Plasma Science at NSF

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

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 Alfvén 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

<table>
<thead>
<tr>
<th>Program</th>
<th>Contact</th>
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<tbody>
<tr>
<td>MPS/Computational Mathematics</td>
<td>Lee Jameson</td>
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<tr>
<td>MPS/Physics at the Information Frontier</td>
<td>Barry Schneider</td>
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<tr>
<td>MPS/Physics CAREER</td>
<td>Kathy McCloud</td>
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<td>Physics Frontier Centers</td>
<td>Denise Caldwell</td>
</tr>
<tr>
<td>Astronomy</td>
<td>Nigel Sharp</td>
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<tr>
<td>Geophysics</td>
<td>Kile Baker, Cassandra Fesen, Paul Bellaire, Therese Jorgensen-Morretti</td>
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<td>Accelerating Discovery in Science and Engineering Through Petascale Simulations and Analysis (PetaApps)</td>
<td>Barry Schneider, et al</td>
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<td>CDI: Cyber enabled Discovery and Innovation</td>
<td>NSF-wide</td>
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<td>MRI: Major Research Instrumentation</td>
<td>Division-wide (Hardware, Computer clusters,..)</td>
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Research supported in NSF/DoE in last 3 years

- Strongly coupled theory and experiment
- Short pulse laser plasma theory and experiments
- Alfvén 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