Plasma Science at NSF

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- target dates and outlook
- recent trends in awards
- review process
- funding sources

http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=503252

Plasma Physics at NSF and the NSF-DOE partnership

- Target date October 22, 2008

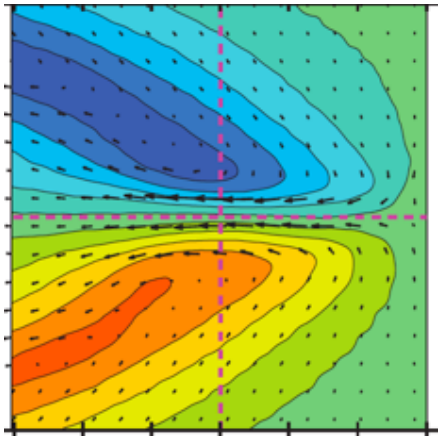
  moved earlier to align with other Physics programs

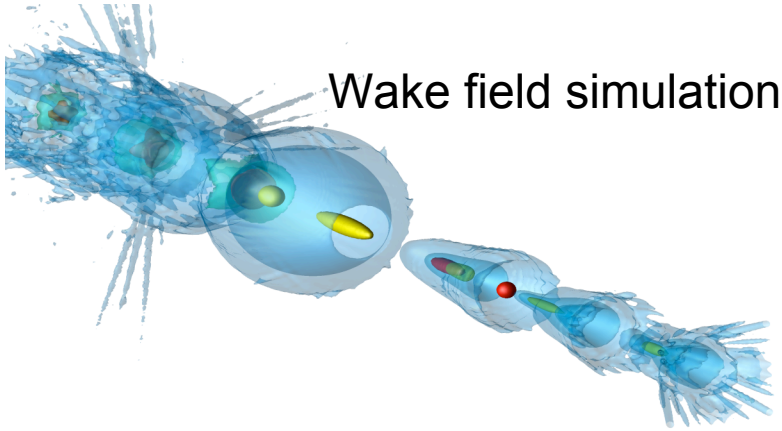
  announced in DPP newsletter

  every 3rd year (this year) generally has more funds available
- ~10% Success rate including all NSF and DoE awards
- Plasma physicists have to get NSF excited

  schedule a visit to NSF when you're here
- CMSO and relativistic, femtosec laser-plasma have captured attention

MRX and
PIC simulations





Wake field simulations

FY08 NSF/DoE Plasma Awards

Astrophysics:Theory and Simulation
- Magnetic reconnection PIC
- Gyro-kinetic Alfven wave turbulence

Dusty Plasma experiments
Strongly-Coupled Plasma Theory
Non-neutral Plasma Experiments (RUI)
Liquid Metal Dynamo
Short-pulse Laser-plasma
- gas cluster (CR Texas & Harvey Mudd)
- Raman amplification

8-10 awards (2CR) out of 60 proposals

Total of ~$1M/year for 3 years

Conference and workshop support (students)
Research Experience for Undergraduates supplements

Proposal Review Process

- Proposal reviewed by mail-in reviewers and by a panel.
  - Reviews grades are E, V, G, F, P.
  - Panel ranks the proposals, e.g. Fund, Fund if Funds Available, Do Not Fund.
- We seek co-reviews and co-funding with other relevant NSF programs
- DoE and NSF may fund separately or jointly.
  - In FY08, ~60 proposals
    - DoE funded 2 entirely
    - DoE co-funded 2 with NSF
    - NSF funded 4 awards (Phys, AST, Geo, Eng)
    - Recent NSF and DoE awards now on website
- Suggestion: Mentor recent PhDs or those with poor reviews by experienced successful grantees.

Related Funding opportunities

• MPS/Computational Mathematics	Lee Jameson
• MPS/Physics at the Information Frontier	Barry Schneider
• MPS/Physics CAREER	Kathy McCloud
• Physics Frontier Centers	Denise Caldwell
• Astronomy	Nigel Sharp
• Geophysics	Kile Baker, Cassendra Fesen, Paul Bellaire, Therese Jorgensen-Morretti
• Accelerating Discovery in Science and Engineering Through Petascale Simulations and Analysis (PetaApps)	Barry Schneider, et al
• CDI:Cyber enabled Discovery and Innovation	NSF-wide
• MRI: Major Research Instrumentation	Division-wide (Hardware, Computer clusters,..)

Research supported in NSF/DoE in last 3 years

- Strongly coupled theory and experiment
- Short pulse laser plasma theory and experiments
- Alfven wave turbulence
- Non-neutral plasmas
- Magnetic field reconnection
- ultra cold plasma
- Dusty plasma

Facility Support at UCLA: ~$1.3M/year ($1M from DoE)

LAPD: Large Plasma Device

BaPSF: Basic Plasma Science Facility