

South Dakota NASA EPSCoR Awards Research Seed Grants

Seven research groups at South Dakota Board of Regents institutions have been awarded seed grants totaling \$180,000 from the South Dakota NASA EPSCoR Program. The purpose of the seed grants is to strengthen research collaborations between the state's universities and NASA's 10 Field Research Centers. Three of the projects attempt to develop NASA research interest in the Deep Underground Science and Engineering Laboratory at Homestake.

The South Dakota NASA EPSCoR office is located at SDSM&T and directed by Dr. Edward F. Duke.

The seven researchers or research groups receiving 2009 seed grants from South Dakota NASA EPSCoR are listed below, along with title of the project and collaborating NASA Centers and other industry or university partners.

- Chaoyang Jiang, Department of Chemistry, USD, *“Robust and Lightweight SERS Active Nanocomposites for Materials Detection in Planetary Explorations,”* Space Science and Astrobiology Division, NASA Ames Research Center
- Donna Kliche and Paul Smith, Institute of Atmospheric Sciences, and Roger W. Johnson, Department of Mathematics and Computer Science, SDSM&T, *“Modification of the Maximum Likelihood and L-Moment Methods for the Gamma Distribution as Applied to Raindrop Size Distribution (RSD) Data,”* Earth Sciences Office, NASA Marshall Space Flight Center
- Nian Zhang and Brian T. Hemmelman, Department of Electrical and Computer Engineering, SDSM&T, *“Fault-Tolerant Fuzzy Logic Chip on the Reconfigurable FPGA System,”* Integrated Risk Assessment and Management, NASA Goddard Space Flight Center
- Andre G. Petukhov, Department of Physics, and William M. Roggenthen, Department of Geology and Geological Engineering, SDSM&T, and Dongming Mei, Department of Physics and Earth Sciences, USD, *“Atomic Interferometry based Subterranean Gravimetry at DUSEL (Deep Underground Science and Engineering Laboratory at Homestake),”* Advanced Aerospace Materials and Devices, NASA Ames Research Center, and Department of Physics, Stanford University
- Sookie S. Bang, Department of Chemical and Biological Engineering, SDSM&T, and Cynthia M. Anderson, Center for the Conservation of Biological Resources/Western South Dakota DNA Facility, BHSU, *“Metagenomic Analysis and Bioprospecting of the Microbial Communities in Homestake DUSEL following Mine Dewatering,”* Exobiology Branch, NASA Ames Research Center, and USDA
- Matthew Hansen, Geographic Information and Science Center of Excellence, and Sharon Clay, Plant Science Department, SDSU, and James Stone, Department of

Civil and Environmental Engineering, SDSM&T, “*Evaluating Time-Series Remotely Sensed Data Sets in the Estimation of Crop Yields and the Resulting Environmental Impacts via Life-Cycle Analysis*,” NASA Ames Research Center, USDA, and Argonne National Laboratory

- Dimitris Anagnostou, Department of Electrical and Computer Engineering, SDSM&T, “*Development of Multi-functional Multiband Antennas for Cryospheric Applications and for Signal Propagation Measurements in Tunnels at the Deep Underground Science and Engineering Laboratory*,” Microwave Instruments Technology Branch and Cryospheric Sciences Branch, NASA Goddard Space Flight Center