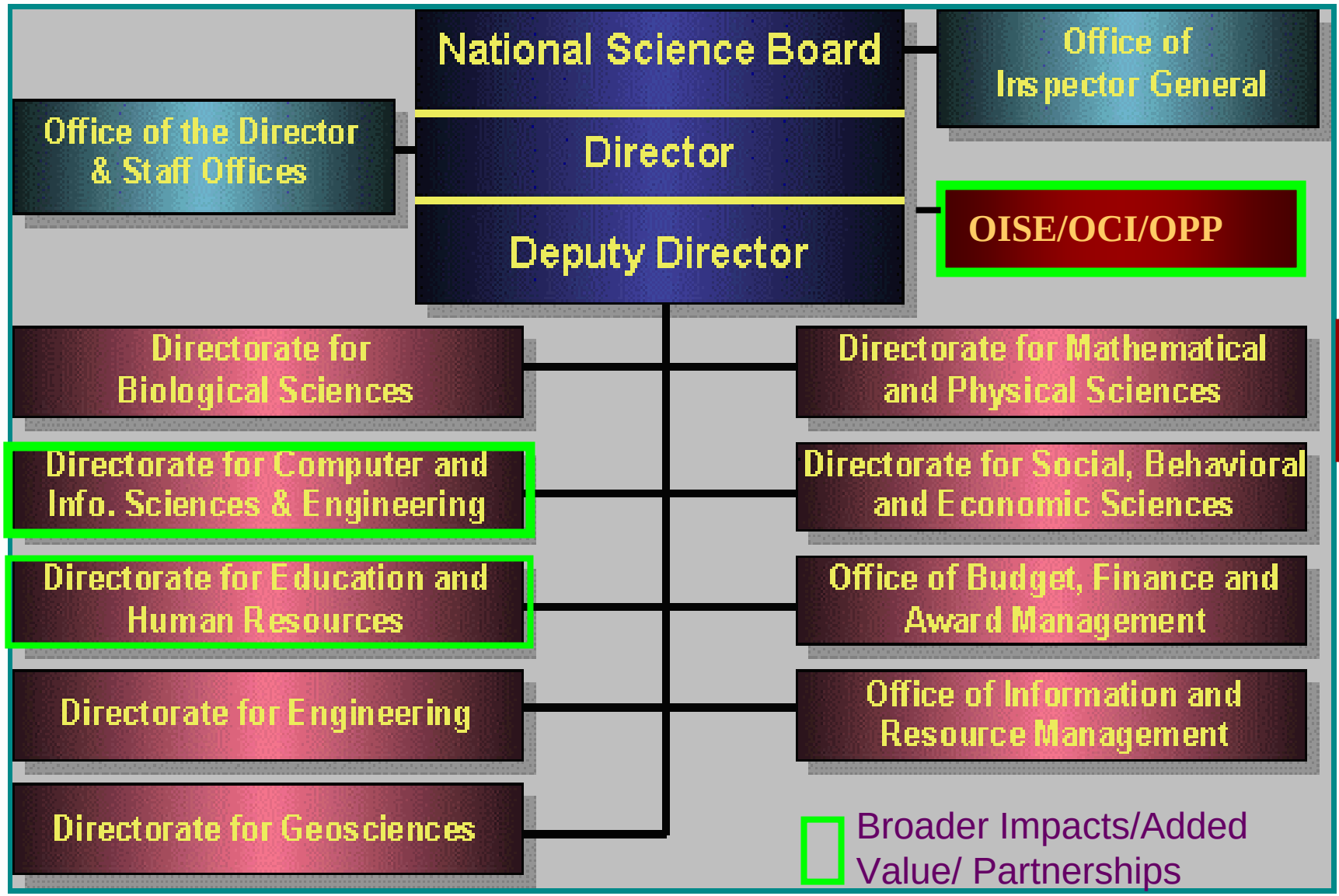
It is recommended that proposals come in near the general Physics Division target date.

NSF Act of 1950

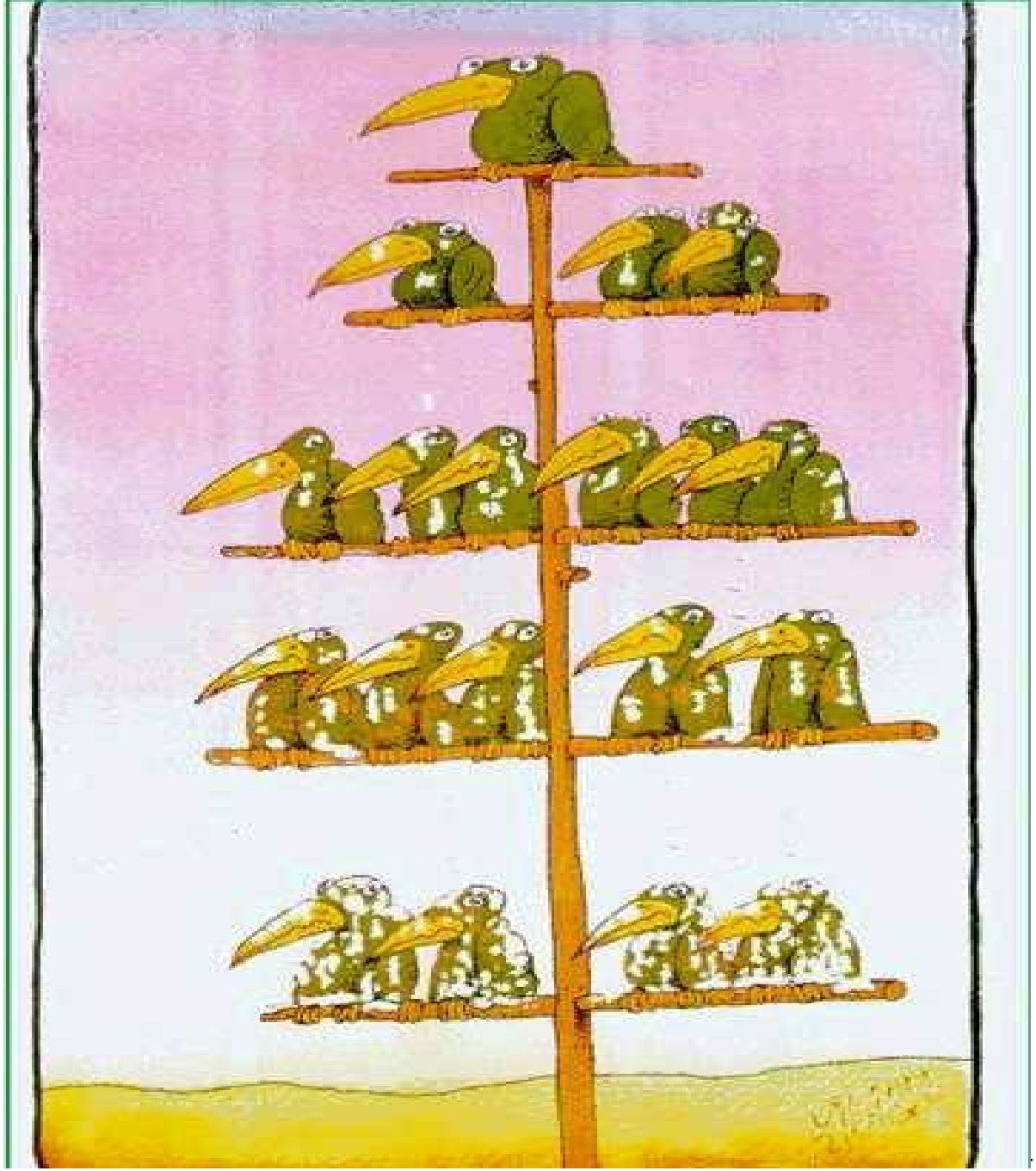
- **"To promote the progress of science…"**
- NSB (24) and 1 Director, appointed by the President
- Encourage & develop a **national policy for the promotion of basic *research and education*** in the math, physical, medical, biological, engineering and other sciences
- **Initiate & support basic scientific research in the sciences**
- Provide information for S&E policy formation

55 YEARS OF EVOLUTION:

NSF STRUCTURE



OISE-Office of Internatiional Science/Eng. **OPP**- Office of Polar Programs
OCI- Office of Cyberinfrastructure




National Science Foundation
WHERE DISCOVERIES BEGIN
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Engineers Week: The Year in Review
How the Brain Hears Sound
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For the Research & Education Community
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EPP Goals

- **Intellectual Frontiers**
- **Broader Impacts/Adding Value**
  - **a *Proposal Review Criterion***
- **Empowering Universities/**
  The Great Discovery Machine
- **Education/Diverse Workforce**
- **Stewardship**
- **Partnerships**

Partnerships Add Value

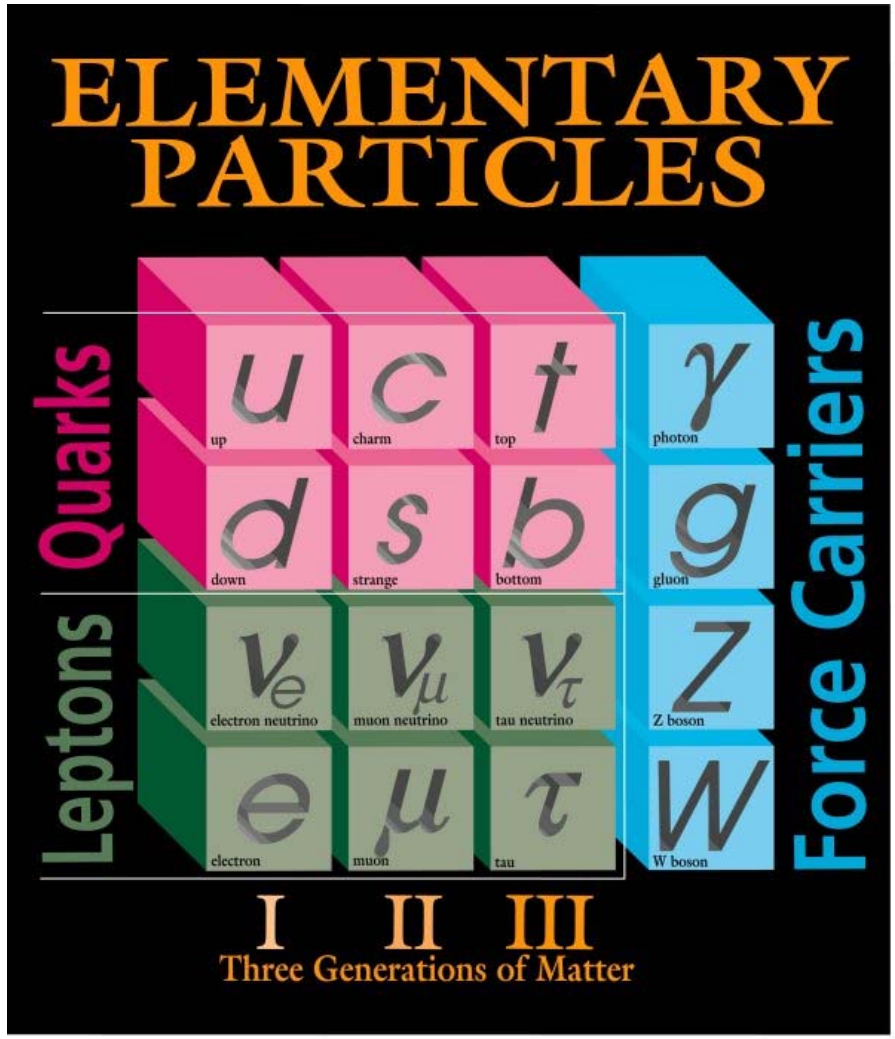
- **Cyberscience**
  - **Tier 2c(Grid) – with OCI**
  - **UltraLight (Network)– with OCI**
  - **Trillium/OSG – with OCI and DOE**
- **Education with Research**
  - **QuarkNet – with OMA, EHR and DOE/HEP**
  - **CHEPREO (FIU) – with OMA, OCI, EHR, OISE**
  - **I2U2(E/O+Grid) – with OMA, EHR, PHY**
  - **Mariachi – OCI funded**
  - **CyberBridges – OCI funded**

OMA: Office of Multidisciplinary Activities (MPS)

EHR: Education and Human Resources OSG: Open Science Grid

EPP Scientific Context

- Big questions:
  - No antimatter?
  - Dark matter?
  - Dark energy?
  - Masses in SM?
  - Unification?
  - Neutrinos?



EPP at a Turning Point

- **Discovery potential never greater—new chapter**
- **LHC will dominate in the next 20 years, and US projects phasing out and/or being cancelled**
- **Next generation of energy frontier accelerator requires multibillion investment and international cooperation**
- **Intellectual breadth of EPP expanding beyond energy frontier**
- **Vision is emerging, but is not clear yet (EPP 2010, HEPAP, Subpanels)**
- **NSF supports ~>10% of US program, ~>40% of university activities.**
- **DOE is primary steward of national accelerator complex and will lead the ILC campaign**
- **NSF will increase investment to broaden field, e.g. DUSEL… while supporting university groups across frontiers**

Other NSF Opportunities

- **MREFC: Major Research Equipment awards - for MPS projects which exceed a cost of ~$100M over the construction project life. Timing depends upon NSF priority and NSB schedule. (LHC, ICE CUBE, LIGO)**

- **MRI: Major Research Infrastructure awards ~<$2M, for developing university scientific infrastructure. Proposal deadline is late January of a given year.**

APPI—PLANNED PHY PROGRAM

- **APPI = Accelerator Physics and Physics Instrumentation = accelerator physics R&D and mid-scale instrumentation**
- **Provide explicit home for accelerator physics.**
- **Meet major need for mid-scale (>$2M, <$100M) instrumentation across PHY disciplines**

NSF Fiscal Year for University Base Support

- **September**: **Target** date for proposals for next FY
- **October**: Proposals sent for ad hoc review
- **Fall**: Visits by Project Leaders
- **December**: EPP Panel Review
- **Winter**: Site visits as needed
- **Winter/Spring**: Declinations sent out
- **Spring**: Funding awards initiated
- **Summer**: Hold for final awards and supplements
- **July**: Deadline, *Career* Proposals for next FY

EPP AND COMMITTEE OF VISITORS (COV)

We are reviewed by community--Accountability

COV 2006

… panels are asked to prioritize proposals for different budget scenarios. This is a key aspect of the… process since it requires the review committee to deal with the hard choices that the Program Officers face.

We particularly commend the EPP program officers for … proactive management of the portfolio, which has kept it lean and competitive.

…this is absolutely necessary in order to carve out room in the budget to fund young faculty and start new projects.

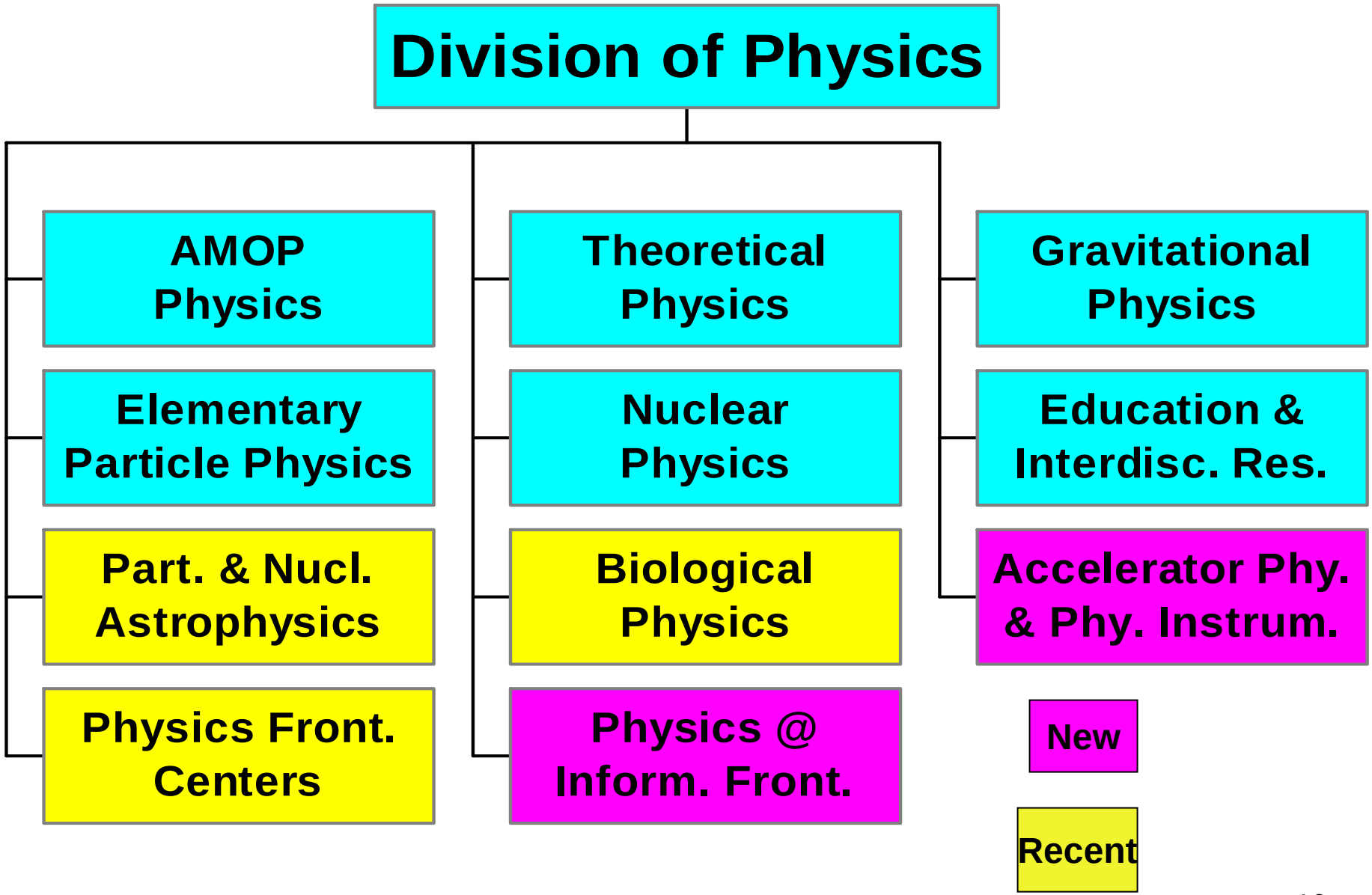
We also commend the EPP program officers for their creative interactions with other NSF programs and Divisions.

We encourage the continuation of this fresh and innovative thinking, and support their efforts to implement new approaches to scientific management.

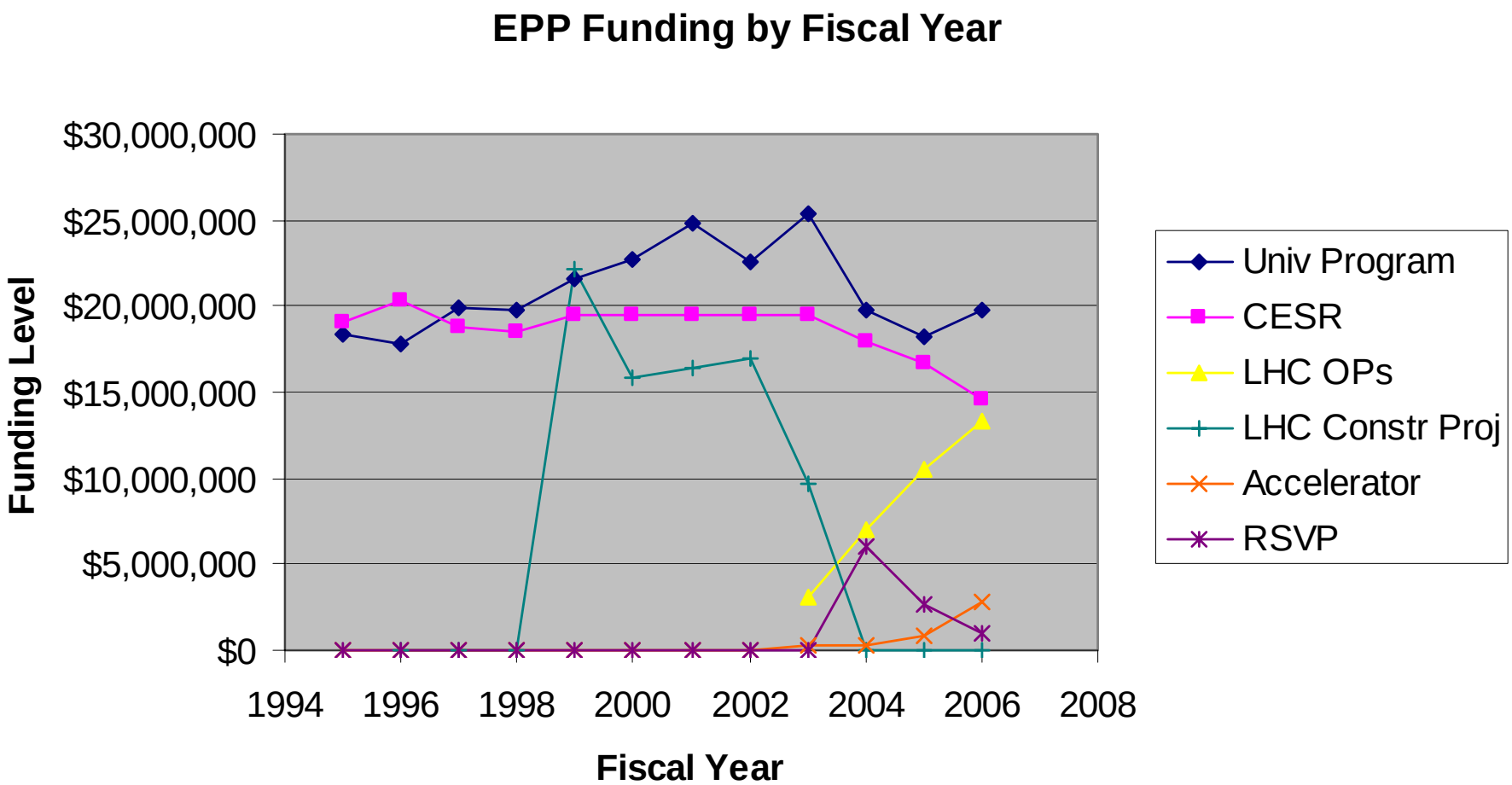
- **MRI Issue- Need to do better**

WE LISTEN

Backup


Division of Physics
AMOP Physics
Elementary Particle Physics
Part. & Nucl. Astrophysics
Physics Front. Centers
Theoretical Physics
Nuclear Physics
Biological Physics
Physics @ Inform. Front.
Gravitational Physics
Education & Interdisc. Res.
Accelerator Phy. & Phy. Instrum.
New
Recent

EPP Funding History



"Effective" Funding for EPP

Base		FY02	FY03	FY04	FY05
Accel Based		42.31	48.17	51.09	48.75
Part. Astro (Spinoff)		9.05	11.07	12.68	14.7
EP-Astro Theory		10.84	12.06	9.23	10.05
Total Base		62.2	71.93	73	73.5
EPP Allied Funding					
PFC		4	4	7	7
ITR/OCI/T2		6	6.3	6.5	5.65
MRI		3.2	1.7	0	0.75
ESIE		0.7	0.7	0.29	0.55
Total Allied		13.9	12.7	13.79	13.95
MREFC					
LHC construction		16.9	9.69		
IceCube		15	24.54	41.75	47.62

NSF Source Documents

- **FY 2006 NSF Budget Request**
  - **http://www.nsf.gov/about/budget/fy2006/**
- **Grant Proposal Guide (NSF 04-23)**
  - **http://www.nsf.gov/publications/pub_summ.jsp?ods_key=GPG**
- **Home Page**
  - **http://www.nsf.gov/**