

Congressional Report  
NNH05ZDA001N  
The Advanced Component Technology (ACT)

**NASA Headquarters**

**Science Mission Directorate**

**NASA Research Announcement (NRA) NNH05ZDA001N, Research Opportunity for Space and Earth Science (ROSES-2005)  
Program Element A.28 - Advanced Component Technology Program (ACT-2005)**

NASA's Science Mission Directorate, NASA Headquarters, Washington, DC, has selected proposals, for the component technology development program in support of the Earth Sun System Division (ESSD). The Advanced Component Technology (ACT-05) Program will provide core component and subsystem technology developments that will enable new Earth and Sun science measurements, and visionary concepts.

The ESSD is awarding 14 proposals, for a total dollar value over a three-year period of approximately \$12 million, through the Earth Sun System Technology Office located at Goddard Space Flight Center, Greenbelt, Md.

The objectives of the ACT program are to research, develop, and demonstrate component and subsystem technologies that:

- Reduce the risk, cost, size, and development time for ESSD observing instruments and platforms and,
- Enable new ESSD observation measurements.

The ACT Program is designed to bring components to a maturity level that allow their integration into other NASA technology development programs such as the Instrument Incubator Program ( IIP), missions designed by NASA flight projects, and other technology development programs for further development. The program is envisioned to be flexible enough to accept technology developments at various stages of maturity, and through appropriate risk reduction activities (such as requirement analysis, conceptual design, laboratory breadboards, and pre-engineering models) advance the technology readiness of the component or subsystem for infusion into future science missions.

Ninety-two ACT-05 NRA proposals were received of which 14 have been selected for award. They are:

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PI_Last	PI_First	Title	Institution
<b>California</b>			
Deiker	Steven	Aluminum Manganese TES Development for Large Scale Arrays of Microcalorimeters	Lockheed Martin Corporation Solar and Astrophysics Laboratory Building 252, L9-41 3251 Hanover Street Palo Alto, CA 94304-1121
Edelstein	Wendy	Adaptive Self-Correcting T/R module for Phase-Stable Array Antennas	Jet Propulsion Laboratory 4800 Oak Grove Drive Mail Stop 300-227 Pasadena, CA 91109
Im	Eastwood	High-Precision Adaptive Control of Large Antenna Surface	Jet Propulsion Laboratory 4800 Oak Grove Drive Mail Stop 300-243 Pasadena, CA 91109
Imbriale	William	MEMS Actuated Wave Front Controller	Jet Propulsion Laboratory California Institute of Technology 4800 Oak Grove Drive Pasadena, CA 91109

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PI_Last	PI_First	Title	Institution
<b>California Con't</b>			
Kangaslahti	Pekka	Miniature MMIC Low Mass/power Radiometer Modules for the 180 GHz GeoSTAR Array	Jet Propulsion Laboratory 4800 Oak Grove Drive Mail Stop 168-314 Pasadena, CA 91109-8001
Lee	Karen	Ultra Low Noise Radiometers for Tropospheric and Stratospheric Limb Sounding	Jet Propulsion Laboratory 4800 Oak Grove Drive Mail Stop 168-314 Pasadena, CA 91109
Yueh	Simon	Compact Ku-Band T/R Module for Wide-Swath High-Resolution Radar Imaging of Cold Land Processes	Jet Propulsion Laboratory 4800 Oak Grove Drive Mail Stop 300-235 Pasadena, CA 91109

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PI_Last	PI_First	Title	Institution
Colorado			
Betz	Albert	A Solid-State Terahertz Receiver for Atmospheric Spectroscopy	University of Colorado 1255 38th Street Boulder, CO 80303
Horacek	Steve	Lightweight, Low Power, High Speed Digital Signal Distribution Technology for Thinned Aperture Radiometer Application	Ball Aerospace and Technologies 1600 Commerce Street Boulder, CO 80301

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PI_Last	PI_First	Title	Institution
Georgia			
Papapolymerou	Ioannis	Large Lightweight and Deployable Phased Arrays Using RF MEMS Switches	Georgia Institute of Technology Electrical and Computer Engineering 85 5th Street NW Room 535 Atlanta, GA 30308

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PI_Last	PI_First	Title	Institution
<b>Massachusetts</b>			
Siqueira	Paul	Advanced Performance Two-Channel Ku- and Ka-Band Dual-Downconverters for Interferometric Radar Applications	University of Massachusetts Electrical and Computer Engineering Knowles Engineering Building 113D Amherst, MA 01003

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PI_Last	PI_First	Title	Institution
<b>Maryland</b>			
Coplan	Michael	Advanced Component Technology for Exploration of the Heliosphere Using Neutral Atom Imaging Arrays	University of Maryland IPST CSS Building College Park, MD 20742
Piepmeyer	Jeffrey	Analog Radio-Frequency Interference Suppression System for Microwave Radiometers	National Aeronautics and Space Administration Goddard Space Flight Center Code 555 Greenbelt, MD 20771
Schwemmer	Geary	Shared Aperture Diffractive Optical Element (ShADOE) Multiplexed Telescope	National Aeronautics and Space Administration Goddard Space Flight Center Code 613.1 Building 33 Room A419 Greenbelt, MD 20771