

South Dakota NASA EPSCoR 2009 Travel Grants

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Dr. Nian Zhang was invited by Dr. Feng Hsu, Sr. Aerospace Engineer, Manager of Integrated Risk Management, NASA Goddard Space Flight Center (GSFC) to visit GSFC from March 8 - 11, 2009.

General Nature of Research Collaboration

Dr. Hsu, his R&D research group and Dr. Zhang discussed some critical issues addressed at NASA GSFC and developed research collaborations including designing and implementing an innovative single event upset (SEU) tolerant technique for upset detection and voting scheme. Additional collaboration was explored in integrating high-performance modeling and simulation, systems analysis, and probabilistic failure data to improve risk assessments for failure of space lunch systems.

Relationship to NASA Research Priorities and State/Institutional Research Priorities

The SEU tolerant technique for upset detection and voting scheme is a critical need of NASA GSFC. Dr. Hsu indicated that this area of research work has the potential to greatly improve the performance of the electronics used in space and is imperative for risk reduction and improving the likelihood of mission success.

Potential Follow-Up Plans

Funding is expected to be available from NSF, NASA, DOE and DOD sources. Dr. Zhang planned an upcoming proposal through NSF's Integrative Graduate Education and Research Traineeship (IGERT) due March 13, 2009; and the 2009 NASA EPSCoR Major Research Grant Competition due March 19, 2009.