Milestones and Highlights for Materials Research Group

- Weekly research meetings of the CRESSE graduate students along with a group of 8 other graduate students who are in materials research area. These meetings allow them to discuss their research work and to broaden their views by in interaction with other graduate students
- Identified and purchased lunar regolith material
- Identified and purchased a press
- Identified and purchased polymer material
- Identified initial fabrication parameters of polymer /regolith stimulant composites
- Trained graduate students on Instron mechanical testing machine
- Literature and background survey begun by graduate students and establishing a “mini library” for materials research group

Criteria of Regolith Composites

- Effectively shield space radiation;
- Structurally strong enough to withstand inflation and global dust storm;
- Durably survive the space environment;
- Reliably maintain their mechanical integrity and thermal properties; and
- Feasibly low cost and low energy fabrication.

Publications

Presentation of 3 research papers at the 17th International Conference on Composites or Nano Engineering (ICCE 17), Hawaii, July 26-August 1, 2009 which will also be included in the Journal of Engineering. Dr. Jianren Zhou served as Session Chair in 17th International Conference on Composites or Nano Engineering (ICCE 17). CRESSE was featured in the Opening Ceremony of 17th International Conference on Composites or Nano Engineering (ICCE 17) in the opening address by Dr. K. Harris, Dean of Engineering College.

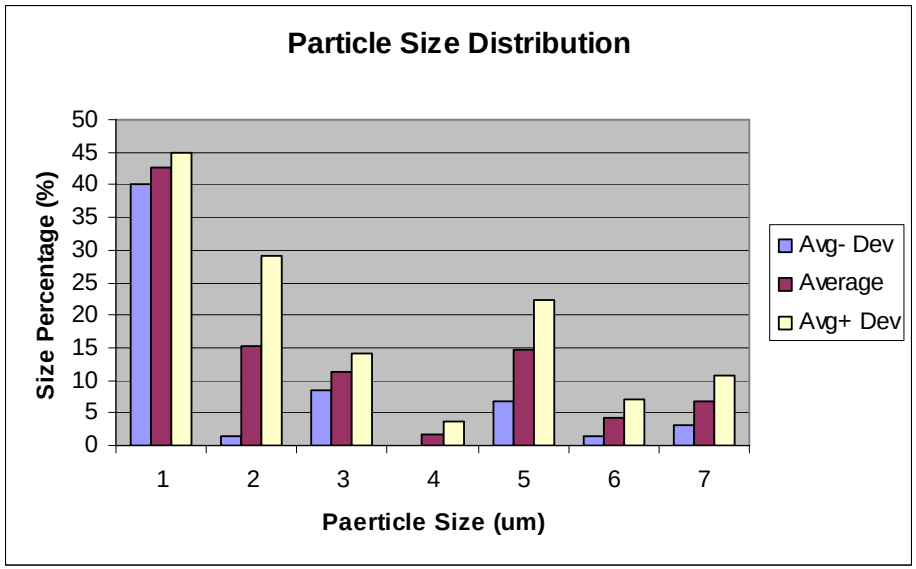
1.) **Space Radiation Shielding Efectiveness and Radiation Effects on Properties of Polyimide Bonded Martian Regolith,** Jianren ZHOU, Sukesh Aghara, Richard Wilkins, Jerrel Moore, and Yang Zhong

2.) Indication of Single Wall Carbon Nanotubes Dispersion States, Laura Carson, Pasakorn Traisawatwong, Jianren Zhou, and E. Gloria C. Regisford

3.) AFM Characterization of Poly(Methyl Methacrylate) and Poly(Ethylene Glycol) Deposited by Ink-Jet Printing, Pasakorn Traisawatwong, Jianren Zhou, Carson Laura, and E. Gloria C. Regisford

Results

- Training of Instron mechanical testing machine to graduate students
- Measurements of size distribution of the regolith powders



- Measurements of density of the regolith powders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