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Education:

Ph.D. Materials Science and Engineering , <i>University of Florida</i>	May 2006
M.S. Materials Science and Engineering , <i>University of Florida</i>	May 2004
B.S. Physics , <i>University of Crete</i>	March 2000

Professional Experience:

July 2006-Present Post Doctoral Associate, Particle Engineering Research Center, University of Florida with duties and tasks described below:

- August 2009 – Present: Coordinator of the course “Nano For the Rest of Us”
- Co-Instructor for the class of Interfacial Phenomena I & II
- Assisted in Grant Proposal writing:
 - NIH RC-1 Proposal – Pending – Lead author
 - NSF I/UCRC supplementary grant, PI Dr. B. Moudgil (2009) – Funded – Lead author
 - NSF Nanoengineering for Undergraduates, PI Dr. B. Moudgil (2009)
 - DoD Breast Cancer Concept award, PI: Dr. B. Moudgil (2008) – Lead author
 - UF/UCF Space research grant. PI, Dr. K. Powers (2008)
 - University of Florida: Incentive seed grant, PI: Dr. B. Moudgil (2008) – Lead author
 - University of Florida Institute for Aging, PI: Dr. G. Pyrgiotakis (2007)
 - NSF-NER proposal, PI: Dr. B. Moudgil (2006)
 - Center of Excellence Proposal to the State of Florida, PIs: Dr. B Moudgil and Dr. D. Dennis
- Introduction of data-mining techniques to analyze Raman spectroscopy data.
- bioRaman project: The use of Raman Spectroscopy for in situ toxicological evaluation of nanoparticles.
- Developing spectra analysis culturing and measurements protocols and methods.
- Mentoring three undergraduate students.

September 2002-2006 Graduate research Assistant, Materials Science and Engineering, University of Florida-NSF/PERC.

Dissertation Title: *Titania Carbon Nanotubes composites for Enhanced Photocatalysis.*

- Development of advanced photocatalytic materials based on carbon structures.
 - Analyzed Bonding of Anatase TiO₂ Coatings on various types of Multi-walled Carbon Nanotubes by Raman Spectroscopy and XPS.
 - Studied and Synthesized Sol-Gel based coatings of TiO₂ on Multi-walled Carbon Nanotubes and AFM tips.
 - Performed and Analyzed UV Dye Degradation Studies with Various Photocatalytic Materials
 - Fabricated and Measured the Mechanical Properties of TiO₂ Nanofibers via Electrospinning
- Measured the Mechanical Behavior of Spores and Bacteria by AFM.
- Measured the Interactions Between micro/nano-particles and polymer with the Colloidal AFM Probe Technique.

August 2001-July 2002: Teaching Assistant, University of Florida

- *Materials Selection and Failure Analysis*, Spring 2002
- *Synthesis and Characterization of Electronic Materials*, Fall 2001

Skills:

Raman, Micro-Raman, AFM, SEM, FTIR, UV-VIS, XRD, Coulter LS13320, Brookhaven ZetaPlus, Colloidal Dynamics, Acoustosizer, Fortran 77, Mathematica, Mathematica, MathCad, MS Office, Photoshop, LaTeX.

Grant/Report Work:

- National Institute of Health (Grant No. 1-P20-RR020654-01). Diagnosis and Therapy of Drug and Chemical Toxicity. Focused on the use of Raman spectroscopy in nanoparticle toxicity.
- Particle Engineering Research center. Goall II “Advanced Separation”. *Titania CNTs nanocomposites for*

- biological applications.* (August 2005-May 2006)
- The National Science Foundation (NSF Grant EEC-94-02989). *Development of an advanced photocatalytic system for microbial sterilization.* (August 2003-August 2005)
- Particle Engineering Research center (NSF Grant EEC-94-02989).. *Goal I "Engineered particulate systems". Direct force measurements with AFM for dispersion of ceramic particles.* (August 2002-August 2003)

Publications:

Book Chapters:

1. **Photocatalytic Particles for Biocidal Applications**
G. Pyrgiotakis and W. Sigmund
Particulate Systems in nano- and bio- technologies. Editors: Wolfgang Sigmund, H. El-Shall, D.O. Shah and B. Moudgil. RCR Press, 2008 ISBN: 9780849374364
2. **Theory and Applications of Colloidal Processing**
W. Sigmund, G. Pyrgiotakis and A. Daga
Invited. *Chemical Processing of Ceramics*, 2nd Edition, Editors: Burtrand I. Lee and Sridhar Komarneni, , CRC Press, 2005 ISBN: 1574446487
3. **Dispersion of Nanoparticles**
J. Cho, G. Pyrgiotakis and W. Sigmund
Invited *Dekker Encyclopaedia of Nanoscience and Nanotechnology and Nanoscience*, Ed. H. Nalwa, DOI: 10.1081 / E-ENN 12003552, by Marcel Dekker Inc. 2004

Journal Articles:

1. **Photocatalytic Carbon Nanotube-TiO₂ Composites**
K. Woan, G. Pyrgiotakis, and W. Sigmund
DOI: 10.1002 / ADMA.200802738 *Advanced Materials*, 21, 21, 2233, 2009
2. **Cell death discrimination with Raman spectroscopy and Support Vector Machine**
Georgios Pyrgiotakis, Erhun Kundakcioglu, Kathryn Finton, Kevin Powers, Panos Pardalos, Brij Moudgil
1DOI10.1007 / s10439-009-9688-z, *Annals of Biomedical Engineering*, 37 (7), 1464, 2009
3. **A Study of Cell (A549) Particle (Jasada Bhasma) Interactions Using Raman Spectroscopy**
G. Pyrgiotakis, T. K. Bhowmick, K. Finton, A.K. Suresh, S.G. Kane, J. R. Bellare and B. Moudgil
Biopolymers, 89 (6), p 555-564, 2008
4. **A Study of the Effect of Jasada Bhasma Particles on Saccharomyces Cerevisiae (yeast) cells by Raman Spectroscopy.**
G. Pyrgiotakis, T. K. Bhowmick, K. Finton, A.K. Suresh, S.G. Kane, B. Moudgil and J. R. Bellare
Journal of Raman Spectroscopy, 39 (12), 1859, 2008
5. **Processing and Structure Relationships in Electrospinning of Ceramic Fiber Systems**
Wolfgang Sigmund, Junhan Yuh, Hyun Park, Vasana Maneeratana, Georgios Pyrgiotakis, Amit Daga, Joshua Taylor, and Juan C. Nino
Journal of American Ceramic Society 89 (2), p. 395-407 2006
6. **The Effect of Monolayers' Alkyl Chain Length on Atomic Force Microscopy Anodization Lithography**
B.-S. Kim, G. Pyrgiotakis, J. Sauers and W. Sigmund
Colloids and Surfaces A: Physicochem. Eng. Aspects 253,p. 2326, 2005
7. **TiO₂ -Carbon Nanotube Nanocomposite Particles**
S.-H. Lee, G. Pyrgiotakis and W. Sigmund
Annals of the European Academy of Sciences, 2004
8. **Dip-Pen Nanolithography with Poly(diallyldimethylammonium chloride)**
B.-S. Kim, G. Pyrgiotakis, W. Sigmund
Journal of Nanotechnology and Nanoscience, 4 (3), p. 221-225, 2004
9. **Ceramic slurries for electrodeposition in rapid-prototyping applications**
N.J. Manjooran, S.-W. Lee, G. Pyrgiotakis, W. Sigmund,
American Ceramic Society Bulletin, 83 (12), p. 9301-9303, 2004

Publications in Review:

10. **Near Infra Red Absorbing Luminescent Gold Speckled Silica Nanoparticles for Photothermal Therapy**
P. Sharma, S.C. Brown, A. Singh, I. Nobutaka, G. Pyrgiotakis, Vijay Krishna, J. A. Knapik, K. Barr, S. R.

Grobmyer, and B. M. Moudgil

Submitted to Nanoletters

11. **In-situ Raman investigation of the thermo-optical effect of gold shell silica particles on cancer cells**
G. Pyrgiotakis, S. C. Brown, P. Sharma, A. Singh, N. Iwakuma, S. Grobmyer, B. M. Moudgil
In review
12. **Synthesis and Characterization of Carbon Nanotubes Titania composites.**
G Pyrgiotakis, V. Krishna, B. Moudgil and W. Sigmund
In preparation

Peered Proceedings:

1. **Titania-Carbon Nanotube Composite for Enhanced Photocatalysts**
2nd International Conference & Exposition on Advanced Ceramics & Composites, Daytona Beach, 2008
G. Pyrgiotakis and W. Sigmund
2. **Photocatalytic Destruction of Bioparticles**
W. Sigmund, G. Pyrgiotakis, V. Krishna, S.-H. Lee, S. Pumprueg, B. Koopman, B. Moudgil
IEEE International Conference, Proceedings TEHOSS 2005, Ed. A. Stepnowski, Co-Eds. A Rucinski, K. Kosmowski, ISBN 83-917681-9-8, p. 479-486, 2005
3. **Advanced Photocatalysis with Anatase Nanocoated Multi-walled Carbon Nanotubes**
G. Pyrgiotakis, S.-H. Lee and W. Sigmund
Proceedings of MRS Spring Meeting 2005: Symposium R Nanoporous and Nanostructured Materials for Catalysis, Sensor, and Gas Separation Applications, Editors: S.W. Lu, H. Hahn, J. Weissmuller, J.L. Gole, San Francisco, p. R5.7, 2005
4. **Rheology of Ceramic Slurries for Electro-Deposition in Rapid Prototyping Applications.**
N. J. Manjooran, S.-W. Lee, G Pyrgiotakis, W Sigmund
Proceedings of ACerS Meeting 2004: Colloidal Ceramic Processing of Nano-, Micro-, and Macro-Particulate Systems, Editors: W.-H. Shih, Y. Hirata, W. Carty, p. 75-81, 2004

Awards / Distinctions:

- President of UF Chapter of KERAMOS 2003-2005
- Research Scholarship in Physics at University of Crete, 1999
- Distinguished Student Award at the Greek Physicists Association, 1995

Affiliations:

- American Ceramic Society (ACerS)
- KERAMOS
- Materials Research Society (MRS)

Patents

1. W. Sigmund, S.-H. Lee, B. Koopman, B. Moudgil, G. Pyrgiotakis, V. Krishna
Photocatalytic Nanocomposites for the Inactivation of Microbes.
Office of Technology Licensing, UF# 11418, August 2004.
2. V. Krishna, B. Koopman, G. Pyrgiotakis, B. Moudgil, W. Sigmund, N. Naguchi
Use of Fullerenes C60 for enhancement of photocatalysis.
Office of Technology Licensing, UF# 11935, Provisional Patent June 2005
3. W. Sigmund, G. Pyrgiotakis, H. Park, J. Taylor, A. Daga
Improved Method for Forming Ceramic Nanoparticles
Office of Technology Licensing, UF# 11975, Provisional Patent March 20, 2006

Presentations:

1. SME Meeting Denver, CO, 2009
Characterization of Bioreactivity of Particles Using the BioRaman Technique
2. MRS Spring Meeting, San Francisco, CA, 2008
bioRaman: An in-situ method for investigating the particle-cell interaction
3. PERC IAB Meeting, April 13-14, Gainesville, FL
Whole Real Time Cell Toxicity Through bioRaman
4. MRS Spring Meeting, San Francisco, CA, 2005
Advanced Photocatalysis With Anatase Nanocoated Multi-Walled Carbon Nanotubes.
5. PERC/NSF IAB meeting September 22-23, 2004, Gainesville, FL.

Advanced Photocatalytic Systems for Destructions of Hazardous Microbes: Anatase Coated CNTs and TiO₂ Nanofibers

6. 107th ACerS Meeting April 10-13, 2005, Baltimore, MA.
Advanced Photocatalytic Composites: Anatase Coated CNTs.
7. PERC/NSF IAB meeting September 3-4, 2003, Gainesville, FL.
Photocatalytic Nanocomposites: A Synthesis and Characterization.
8. PERC/NSF IAB meeting February 18-19, 2003, Gainesville, FL.
Surface Forces for Nanosize Particles.

References:

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