

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel on page 1 of the Detailed Cost Estimate form for the initial budget period.

NAME	POSITION TITLE		
BRIJ MOHAN MOUDGIL	Distinguished Professor, and Alumni Professor of Materials Science & Engineering, Director, Particle Engineering Research Center and Center for Nano-Bio Sensors, University of Florida, Gainesville		
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Indian Institute of Science, Bangalore, India	B.S.	1968	Metallurgy
Columbia University, NY	M.S.	1972	Mineral Engineering
Columbia University, NY	Eng.Sc.D.	1981	Mineral Engineering – Applied Surface Chemistry

RESEARCH AND PROFESSIONAL EXPERIENCE:**Employment**

2007 – Present	Associate Vice President for Interdisciplinary Research Programs, University of Florida, Office of Research, Gainesville, Florida – 25% appointment
2004 - Present	Distinguished Professor and Alumni Professor, University of Florida, Dept. of Materials Science and Engineering, Gainesville, FL - tenured
2003 - Present	Distinguished Professor, University of Florida, Dept. of Materials Science and Engineering, Gainesville, FL - tenured
2003 - 2005	Professorial Fellow, University of Melbourne, Dept. of Chemical and Biomolecular Engineering, Australia
1994 - Present	Director, University of Florida, Particle Engineering Research Center (NSF sponsored: 1994-2005), Gainesville, FL
1985 - 2003	Professor, University of Florida, Dept. of Materials Science and Engineering, Gainesville, FL - tenured
1982 – Present	Director, University of Florida, Mineral Resources Research Center, Gainesville, FL
1981 - 1985	Associate Professor, University of Florida, Dept. of Materials Science and Engineering, Gainesville, FL – tenure accruing
1976 - 1980	Research Engineer, Occidental Research Corporation, Irvine, CA
1978 - 1981	Graduate Research Assistant, Columbia University, New York City, NY
1973 - 1976	Project Engineer, University of Florida, Center for Research in Mining and Mineral Resources, Gainesville, FL – non-tenure accruing
1971 - 1972	Graduate Research Assistant, Columbia University, New York City, NY
1968 - 1970	Production Engineer, Hindustan Steel Ltd., India

Honors and Awards

- President, Society for Mining, Metallurgy, and Exploration, Inc., 2006.
- UF-NSF Award recognizing “unwavering commitment to diversity and support of the SEAGEP Program”, 2006
- Alumni Professor, Department of Materials Science & Engineering, University of Florida, 2003-2006
- Foreign Fellow of the Indian National Academy of Engineering, 2005
- “Distinguished Alumnus Award for the Year 2003” conferred by the Indian Institute of Science, Bangalore, India
- Professorial Fellow, University of Melbourne, Australia, 2003-2005
- Member, Science Advisory Board, Particle Fluids Research Center, University of Melbourne, Australia, 2003-Present
- Editorial Advisory Board, Powder and Bulk Engineering, 2003 - Present
- Board of Directors, Florida Institute of Phosphate Research (Gubernatorial appointment), 2003 ; Elected Chair, 2003 - Present
- KONA Editorial Board - Americas Block; Elected Chair, 2003 - Present
- National Academy of Engineering, 2002
- National Federation of Indian American Associations: Outstanding Technology Achievement Award, October 2002
- University of Florida Research Foundation Professor, 2002-2005
- Brahm Prakash Visiting Professor, Indian Institute of Science, Bangalore, India, 2001-02
- Faculty Productivity Award, Department of Materials Science and Engineering, 1999
- Frank F. Aplan Award, United Engineering Foundation, 1997 (for excellence in energy mineral research)
- Antoine M. Gaudin Award, Society for Mining, Metallurgy and Exploration, Inc., 1996 (for internationally recognized research contributions in processing of phosphates)
- Faculty Excellence Award, Department of Materials Science and Engineering, 1996
- Outstanding Young Engineer Award to former Ph.D. students: SME, 1995, 2001
- Robert H. Richards Award, AIME, 1995, (for pioneering research contributions and service to the profession)
- Distinguished Member Award, SME (Fellow), 1995
- President's Citation for Outstanding Contributions to the Society, SME, 1994
- Top 50 Researchers Award among a faculty of 3,000 at the University of Florida, 1991
- Grants and awards from a number of agencies and industries including: The Agrico Chemical Co.; Alcoa Laboratories; Amax Phosphate, Inc.; American Chemical Society; Carpc; Dow Chemical Co.; E.I. Dupont de Nemours; Engineering Foundation; Florida-AIME; Florida Institute of Phosphate Research; Florida Power and Light Co.; Halliburton Foundation; IMC-Florida; Gardinier, Inc.; National Institutes of Health; National Science Foundation (NSF); NTP Corp.; Occidental Chemical Co.; SOHIO, Townley Manufacturing Co., Inc.; U.S. Department of Energy; U.S. Department of Interior; and Westvaco.

Selected Patents/ Applications

1. Brown, S., Moudgil, B.; Living Cell Force Sensors and Methods of Using the Same. PCT Int. Appl. (2008), 57pp., PCT/US08/55044.

Principal Investigator/Program Director (Last, first, middle):

2. Sharma, P., Moudgil, B., Brown, S., Walter, G., Santra, S., Jiang, H., Zhang, Q., Scott, E., Niclas, B. and Grobmyer, S., "Multimodal nanoparticle for non-invasive bioimaging": #UF 12476, Provisional Patent Application: No. 60/968,476; August (2007)
3. Sigmund, Wolfgang M.; Lee, Sung-Hwan; Koopman, Ben; Moudgil, Brij; Pyrgiotakis, Georgios; Krishna, Vijay. Photocatalytic nanocomposites and applications thereof. PCT Int. Appl. (2007), 35pp., WO: 2007005038
4. Brown, S.C. and Moudgil, B.M., "Aphron-mediated Nanoparticle Generation for Biological and Industrial Applications," UF Disclosure #12,310, submitted September (2006).
5. Dutta, D., Santra, S., Moudgil, B., and Mericle, R., "Cancer Therapy by Intra-Cellular Overdosing of Nanoparticulate Materials," UF Disclosure #11600, March (2006).
6. Brown, S.C., Moudgil, B.M., Rabinovich, Y.I., Antony, V.B., and Kamal, M.A., "Materials, methods and system for identifying biointeractive nanostructures and/or nanoparticles," PCT Int. Appl., (2006), 30 pp., WO: 2006102600.

Selected Publications

1. Wasdo, S.C., Barber, D.S., Denslow, N.D., Powers, K.W., Palazuelos, I. Wasdo, S.C., Barber, D.S., Denslow, N.D., Powers, K.W., Palazuelos, M., Stevens, S.M., Moudgil, B.M. & Roberts, S.M. Differential binding of serum proteins to nanoparticles. *International Journal of Nanotechnology* 5, 92-115 (2008).
2. Krishna, V., Yanes, D., Imaram, W., Angerhofer, A., Koopman, B. & Moudgil, B. Mechanism of enhanced photocatalysis with polyhydroxy fullerenes. *Applied Catalysis B-Environmental* 79, 376-381 (2008).
3. Pyrgiotakis, G., Bhowmick, T.K., Finton, K., Suresh, A.K., Kane, S.G., Bellare, J.R. & Moudgil, B.M. Cell (A549)-Particle (Jasada Bhasma) interactions using Raman spectroscopy. *Biopolymers* 89, 555-64 (2008).
4. Vakarelski, I.U., Brown, S.C., Moudgil, B.M. & Higashitani, K. Nanoparticle-terminated scanning probe microscopy tips and surface samples. *Advanced Powder Technology* 18, 605-614 (2007).
5. Sharma, P., Brown, S.C., Walter, G., Santra, S., Scott, E., Ichikawa, H., Fukumori, Y. & Moudgil, B.M. Gd nanoparticulates: from magnetic resonance imaging to neutron capture therapy. *Advanced Powder Technology* 18, 663-698 (2007).
6. Najmunnisa, N., Mohammed, K.A., Brown, S., Su, Y., Sriram, P.S., Moudgil, B., Loddenkemper, R. & Antony, V.B. Talc mediates angiostasis in malignant pleural effusions via endostatin induction. *European Respiratory Journal* 29, 761-769 (2007).
7. Bu, K.H. & Moudgil, B.M. Selective chemical mechanical polishing using surfactants. *Journal of the Electrochemical Society* 154, H631-H635 (2007).
8. Brown, S.C., Kamal, M., Nasreen, N., Baumuratov, A., Sharma, P., Antony, V.B. & Moudgil, B.M. Influence of shape, adhesion and simulated lung mechanics on amorphous silica nanoparticle toxicity. *Advanced Powder Technology* 18, 69-79 (2007).
9. Brown, S.C., Kamal, M., Nasreen, N., Baumuratov, A., Sharma, P., Antony, V.B. & Moudgil, B.M. Talc pleuradesis: a particulate analysis. *Advanced Powder Technology* 18, 739-750 (2007).
10. Nasreen, N., Mohammed, K.A., Brown, S., Su, Y., Sriram, P.S., Moudgil, B., Loddenkemper, R. & Antony, V.B. Talc mediates angiostasis in malignant pleural effusions via endostatin induction. *Eur Respir J* 29, 761-9 (2007).
11. James-Smith, M.A., Shekhawat, D., Moudgil, B.M. & Shah, D.O. Determination of drug and fatty acid binding capacity to pluronic f127 in microemulsions. *Langmuir* 23, 1640-4 (2007).
12. Dutta, D., Sundaram, S.K., Teegarden, J.G., Riley, B.J., Fifield, L.S., Jacobs, J.M., Addleman, S.R., Kaysen, G.A., Moudgil, B.M. & Weber, T.J. Adsorbed proteins influence the biological activity and molecular targeting of nanomaterials. *Toxicol Sci* 100, 303-15 (2007).
13. Vakarelski, I.U., Brown, S.C., Higashitani, K. & Moudgil, B.M. Penetration of living cell membranes with fortified carbon nanotube tips. *Langmuir* 23, 10893-6 (2007).

Principal Investigator/Program Director (Last, first, middle):

14. Santra, S., Liesenfeld, B., Bertolino, C., Dutta, D., Cao, Z.H., Tan, W.H., Moudgil, B.M. & Mericle, R.A. Fluorescence lifetime measurements to determine the core-shell nanostructure of FITC-doped silica nanoparticles: An optical approach to evaluate nanoparticle photostability. *Journal of Luminescence* 117, 75-82 (2006).
15. Borm, P., Klaessig, F.C., Landry, T.D., Moudgil, B., Pauluhn, J., Thomas, K., Trottier, R. & Wood, S. Research strategies for safety evaluation of nanomaterials, Part V: Role of dissolution in biological fate and effects of nanoscale particles. *Toxicological Sciences* 90, 23-32 (2006).
16. Powers, K.W., Brown, S.C., Krishna, V.B., Wasdo, S.C., Moudgil, B.M. & Roberts, S.M. Research strategies for safety evaluation of nanomaterials. Part VI. Characterization of nanoscale particles for toxicological evaluation. *Toxicol Sci* 90, 296-303 (2006).
17. Sharma, P., Brown, S., Walter, G., Santra, S. & Moudgil, B. Nanoparticles for bioimaging. *Adv Colloid Interface Sci* 123-126, 471-85 (2006).
18. Krishna, V., Noguchi, N., Koopman, B. & Moudgil, B. Enhancement of titanium dioxide photocatalysis by water-soluble fullerenes. *J Colloid Interface Sci* 304, 166-71 (2006).
19. Wasan, D., Nikolova, A. & Moudgil, B. Colloidal dispersions: Structure, stability and geometric confinement. *Powder Technology* 153, 135-141 (2005).
20. Varshney, M., Chen, J.W., Moudgil, B.M., Shah, D.O. & Mehta, J.L. Potential of biongeered nanoemulsions in rapid therapy of dyslipidemia. *Journal of the American College of Cardiology* 45, 384A-384A (2005).
21. Santra, S., Liesenfeld, B., Dutta, D., Chatel, D., Batich, C.D., Tan, W.H., Moudgil, B.M. & Mericle, R.A. Folate conjugated fluorescent silica nanoparticles for labeling neoplastic cells. *Journal of Nanoscience and Nanotechnology* 5, 899-904 (2005).
22. Santra, S., Dutta, D. & Moudgil, B.M. Functional dye-doped silica nanoparticles for bioimaging, diagnostics and therapeutics. *Food and Bioproducts Processing* 83, 136-140 (2005).
23. Santra, S., Bagwe, R.P., Dutta, D., Stanley, J.T., Walter, G.A., Tan, W., Moudgil, B.M. & Mericle, R.A. Synthesis and characterization of fluorescent, radio-opaque, and paramagnetic silica nanoparticles for multimodal bioimaging applications. *Advanced Materials* 17, 2165-2169 (2005).
24. Fa, K.Q., Paruchuri, V.K., Brown, S.C., Moudgil, B.M. & Miller, J.D. The significance of electrokinetic characterization for interpreting interfacial phenomena at planar, macroscopic interfaces. *Physical Chemistry Chemical Physics* 7, 678-684 (2005).
25. Eskin, D., Zhupanska, O., Hamey, R., Moudgil, B. & Scarlett, B. Microhydrodynamic analysis of nanogrinding in stirred media mills. *Aiche Journal* 51, 1346-1358 (2005).
26. Eskin, D., Zhupanska, O., Hamey, R., Moudgil, B. & Scarlett, B. Microhydrodynamics of stirred media milling. *Powder Technology* 156, 95-102 (2005).
27. Esayanur, M.S., Yeruva, S.B., Rabinovich, Y.I. & Moudgil, B.M. Interaction force measurements using atomic force microscopy for characterization and control of adhesion, dispersion and lubrication in particulate systems. *Journal of Adhesion Science and Technology* 19, 611-626 (2005).
28. Shah, K., Chiu, P., Jain, M., Fortes, J., Moudgil, B. & Sinnott, S. Morphology and mechanical properties of surfactant aggregates at water-silica interfaces: molecular dynamics simulations. *Langmuir* 21, 5337-42 (2005).
29. Santra, S., Yang, H., Stanley, J.T., Holloway, P.H., Moudgil, B.M., Walter, G. & Mericle, R.A. Rapid and effective labeling of brain tissue using TAT-conjugated CdS:Mn/ZnS quantum dots. *Chem Commun (Camb)*, 3144-6 (2005).
30. Santra, S., Liesenfeld, B., Dutta, D., Chatel, D., Batich, C.D., Tan, W., Moudgil, B.M. & Mericle, R.A. Folate conjugated fluorescent silica nanoparticles for labeling neoplastic cells. *J Nanosci Nanotechnol* 5, 899-904 (2005).
31. Santra, S., Dutta, D., Walter, G.A. & Moudgil, B.M. Fluorescent nanoparticle probes for cancer imaging. *Technol Cancer Res Treat* 4, 593-602 (2005).