

## **Heliophysics Technology Demonstration Opportunities\***

This is a list, starting with projects funded since FY2006, of potential NASA/SMD-Heliophysics projects developing candidate technologies for IMAP technology demonstration. Listed in this document is a subset of such projects extracted from public listings of funded instrument and technology development projects from the Geospace SR&T Program, Solar-Heliospheric SR&T Program (SHP), and H-TIDeS programs (links to full listings are provided). The listing contains the name of the PI, PI institution and title. Full abstracts are accessible by following the embedded links.

\*This is not an exclusive list of opportunities, neither is any priority given to projects listed here over any other projects funded by Heliophysics Instrument Development programs or by other NASA/SMD instrument and technology development programs.

### [Geospace SR&T 2005](#)

#### [SHP SR&T 2005:](#)

- Fred Herrero / NASA Goddard Space Flight Center: A New Ion Spectrometer Instrument Concept for Near-Sun Orbit Missions Using Silicon Carbide Particle Detectors
- George Ho / Johns Hopkins University Applied Physics Laboratory: A High-temporal Resolution Suprathermal Ion Spectrometer Concept for Future Heliospheric (STISH) Missions

### [Geospace SR&T 2006](#)

#### [SHP SR&T 2006:](#)

- Mihir Desai/ Southwest Research Institute: An Advanced Mass and Ionic Charge Composition Experiment (AMICCE) for Heliophysics Missions
- Eberhard Gruen/ University of Colorado: Interstellar Dust Instrumentation

### [Geospace SR&T 2007](#)

#### [SHP SR&T 2007](#)

### [Geospace SR&T 2008](#)

#### [SHP SR&T 2008:](#)

- Peter Bloser/ University of New Hampshire: Advanced Scintillators and Readout Devices for Solar Gamma-Ray Detectors
- James Connell/ University of New Hampshire: Development and Testing of a New Positron Identification by Coincident Annihilation Photons (PICAP) System

- Stergios Papadakis/ Johns Hopkins University Applied Physics Laboratory: Photon Filter for Energetic Neutral Atom/Energetic Ion Detector

#### Geospace SR&T 2009

##### SHP SR&T 2009:

- Eberhard Gruen/ University of Colorado: Nano Dust Analyzer

##### Geospace SR&T 2010: -

##### SHP SR&T 2010:

- Mark Wiedenbeck/ Jet Propulsion Laboratory: Thin Silicon Detector Technology for Use in Imaging Solar ENAs

#### Geospace SR&T 2011

(SHP SR&T not solicited in 2011)

##### SHP SR&T 2012:

- Frederic Allegrini/ Southwest Research Institute: Improving the Charge Conversion Efficiency of Carbon Foils for Energetic Neutral Atom Detectors
- Keiichi Ogasawara/ Southwest Research Institute: Proof-of-concept Study of a Double Cusp Electrostatic Analyzer for SupraThermal (DCAST) Ions

##### Geospace SR&T 2012:

- Robert Strangeway/ University of California, Los Angeles: A Low Power, Mass and Cost Magnetometer for Geospace Applications

##### H-TIDeS 2013:

- Harald Kucharek/ University of New Hampshire: High Resolution Mass Spectrometer
- Earl Scime/ West Virginia University: Low Voltage, Ultra-Compact Plasma Spectrometers for Heliophysics

##### H-TIDeS 2014:

- John Clem/ University of Delaware: Nature of Interplanetary Low Energy Electrons and Positrons
- Robert Pfaff/ NASA Goddard Space Flight Center: Development of a Tri-axial Double Probe for DC and AC Vector Electric Field Measurement on Cube-sats and Other Small Spacecraft

- Joseph Westlake/Johns Hopkins University Applied Physics Laboratory: High Angular Resolution Low Energy Neutral Imager (LENI)

#### H-TIDeS 2015:

- Jasper Halekas / University of Iowa: BIFOCAL: A Next-Generation Electron Instrument for Solar Wind Monitoring and High Phase Space Resolution Measurements
- Haje Korth / Johns Hopkins University: Development and Flight Qualification of a Miniature Absolute Scalar Magnetometer
- Mark Moldwin / University of Michigan: Development and Space Environmental Testing of a new Low-Cost Induction Magnetometer for Small Satellites
- Keiichi Ogasawara / Southwest Research Institute: Avalanche Photodiodes for Suprathermal and Energetic Ion Detectors in Future Heliophysics Missions

#### H-TIDeS 2016:

- George de Nolfo/ NASA Goddard Space Flight Center: New Techniques for Fast Neutron Imaging and Spectroscopy
- Marilia Samara/NASA Goddard Space Flight Center: Development of a non high voltage electron spectrometer for auroral studies

#### **Acronyms:**

**SHP:** Solar & Heliospheric Physics SR&T Program (until ROSES2012)

**Geospace:** Geospace SR&T Program (until ROSES2012)

**H-TIDeS:** Heliophysics Technology and Instrument Development for Science Program (since ROSES2013)

**SR&T:** Supporting Research and Technology