Quantum and Non-Equilibrium Processes Division

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Integrity ★ Service ★ Excellence
Quantum and Non-Equilibrium Processes Division

Presented at the AFOSR Spring Review 2013, 4-8 March, Arlington, VA.
OVERVIEW

• Reorganization

• How we spend our money….

• PO’s and their programs

• Summary and Conclusion
Goals of Reorganization

• Maintain strong 6.1 focus and improve scientific quality across AFOSR
  – Maintain semi-autonomy for program managers as subject experts
  – Enhance responsiveness to rapidly changing scientific environment
• Improve the ability to collaborate across all AFOSR portfolios
• Improve the ability to collaborate across the International Enterprise
Core + URI

Total RTB "Work" ~$57M

Laser and Optical Physics
Atomic and Molecular Physics
Plasma and Electro-Energetic...
Remote Sensing and Imaging...
Space Sciences
Electromagnetics
Ultrashort Pulse Laser-Matter...
JTO
61103F

Distribution A: Approved for public release; distribution is unlimited
LRIR + CORE

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RTB PO’s Portfolio’s

- Dr. Howard Schlossberg
  Laser and Optical Physics
  - High Average Power Solid-State Lasers
  - Modest Power Lasers
  - Nonlinear Optics
  - Microplasma Arrays

- Dr. Tatjana Curcic
  Atomic and Molecular Physics
  Cold Atom Microscope
  Markus Greiner, Harvard

Distribution A: Approved for public release; distribution is unlimited
• Dr. John Luginsland

Plasma & Electro-energetic Physics
“Bumpy” Magnetron with ICEPIC

Relativistic Magnetron

Courtesy M. Bettencourt, AFRL/RDH

• Dr. Kent Miller

Remote Sensing & Imaging Physics and Space Sciences

Space Weather effects include:
• satellite drag
• radiation belt perturbations
• communication/navigation/surveillance
RTB PO’s Portfolio’s

• Dr. Arje Nachman
  Electromagnetics
  Interrogation (Modeling/Simulation) of Linear/Nonlinear Maxwell’s Eqns.
  
  Localized cavity field more intense than incident field & High sensitivity to parameters (e.g. incidence angle)

• Dr. Enrique Parra
  Ultrashort Pulse Laser-Matter Interactions
  Understand and control light sources exhibiting extreme temporal, bandwidth and peak power characteristics.

Energy from the dress flows inwards to aid the filament.

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BACK UP SLIDES
Core Portfolio Profile

AFOSR/RTB ($43M on 61102F)

- Laser and Optical Physics
- Atomic and Molecular Physics
- Plasma and Electro-Energetic Physics
- Remote Sensing and Imaging Physics
- Space Sciences
- Electromagnetics
- Ultrashort Pulse Laser-Matter Interactions