

Aug. 11, 2009

To: Dr. Edward F. Duke, SD NASA EPSCoR Director;

Subject: 2009 South Dakota NASA EPSCoR Travel Grant Report

1) Name of Traveler: Chaoyang Jiang, Assistant Professor of Chemistry, Department of Chemistry, University of South Dakota, Vermillion, SD 57069 Phone: (605) 677-6250; Fax: (605) 677-6397; E-Mail: Chaoyang.Jiang@usd.edu

2) Date of Meeting/Event: Tuesday-Saturday, August 6-8, 2009

3) Destination: NASA Ames Research Center (ARC), Moffett Field, CA

4) Original Objective/Goal

To visit Ames Research Center and NASA for face-to-face discussions on results of the SERS experiments, demonstration of my research interests and capability, preparation of future collaborating proposals, and personal network connections to firm up NASA collaborations to support ongoing project entitled "Robust and lightweight SERS active nanocomposites for materials detection in planetary explorations", which is funded by South Dakota NASA EPSCoR Program 2009 Research Initiation Grants (RIGs).

A) NASA Advisor/Collaborator:

Dr. Bin Chen, Lead Scientist, Advanced Studies Laboratories, ARC

B) Accomplishments—Activities and Potential Research Collaboration and Proposal

- Discuss recent SERS experimental results and future collaboration plan. These SERS experiments were conducted in Dr. Chen's group in ASL at ARC by my undergraduate student, *Nathan L. Netzer*, Aberdeen, SD. Significant enhancement of Raman signals for snow algae was observed in SERS measurements (see right side figure) by using silver nanowires that were synthesized at USD.
- Present my research interests and capability. Make an introduction of our new established PhD program in materials chemistry, SD IGTER program, SD catalysis group project, and NPURC project. Give an overview of our current research activities.
- Talked with Dr. Chen for the possible application of NASA graduate student researchers program. (GSRP)
- Visited Dr. Chen's research lab including the micro-Raman microscopes that were mainly used in our collaboration. Have a discussion with Dr. Li in her group on surface plasmonic materials.
- Discussed with Dr. Chen on future possible collaborations on plans of generating preliminary results for proposal preparation on layer-by-layer nanostructure assembly for solar cell devices.

