Short Biography and CV of Prof. Ashok Kumar

Dr. Ashok Kumar is the Director of Nanotechnology Research and Education Center (NREC) and also a tenured Full Professor in the Department of Mechanical Engineering at the University of South Florida, Tampa. Dr. Kumar is also affiliated faculty member of Clean Energy Research Center (CERC) and USF Nanomedicine Research Center. Before joining USF, Dr. Kumar was employed as tenure-track faculty in the Department of Electrical Engineering at the University of South Alabama. He received his B.S. and M.S. degrees from Indian Institute of Technology (Kanpur), and Ph.D. from North Carolina State University, Raleigh.

His research is focused towards the development of nanotechnology based novel materials for multifunctional applications. He has published two textbooks, edited seven proceeding books, three invited review articles, 11 book chapters including 170 peer reviewed articles (approx. 102 journal articles and 80 conference proceeding articles) and has presented approximately 255 papers in regional and national conferences including 48 invited talks. He has been an invited speaker and session organizer at many national and international meetings. He has received an excess of 8.7 million dollar of research funding as PI and more than 24.3 million dollars as Co-PI. Dr. Kumar also acted as Cluster Director of the Alabama NASA EPSCoR Advanced Materials research program of approx. $3.5M (1994-1999) to supervise the state-wide research activities comprising of five major universities and six small colleges with two HBCU's. Dr. Kumar has supervised 12 post-docs, 10 Ph.D. and 43 MS students as major professor. His research has been supported from federal agencies (NSF, NASA, DOD and DOE) and private companies, such as, Sematech, Honeywell, General Motors, Lucent Technologies, Novellus, IBM, and Cabot Microelectronics etc. Dr. Kumar has strong commitment to integrate research and education with experience as an active member (Co-PI) for various NSF Grants (GK-12, REU & RET Sites etc.). His other interests include K-12 educational outreach, gender and science education and nanotechnology industrial outreach.

His excellence as a researcher has been recognized by a number of honors, including **ASM Fellow**, ASM-IIM Visiting Lecture Award (2007), Theodore and Venette Askounes Ashford Distinguished Scholar Award (2006), USF Outstanding Faculty Research Achievement Award (2004), USF President Faculty Excellence Award (2003), NSF Faculty Early **CAREER** Development Award (2000), National Research Council Twining Fellowship Award (1997) and, NSF and DOE EPSCoR Young Investigator Awards (1996-97). He also received the **Professor Honorario** award from the Universidad del Norte, Barranquilla, Colombia (2009).

ASHOK KUMAR, Ph.D., FASM

Director, Nanotechnology Research and Education Center (NREC)
Professor, Department of Mechanical Engineering, and
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EDUCATION

1992	Ph.D., *Major*: Materials Science and Engineering, *Minor:* Electrical Engineering (Solid State Devices); **North Carolina State University**, Raleigh; USA
1988	M. Tech., Metallurgical Engineering, **Indian Institute of Technology** (IIT), Kanpur; INDIA
1985	B. Tech., Metallurgical Engineering, **Indian Institute of Technology** (IIT), Kanpur; INDIA

PROFESSIONAL EXPERIANCE

Oct. 2009-Present	**Director**, Nanotechnology Research and Education Center (NREC), University of South Florida, Tampa, FL
Aug. 2005- Present	**Professor,** Department of Mechanical Engineering, and Nanotechnology Research and Education Center (NREC),), University of South Florida, Tampa
Aug. 2009-Present	**Affiliated Faculty Member,** USF Nanomedicine Research Center, University of South Florida, Tampa, FL
Aug. 2007-Present	**Program Co-Director,** Materials Science & Engineering Program, University of South Florida, Tampa, FL

Aug. 2005-Present	**Affiliated Faculty Member**, Florida Center of Excellence for Biomolecular Identification and Targeted Therapeutics, University of South Florida, Tampa, FL
Aug. 2004-Present	**Affiliated Faculty Member**, Clean Energy Research Center (CERC), University of South Florida, Tampa, FL
Aug 2004- Aug. 2006	**Courtesy Visiting Scientist**, Shriners Hospital for Children, Tampa, FL
Jan. 2000-July 2005	**Associate Professor** (Tenured 2002)**,** Department of Mechanical Engineering, and Center for Microelectronics Research, University of South Florida, Tampa
May-June 2004	**Visiting Faculty**, Institute of Microelectronics, Singapore
December 2002	**Visiting Faculty,** Nagaoka University of Technology, Nagaoka (Japan)
Jan 2000- July 2001	**Adjunct Professor,** Department of Electrical and Mechanical Engineering, University of South Alabama
Aug.1994- July 2001	**Cluster Director**, Alabama NASA EPSCoR (Advanced Materials Program)
2000 (December)	**Visiting Faculty,** Nagaoka University of Technology, Nagaoka (Japan)
Aug.1993- Dec.1999	**Assistant Professor,** Department of Electrical and Computer Engineering, University of South Alabama
Sept.1992- July1993	**Research Associate Professor,** Department of Electrical and Computer Engineering, University of South Alabama
Aug.1985- July1986	**Research Scientist,** Indian Institute of Technology, Kanpur; INDIA

AWARDS AND HONORS

- **Professor Honorario,** Universidad del Norte, Barranquilla, Colombia (2009)
- **Charter Class of Academy of Inventors**, University of South Florida (2009)
- **Fellow,** American Society of Metals, ASM (2007)

- **ASM-IIM Visiting Lecture Award**, ASM International (2007)

- **Certificate of Participation,** The National Science Foundation Research Experience for Undergraduates (REU) Program, Tampa (2008)

- **Certificate of Appreciation and Recognition,** The International Conference on Nanotechnology: Opportunities and Challenges ICON008), Center for Nanotechnology, King Abdulla Aziz University, Jeddah, Saudi Arabia (2008)

- **Certificate of Recognition and Appreciation**, Materials Science & Technology 2007 Conference, Detroit, MI (2007)

- **Certificate of Appreciation and Recognition,** III International Mechanical Engineering Congress), Universidad del Norte, Barranquilla, Colombia (2006)

- **CAREER "**NSF Faculty Early Career Development Award" (2000-2006)

- **Theodore and Venette Askounes Ashford *Distinguished Scholar* Award,** University of South Florida (2006)

- **International Panel Member,** Nano Diamond Network (NaDiNe) of the Austrian Nano-initiative (2006)

- **Advisory Board Member, Biomedical Research Infrastructure (NIH Funded Grant),** Alabama State University, Montgomery, AL (2004-present)

- **Certificate of Appreciation** (Lead Symposium Organizer), Materials Research Society (2005)

- **Sigma XI Tampa Bay Chapter Outstanding Dissertation Award – Major Professo**r for P. Zantye, A Study of Integration Issues in Cu-Low k Dielectric Materials in Damascene Structure (2005)

- **Certificate of Appreciation** (ME REU Coordinator), College of Engineering, USF (2004)

- **Outstanding Faculty Research Achievement Award,** University of South Florida (2004)

- **Advisory Board Member**, Research Infrastructure for Minority Institution (RIMI), Alabama State University, Montgomery, AL (2003-2006)

- **Certificate of Appreciation** (ME REU Coordinator), College of Engineering, USF (2003)

- **USF President Faculty Excellence Award** (2003)

- **Cluster Director**, 'Advanced Materials', Alabama NASA EPSCoR Program (1994-2000)

- **NSF Fellowship Award** to attend NSF Summer Institute on Nanomechanics Workshop, Chicago (2003)

- **Certificate of Appreciation** (Lead Symposium Organizer), The Minerals, Metals & Materials Society (2002)

- **USF Graduate Council Outstanding Thesis Award – Major Professor**, for Swetha Thagella, Study of Tribological Properties and Modeling of Removal Rate of Low-K and Copper in Chemical Mechanical Planarization Process (2002)

- **Certificate of Appreciation** (Lead Symposium Organizer), Materials Research Society (2002)

- **Certificate of Appreciation** (Symposium Organizer), Materials Research Society (2001)

- **Research and Creative Scholarship Award**, University of South Florida (2001)

- **Certificate of Appreciation** (Lead Symposium Organizer), The Minerals, Metals & Materials Society (1999)

- **Certificate of Appreciation** (Lead Symposium Organizer), The Minerals, Metals & Materials Society (1998)

- **Alabama DOE EPSCoR Young Investigator Award** (1996-1997)

- **Alabama NSF EPSCoR Young Investigator Award** (1996-1997)

- **National Research Council Twining Fellowship Award** (1997-1998)

- **Outstanding Research Award,** Univ. of South Alabama (1995-96)

- **International Metallurgical Honor Society**, Alpha Sigma Mu (1990)

- **National Engineering Honor Society**, Tau Beta Pi (1989)

- **Graduate Research Fellowship,** North Carolina State University (1989-1991)

- "**National Merit Scholarship**' from the Government of India (1981-1985)

RESEARCH INTERESTS

- Nanomaterials Technology and Fabrication
- Emerging Nanotechnology for Energy Applications
- MEMS Technology
- Laser and Plasma Assisted Processing, Characterization, and Device Technologies of Electronic, Ferroelectric, Magnetic, High-Tc and Polymeric Thin Films
- Sensor Technology for Functional Applications
- Structure-property Relationship (Electrical, Mechanical, Optical, Magnetic etc.) in Thin Films
- Analytical Characterization Techniques of Surfaces and Thin Films

SPONSORED RESEARCH AWARDS/PROJECTS

No.	**Title**	**Role**	**Agency**	**Time Period**	**Amount**
1	Nanowires based Technologies for Biotoxin Detection	**PI: Kumar**	**Constell-ation Tech. Corp. with FHTC**	2010-2011	$202,916
2	MRI: Acquisition of an Ultrahigh Analytical Thermal Field Emission Scanning Electron Microscope for Research and Education	**PI: Kumar,** Co-PIs: Gupta, Schlaf, Batzill, Li	**NSF MRI**	2009-2010	$684,000 (including USF match)
4	GOALI/Collaborative Research: Interface Engineered Diamond Coatings for Dry Machining	**PI: Kumar,** Co-PIs: Durham, Xiao	**NSF CMMI**	2009-2012	$165,115
5	GOALI/Collaborative Research-Flexible Ferroelectric-Based Antenna Arrays for Conformal Radiometric Imaging	PI: Thomas Weller, **Co-PIs: Kumar**, and Hoff	**NSF ECCS**	2009-2012	$404,551
6	GOALI: Engineering an In Vitro Assembled Corneal Stroma	PI: Mathews Garrett, **Co-PIs: Kumar** and Koob	**NSF CBET**	2009-2012	$329,846

7	Engineering and Computer Science Scholars Targeted for Academic, Retention and Success (STARS) at the University of South Florida	**PI: Kumar** Co-PIs: Batson, Thomas, Gupta, Trotz	**NSF S-STEM**	2008-2011	$598,000
8	Functionalized Nanomaterials for Biosensor Applications	**PIs: Kumar and Mathews**	**FCoE-BITT**	2008-2010	$75,000
9	Reliability Studies and Modeling for Process Optimization and Yield Improvements in Chemical Mechanical Planarization	**PI: Kumar**	**NSF CMMI**	2007-2010	$332,000
10	Center for Nanobiotechnology Research	PI: Shree R. Singh Alabama State Univ. **Co-PI: Kumar**	**NSF CREST**	2007-2012	$4,941,545 (Kumar's portion is $206,000)
11	In-Situ Nanomanufacturing Process Control Through Multiscale Nanostructured Growth Modeling	PI: Quang **Co-PI: Kumar**	**NSF CMII**	2007-2010	$350,000
12	Nanocrystalline Diamond for MEMS and Biomedical Applications	**PI: Kumar** Co-PIs: Weller and Bhansali	**NSF NIRT**	2004-2008	$1,426,578
13	Non-linear Device Applications of Nano-patterned Barium Strontium Titanate Thin Films	PI: Weller **Co-PI: Kumar**	**NSF ECCS**	2006-2009	$ 299,981
14	Students, Teachers, and Resources in the Sciences (STARS2): A USF/NSF GK-12 Continuation Project	PI: Das **Co-PIs:** Okoogba, **Kumar** et als.	**NSF GK-12**	2006-2010	$1,684,688
15	Development of Triplex Layered Thermal Barrier Coatings for Resistance Against Fuel-Contaminants and CMAS Degradation	**PI: Kumar**	**NASA through UCF**	2007-09	$90,000
17	Acquisition of Deep Reactive Ion Etching Tool for Interdisciplinary Research at the University of South Florida	PI: S. Bhansali **Co-PIs: Kumar**, Hoff et. Als.	**NSF MRI**	2006-2007	$592,500
18	Failure Mechanisms, Life Prediction and Enhanced Performance of Thermal and Environmental Barrier Coatings	**PI: Kumar**	**NASA through UCF**	2006-2008	$50,000
19	Analysis of Correlated Functional Variables for Manufacturing Process Diagnosis	PI: Huang **Co-PI: Kumar**	**NSF DMII**	2006-2009	$265,000
20	Micro and Nano-Crystalline Diamond Thin Film Coatings on Cutting Tools Materials for Dry Machining Applications	**PI: Kumar**	**General Motors**	2005-2008	$126,000
21	A Faculty Early Career Program in	**PI: Kumar**	**NSF**	2000-	$529,666

	Development of Superhard Coatings for Improved Performances		**CAREER**	2006	including USF match
22	Novel Synthesis and Fabrication of Hybrid Coatings for Manufacturing Applications	**PI: Kumar**	**NSF DMII**	2000-2003	$235,362
23	Acquisition of a Focused Ion Beam for USF Nanomaterials and Nanomanufacturing Research Center	PI: Schlaf **Co-PIs: Kumar**, Bhansali et. els.	**NSF MRI**	2000-2005	$786,013 including USF match
25	Non-Contact/Zero-Stress Surface Polishing Process For Copper/Low Dielectric Constant Semiconductors	**PI: Kumar**	**NSF SBIR/STTR Phase II**	2004-2006	$125,004
26	Advanced Materials Characterization using State-of-the-art Universal Microtribometer	**PI: Kumar**	**Center for Tribology**	2004-2005	$14,000
27	Acquisition of a Transmission Electron Microscope for Research and Education	**PI: Kumar,** Co-PI: Schlaf, Harmon et. als.	**NSF MRI**	2002-2005	738,646 including USF match
28	Investigation of Metrology Issues in Chemical Mechanical Planarization Processes for Microelectronics Manufacturing	**PI: Kumar**	**NSF GOALI**	2002-2006	$265,000
29	University of South Florida: Students, Teachers, and Resources in the Sciences	PI: Okoogba **Co-PIs:** Das, **Kumar** et. als.	**NSF GK-12**	2002-2006	$1,654,609
30	Modeling and Control of Wafer Scale Improvement in Chemical Mechanical Planarization	PI: Chandra at Iowa State Univ. **Co-PI: Kumar**	**NSF DMII**	2003-2006	$476,881
31	Development and Testing of Practical Algorithms for Online Interpretation of Senor Data through Wavelet Decomposition	PI: Das **Co-PI: Kumar**	**NSF DMII**	2003-2005	$200,000
32	Diamond Coatings on WC-Co Cemented and High-speed Steel (HSS) for Dry Machining Applications	**PI: Kumar**	**General Motors**	2003-2005	$63,250
33	Evaluation of Mechanical and Tribological Properties of Low-k Dielectric Materials	**PI: Kumar**	**Internati o-nal Sematech Inc.**	2001-2002	$171,984
34	Tribological and Mechanical Characterization of CMP Processes for Advanced Metal and Dielectric Applications	**PI: Kumar**	**Agere System Inc., Orlando**	2002-2005	$163,848
35	Synthesis and Characterization of Engineered Nanostructured	**PI: Kumar**	**Florida Space**	2000-2001	$30,000

	Materials with Laser Assisted Methods		**Research Program**		
3	Evaluation of Mechanical Properties of Hard Coatings for Multifunctional Applications	**PI: Kumar**	**Florida High-Tech Corridor (FHTC) with BryCoat**	2000-2001	$44,726
37	A Smart Composite for Microelectronics Thermal Management Applications	**PI: Kumar**	**FHTC with Honeywell**	2001-2002	$100,000
38	Evaluation of Mechanical and Tribological Properties of PVD Hard Coatings for Multifunctional Applications	**PI: Kumar**	**FHTC with BryCoat, Inc**	2001-2002	$72,000
39	Nanoscale Chemical, Tribological and Mechanical Properties of Surface Engineered/Modified Polymers – A Joint USF and UCF Project	**PI: Kumar**	**FHTC with pSilo Quest**	2002-2003	$110,537
40	Nanoscale Mechanical and Tribological Characterization of Hard Coatings	**PI: Kumar**	**FHTC BryCoat, Inc.**	2002-2003	$50,000
41	Integrated Nanostructured Thin Film based Materials for Gas Sensor Application	**PI: Kumar**	**FHTC with Fractal System**	2003-2004	$80,000
	Laser Ablated Hydroxyapatite Coatings	**PI; Kumar**	**USF (Internal Award)**	2001-2002	$12,000
42	Laser Processed Surface Modification, Thin Films, and Coating	**PI: Kumar**	**NASA EPSCoR**	1994-1999	$1,256,512
43	Laser Processed Superhard Coating for Tribological Applications	**PI: Kumar**	**Tennessee Valley Authority**	1994-1995	$27,696
44	Laser Patterning of Organic Semiconducting Materials	**PI: Kumar**	**DOE EPSCoR Graduate Trainee Fellowsh-ip**	1994-1995	$18,142
45	Acquisition of Scanning Electron Microscope and X-ray Diffractometer for Education and Research	**PI: Kumar**	**NSF ARI**	1995-1998	$159,430
46	Smart Materials for Transport Control	**PI: Kumar**	**NSF EPSCoR**	1995-1998	$540,000
47	Wave-guide Structures on Organic Thin Films by Laser Patterning	**PI: Kumar**	**DOE EPSCoR**	1995-1997	$19,380

	Method		**Young Investiga-tor Award**		
48	Growth and Characterization of Carbides/Nitrides Thin Films Prepared by Laser Processed Methods	**PI: Kumar**	**National Research Council Twinning Fellowship**	1997-1999	$13,000
49	Research Equipment Grant for the Acquisition of FTIR Spectrometer for Multifunctional Applications	**PI: Kumar**	**NASA EPSCoR**	1997-1998	$40,000
50	Synthesis and Characterization of Pulsed Laser Ablated Biocompatible Thin Films	**PI: Kumar**	**NSF EPSCoR Young Investigator Award**	1997-1998	$44,452
51	Engineered Nanostructured Materials with Laser Assisted Methods	**PI: Kumar**	**NASA Space Grant**	1998-1999	$20,000

STUDENT SUPERVISION

Post-Doctoral Fellows Supervision

1. Dr. M. Vedawyas**, "**Laser Processing of High Performance Thin Film Materials" (1991-2001)

2. Dr. Arun Kumar Sikder**, "**CVD Diamond and Reliability Issues in Microelectronics Materials" (**Employed as Senior Research Scientist, GE Global Research**, Bangalore, India) (2000-2004)

3. Dr. Rajnish Sharma**, "**Synthesis and Characterization of MEMS and Microelectronics Materials" (**Employed as Senior *Manager, ST Microelectronics,*** Singapore) (2000-2001)

4. Dr. Arun Kumar**, "**Nanotechnology for Sensor Applications" (**Employed as Research Professor/Instructor, USF Health**, Tampa (2004-2005)

5. Dr. Manoj Kumar Singh**, "**Nanocrystalline Diamond /Carbon Nanotubes for Multifunctional Applications" (2004-2005)

6. Dr. Makoto Hirai, "Nanoparticles and Nanowires for Electrical and Optical Applications" (**Employed as Assistant Professor, Nara National College of Technology, Japan**) (2005-2008)

7. Dr. Jeung-Yeop Shim, " Nanoparticles for Biomedical Applications" (2007-2008)

8. Dr. Rahul Singhal, "Nanomaterials for Energy Applications" (2007-2008)

9. Dr. Ozlem Yavuz-Petrowski, "Nanomaterials for Biosensor Applications" (2007-2008)

10. Dr. Rakesh Joshi, Nanotechnology for Multifunctional Applications (2008-2010)

11. Dr. Subbiah Alwarappan, Nanomaterials for Sensor and Energy Applications" (2009-present)

12. Dr. Manoj K Ram, "Polymer based Materials for Multifunctional Applications" (2009-present)

Ph.D. Dissertation Supervision

Chair of the Dissertation Committee (Major Professor):

1. P. Zantye, "A Study of Integration Issues in Cu-Low k Dielectric Materials in Damascene Structure" **Sigma Xi Outstanding Researcher Award (2005, Employed by Intel, OR)**

2. Zhenqing Xu, "Nanocrystalline Diamond: Synthesis, Characterization, and Applications" (2006, **Employed by General Motors**, **MI)**

3. Souheil Zekri, "Synthesis and Characterization of Interfaces between Naturally Derived and Synthetic Nanostructures for Biomedical Applications" **(Assistant Principal**, Tampa 2007)

4. Raghu Mudhivarthi, "Process Optimization and Consumable Developments for Chemical Mechanical Planarization (CMP) Processes **(Employed by Intel, OR 2007)**

5. Michael Jurczyk, "Synthesis and Characterization of Carbon and Metal Hydride Based Materials for Hydrogen Storages" (2009)

6. Jorge C. Lallave Cortis, "Numerical Heat Transfer Modeling During Partially-confined and Free Liquid Jet Impingement over Spinning Boundaries and Three Dimensional Modeling of a Chemical mechanical Polishing Process" (Co-major Advisor, 2009)

7. Sathyaharish Jeedigunta, "Growth and Characterization of Nanocrystalline Diamond Films for Microelectronics and Microelectromechanical Systems" **(Employed by Intel, 2008)**

8. Jessica Weber, "Functional Nanomaterials with an Electrochemical-Based Approach to Sensing and Energy Applications" (2010)

9. Quang Hu, "Structural, Electrical and Electrochemical Properties of Diamond Coatings" (in-progress)

10. Humberto Gomez, "Surface Engineered Diamond Coatings and its Composites for Multifunctional Applications" (in-progress)

11. Farah Alvi, "Nanostructured Materials for Solar Energy Applications (in-progress)

12. Pedro J. Villalba, "Nanostructured Coatings for Biomedical Applications" (in-progress)

13. Joe Bonivel, "Reliability Issues of CMP Process (in-progress)

14. Mikhail Ladanov, "Nanogenerator for Bio Applications (in-progress) (Co-major: G. Mathew)

15. Supriya Ketkar, "Barium Strontium Titanate Thin Films for Tunable Microwave Applications" (in-progress) (Co-major: Drew Hoff)

16. Emre Demirocak, "Novel Solar Materials for Energy Applications" (Co-major: Lee Stefanakos (in-progress)

Master Thesis Supervision

Chair of the Committee (Major Professor:

1. Xiao Ping Wu "Evaluation of Buffer Layers for High Temperature Superconductors" (1994)

2. David Kjendal, "Design and Implementation of Physical Vapor and Chemical Vapor Assisted Thin Film Deposition Systems and the study of Laser Processed Polymeric Materials" (1995)

3. U. Ekanayake, "Growth, Structure and Mechanical Properties of Laser Processed Superhard Coatings" (1996) **(Employed by VLSI Technology, CA)**

4. N. Shu, "The Study of Electrical, Dielectrical, and Mechanical Properties of Electronic Ceramic Thin Films" (1996)

5. Y. Mingte, “Silicides Thin Film Technology for VLSI Applications” (1996)

6. H. Chan, “Laser Processing of Nitride and Carbide Coatings for Multifunctional Applications” (1997)

7. Q. You, “Synthesis and Characterization of Diamond Films Grown by Hot Filament Chemical Vapor Deposition Technique” (1997)

8. M. Alam, “Synthesis and Characterization of Ferroelectric Thin Film Capacitor for Memory Device Applications” (1997) **(Employed by Texas Instruments, Dallas)**

9. D. Patel “Preparation and Properties of Pulsed Laser Deposited Superhard Coatings” (1997) (**Employed by Applied Materials, CA)**

10. I. Hussain “ Development and Applications of Piezoelectric Biosensor” (1998)

11. I. Ahmed “Deposition of Textured Diamond Growth using Hot-Filament Assisted Chemical Vapor Deposition Method” (1998)

12. Michael Galeev “ Diamond Film Growth on Structural Substrates for Cutting Tool Applications” (1998) **(Employed by Motorola, IL)**

13. H. Rahman “Growth, Modeling and Device Implementation of Pulsed Laser Deposited Thin Films” (1998) **(Employed by Altera, CA)**

14. Yibing Geng “Fabrication and Device Implementation of Laser Processed Ferroelectric Thin Film” (1998)

15. R. Bahal “Evaluation of Mechanical Properties of Superhard Coatings” (1999) **(Employed by Applied Materials, CA)**

16. M. Yassin “Electrical and Dielectric Properties of DRAM Capacitors” (1999) (Employed by Motorola, IL)

17. Ganesh Sivanathan “Effects of Surface Treatment and Gas Ambient on Growth of Hot Filament Chemical Vapor Deposited Diamond Coatings” (2000)

18. Rajesh Kumar Katre “Study of Electrical and Dielectric Properties of Laser Processed Ferroelectric Thin Films Using LaNiO3 as Electrode” (2000) **(Employed by 3M, MN)**

19. Manoj K. Raddar, “Studies of Mechanical Properties of Carbide and Nitride Coatings System” (2001)

20. Aravinda N. Sringarapuram, "Study of Electrical and Dielectrical Properties of Ferroelectric Capacitors for DRAM and NVRAM Applications (2001)

21. Ismail Irfan, "Evaluation of Mechanical Properties of Thin Films using Nanoindentation Technique" (2001)

22. P. Zantye, "Design and Fabrication of MEMS Based System for Multi-functional Applications" (2001) **(Employed by Intel, OR)**

23. Swetha Thagella, "Study of Tribological Properties and Modeling of Removal Rate of Low-K and Copper in Chemical Mechanical Planarization Process" (2002), ***Outstanding MS Thesis Award.***

24. Frank Giglio, "Mechanical and Tribological Properties of Chemical Mechanical Planarization" (2003)

25. Zhenqing Xu, "Processing and Characterization of Polycrystalline Diamond Films for Multifunctional Applications" (2003) **(Employed by GM, MI)**

26. Sindhura Valdhamani, "Synthesis and Characterization of Wide Band Gap Materials Coatings" (2003)

27. Pallavi Shukla, "Mechanical and Tribological Characterization of Thin Film Coatings" (2004), **Software Engineer, Atlanta**

28. Uttam Chandra Bandugula, "Synthesis and Characterization of Polymer Based Nanocomposites" (2004), **Software Engineer, Atlanta**

29. Tov Vestgaarden, "Design and Implementation of Pulsed Laser Deposition System for Thin Film Coating" (2004) **(President, Biomedical Company, FL)**

30. Lavanya Sriram, "Study of Chemical Mechanical Planarization Process for Microelectronics Applications" (2004) **(Employed by Micron, Boise, ID**

31. Jessica Otto, "Development and Characterization of Carbon Nanotubes for Sensor Applications" (2005), pursuing Ph.D. at USF

32. Sriraj G. Manavalan, "Structure and Electrical Properties of Barium Strontium Titanate Thin Films for Tunable Microwave Applications" (2005) **(Employed by Micron, Boise, ID)**

33. Roja Ramani, "Mechanical and Tribological Properties of PVD Processed Coatings for Multifunctional Applications" (2006) **(Employed by Applied Materials, CA)**

34. Juan Cruz, "Thin Film Materials for Multifunctional Applications" (2006)- employed by Florida Power Company, FL **(Employed by Power Company, FL)**

35. Raghava Kakireddy, "Study of Chemical Mechanical Planarization Process of Low-K Materials" (2007) **(Employed by Qimonda AG, Richmond, VA)**

36. Daniel Vilceus, "Investigation of Adhesion Properties of Microelectronics Materials using Four-point Bending and Scratch Tests" (2008)- Pursuing Ph.D. at the University of Florida, Gainesville (FL)

37. Michael Depaz, "Processing and Characterization Zinc Oxide Thin Films" (2007) **(Employed by Air Force Base, Warren GA)**

38. Venkataramanan Gurumurthy, "Barium Strontium Titanate Thin Films for Tunable Microwave and Acoustic Wave Applications" (2007) **(Employed by RF Micro Devices Inc., Greensboro, NC)**

39. Lorenzo W. Hankla, "Mechanical Properties and Fracture Mechanisms of Particulate-Reinforced Boron Ceramic Composites (2008)

40. Chhavi Manocha, "Chemical Mechanical Planarization: Study of Conditioner Abrasive and Synthesis of Nano-Zirconia for Potential Slurry Applications (2008)

41. Denis Kitenge, "Development of High Performance Coatings for Sensor Applications" (2009)

42. Nidhi Joshi, "Gold Nanoparticles for Biosensor Applications (expected summer 2010)

43. Minh Tan Tram Nguyen, "Nanocrystalline Diamond for as Atomic Force Microscope Tip and its Applications (expected spring 2011)

Committee Member of Thesis/Dissertation:

1. Z. Wei, "Numerical Simulation of Pulsed Laser Ablation Deposition Process" MS, Mechanical Engineering (1997)

2. U. Padunsgak, "Numerical Simulation of Diamond Deposition by Combustional Flame Assisted CVD Process" MS, Mechanical Engineering, (1997)

3. M. Alhasan, "Numerical Simulation of Si Deposition in Horizontal CVD Reactors" MS, Mechanical Engineering (1997)

4. Raymond Work Lamb, "Effects of Baffling on Air-cooled Finned Cylinders Using Finite Element Analysis" MS, Mechanical Engineering, (1997)

5. Andrew Israel, "A Detailed Investigation of Microwave Plasma-Assisted Chemical Vapor Deposition Diamond Growth Parameters" MS, Physics, (1997)

6. Chiang-Ta Lee, "Experimental Evaluation of Optical Limiting Elements", MS, Electrical Engineering (1998)

7. A. V. Sumant, "Some Studies on Nucleation and Growth Aspects of HFCVD Diamond Films" External Reviewer for Ph.D. Dissertation, Physics, University of Pune, INDIA (1998)

8. Chin-Shiue Yan, "Twinning and Defects in Large Area Chemical Vapor Deposited Diamond Coatings" Ph.D., UAB, Physics (2000)

9. B. V. Krishna "Studies on Ultrathin Oxide of Silicon Grown by Wet Thermal and N_20 Plasma Oxidation Technology" Physics, I. I. T. Madras, INDIA, External Examiner of Ph.D. Dissertation (2000)

10. Igor Tarasov, "Defect Diagnostics using Scanning Photoluminescence in Polycrystalline Silicon Solar Cells", Ph.D., Electrical Engineering (2001)

11. Kamal Ayoub, "Effect of Ionizing Radiation and Thermal Oxidation on the Stability of Low density Polyethylene (LDPE) Stabilized with Systems of Phenolic Antioxidants" Chairman of the Dissertation Committee , Chemistry (2001)

12. Rajesh Ganesan, "Wavelet Based Multiresolution Monitoring of a Nanomachining Process in Semiconductor Manufacturing", MS, Industrial Engineering (2002)

13. Bhavani Prasad, "A Wavelet Modulated Run-by-Run Controller", MS, Industrial Engineering (2002)

14. Anton Belyaev, "Resonance Acoustic Diagnostics in Silicon Wafers", MS, Electrical Engineering (2002)

15. Alok Buch, "An Online Strategy for Wavelet Based Analysis of Multiscale Sensor Data" MS, Industrial Engineering (2003)

16. Santosh Kothamasu, "A Wavelet Based Multiscale Run-By-Run Controller for Multiple Output (MIMO) Processes", MS, Industrial Engineering (2003)

18. Kenneth Henry Heffner, "Radiation Induced Degradation Pathways for Poly (Methylmethacrylate) and Polystyrene Polymers as models for Polymer Behavior in space Environment", Ph.D. Dissertation Committee Chairman, Chemistry (2003)

19. Fushnag Cui, "Corrosion Behavior of Stainless Steel and Rebar", Ph.D. Dissertation Committee Chairman, Civil and Environmental Engineering, Summer (2003)

20. Samer El. Ajouz, "Numerical Prediction of Pressure Drop through Power Plant Cooling Water System", MS, Mechanical Engineering, Spring (2003)

21. Kiran Polturi, "Mutlimaterial Micro Needle Fabrication using Porous Silicon", MS Electrical Engineering, Spring (2003)

22. LaNetra M. Clayton, "Functionalization of Carbon Nanotubes via Atomic Oxygen Exposure: To Improve the Design and Fabrication of Polymer/Nanotube Composites" Ph.D., Chemistry, Summer (2004)

23. Ashwin Upadhaya, "Development of Assessment Tasks to Measure the Driving Capabilities of People with Disabilities", MS, Mechanical Engineering, Fall (2004)

24. Koushik R. Barhale, "Design and Testing of a Prototype Gripper for a Wheelchair Mounted Robot", MS, Mechanical Engineering, Fall (2004)

25. H. Ho Son, "Numerical Simulation of Thermal Comfort and Contaminant Transport in Air Conditioned Rooms", MS, Mechanical Engineering, Fall (2004)

26. Anton Belyaev, "Stress Diagnostic and Crack Detection in Full-size Silicon Wafers using Resonance Ultrasonic Vibrations", Ph.D. Electrical Engineering, Summer (2005)

27. Rajesh Ganeshan, "Process Monitoring and Feedback Control Using Multi-resolution Analysis and Machine Learning", Ph.D., Industrial Engineering, Summer (2005)

28. Thomas Ketler, "Reconfigurable Antenna using RF MEMS Switches", Ph.D. , Electrical Engineering, Ph.D., Electrical Engineering, Spring (2006)

29. Jeisanker Mathiyaparanam, "Analysis of Acoustic Emission in Cohesionless Soil" Civil Engineering", MS, Summer (2006)

30. Praveen Kumar Chalasani, "Nano-indentation of Layered Materials with Nonhomogeneous Interface" MS, Mechanical Engineering, Spring (2006)

31. Michael J. Stokes, "Structural and Geotechnical Aspects of Load Test Data Regression" Ph.D., Civil and Environmental Engineering (Fall, 2006)

32. Rahul Agarwal, "Low Temperature Hermetically Sealed 3-D MEMS Device for Wireless Optical Communication", Ph.D., Electrical Engineering (Summer 2007)

33. Shyam Aravamudhan, "Towards the Development of an Integrated Physical and Chemical Ocean Sensor" Ph.D., Electrical Engineering (Fall 2007)

34. Samuel Andrews Baylis, "Tunable Patch Antenna Using Semiconductor and Nano-Scale Barium Strontium Titanate Varactors" M.S., Electrical Engineering, March (2007)

35. Hui Wang, "Error Equivalences Theory for Manufacturing Process Control" Ph.D. Dissertation Committee Chairman, Industrial Management System Engineering, Spring (2007)

36. Srinath Balachandran, "Nanocrystalline Diamond for Microwave and High Power RF Applications" Ph.D., Electrical Engineering (expected to finish Fall 08)

37. Abdur rub Abdur Rahman **"**CellMap: An Automated Microelectrode Array Cell Culture Analysis System based on Electrochemical Impedance Spectroscopy", Ph.D., Electrical Engineering, Summer (2007)

38. Tov Vestgaarden, "Experimental and Analytical Modeling of the In Vivo and In Vitro Biomechanical Behavior of the Human Lumber Spine" Ph.D. Fall (2007)

39. Ramakrishna Gunda, "Nanoripples Formation in Calcite and InP Single Crystals" M.S, Mechanical Engineering, Fall (2007)

40. Jayadeep Deva Reddy, "Mechanical Properties of SiC Thin Films" M.S., Mechanical Engineering, Fall (2007)

41. Ajay Vidyasagar, "Volume Phase Transition in Benzophenone based Poly(N-isopropylacrylamide) Polymers" Ph.D., Chemical Engineering (expected to finish Fall 09)

42. Christopher L. Frewin, "A Study of Cubic Silicon Car bide and Nanocrystalline Diamond with Neuronal and Glial Cells" Ph.D., Electrical Engineering (expected to finish Fall 08)

43. Saket Srivastava, "Probabilistic Modeling of Quantum-dot Cellular Automata, Ph.D. Dissertation Committee Chairman, Electrical Engineering (Spring 2008)

44. Cecil A. Countinho, "Multi-functional Composite Materials for Catalysis and Chemical Mechanical Planarization" Committee Chair, Chemical and Biomedical Engineering (Spring, 2009)

45. Ala'a Hamed Kababji, "Effects of Diluent Addition and Metal Support Interactions in Heterogeneous Catalysis: SiC/VPO Catalysts for Maleic Anhydride Production and Co/Silica Supported Catalyst for FTS" Committee Chair, Chemical and Biomedical Engineering (Spring 2009)

46. Lynford Davis, "Investigation of Residual and Thermal Stress on Membrane-based MEMS devices" MS in Mechanical Engineering, Fall (2009)

47. Ophir Ortiz, "Active Hydrogel Biomaterials for Metastatic Cancer Cell Investigations, Ph.D., Chemical Engineering (Spring 2010)

48. Bijith D Mankidy, "Design of Colloidal Composite Catalysts for CO Hydrogeneration and for CO2 Photoconduction" Ph.D., Chemical and Biomedical Engineering (Expected Spring 2011)

Undergraduate Research Project Supervision

1. Brenda Sapp	Thin Film coating (NASA EPSCoR)
2. A. Mangiaracina	Tuberculosis Biosensor (NIH SBIR)
3. Brian Brantly	Nanomaterials for Gas Sensor (COE REU)
4. Thomas Gressle	Nanomaterials for Biosensors (COE REU)
5. Shammed Hamid	Coatings for Sensor (COE REU & NSF REU Supplement
6. Daniel Vilceus	Chemical Mechanical Polishing (COE REU & REU Supplement)
7. Joshua Lujan	Coatings for Biosensors (COE REU & REU Supplement)
8. Megan Pendergast	Chemical Mechanical Polishing (COE REU & REU Supplement)
9. Michael Berlin	Laser Deposition of Hard Coatings (COE REU & REU Supplt.)
10. Mark Baugh	CVD Diamond for Cutting Tools (COE REU & REU Supplement)
11. Sadiya Hasan	Chemical Mechanical Polishing (COE REU & REU Supplement)
12. Shenique Johnson	Chemical Mechanical Polishing (COE REU & REU Supplement)
13. Tim Carson	Pulsed Laser Deposition of Coatings (COE REU & REU Supplt.)
14. David Sharp	Laser Ablated Coatings (COE REU & REU Supplement)
15. Nam Truong	Thin Film Carbide Coatings (COE REU & REU Supplt)
16. Sean O'Conner	Diamond Coatings for Tools (COE REU & REU Supplement)
17. Nivedita Gulati	Chemical Mechanical Polishing (COE REU & REU Supplement)
18. Dennis Kitenge	Oxide Coatings for Turbine Application (REU Supplt)
19. Gustavo Torres	Growth and Characterization of Nanostructured Diamond Films (COE REU & REU Supplement)
20. Connie Bell	Exploration of Pretreatment Methods for Deposition of CVD Diamond Film on Cemented Tungsten Carbide Substrates (COE REU & REU Supplement)
21. Daniel Perez	Development of a VI File to Measure the Changes in the Conductivity of Materials in Presence of Various Gases (COE REU & REU Supplement)
22. Alejandra Vega	Surface Treatment of Boron-Doped Nano-Crystalline Diamond for Salmonella DNA Sensing Applications.

TEACHING ACTIVITIES

University of South Florida

EGN 3365 Materials Engineering I (Undergraduate level)

EGN 4366 Materials Engineering II (Undergraduate level)

EML 4930 Electronic Materials Manufacturing (Undergraduate/Graduate level)

EML 6930 Micro/Nano Manufacturing (Graduate level)

EML 6930 Materials Characterization (Graduate level)

EML 6930 Advanced Materials (Graduate level)

University of South Alabama

EE 331 Electronic Devices (Undergraduate level)

EE 490 VLSI Technology and Fabrication (Undergraduate/Graduate level)

EE 392 Basic Electrical Engineering I (Undergraduate level)

EE 301 Professional & Ethics in EE/CPE (Undergraduate level)

EE 263 Digital Design I (Undergraduate level)

EE 322 Random Signal and Linear Systems (Undergraduate level)

EE 490/590 Electronic Thin Film Science (Undergraduate/Graduate level)

SERVICE

University Service

- Advisory Board Member, USF Nanomedicine Center (2009-present)
- Member, USF Research Council (2009-present)
- Member, USF Budget Priority Taskforce (2007-08)
- Member, USF Faculty Senate (2003-2009)
- Lead COE Member, USF Research Initiative in Functional Multiscale Materials by Design (FMMD) (2006-2009)
- Member, World Class Scholars' Planning Workgroup Committee (2006)
- Member, USF's Outstanding Thesis and Dissertation Committee (2006)
- Advisory Board Member, Biomedical Research Infrastructure (NIH Funded Grant), Alabama State University, Montgomery, AL (2004-2009)

- Advisory Board Member, NSF HBCU-UP Program, Alabama State University, Montgomery, AL (2005-present)

- Member, Committee on Committees, USF Faculty Senate (2004-2005)

- Advisory Board Member, NIH Research Infrastructure for Minority Institution (RIMI), Alabama State University, Montgomery, AL (2003-2008)

- Review Member, Office of Research Internal Award (2004-present)

- Member, University Continuity Education and Special Programs (1998-1999)

- Member, University of Library Service (1997-1998)

- Cluster Director, State-wide Alabama NASA EPSCoR Program of 'Advanced Materials' Program (1994-1999)

- Lead Campus Coordinator at the Univ. of South Alabama, NSF EPSCoR Program (1996-1999)

- Member, Univ. of South Alabama Research Council (1996-1998)

College of Engineering Service

- Member, College of Engineering Research Council (2010-present)

- Graduate Program Co-Director, MS Degree Program in Materials Science & Engineering (2006-present)

- Steering Committee Member, Nanomaterials & Nanomanufacturing Research Center (2007-2009)

- Member, College of Engineering Governance Committee (2005-2008)

- Advisor, Nanomaterials & Nanomanufacturing Research Center (2005-2006)

- Member, Associate Dean for Research Search Committee (2005-2006)

- Member, Nano-Tech I Building Committee (2001-2005)

- Executive Member, Nanomaterials & Nanomanufacturing Research Center (2005-2006)

- Member, Center for Microelectronics Research (CMR) Faculty Search Committee (2001-2002)

- Faculty Coordinator, College of Engineering REU Program (2001-2009)

- Research Experience for Teachers (RET) Faculty Mentor (2002-present)

- Faculty Coordinator, Bridge to the Doctorate, the Florida-Georgia Louis Stokes Alliance for Minority Participation (Fall 2004- present)

- Faculty Coordinator, Sloan Foundation for Doctoral Programs (2004-2009)

- Faculty Coordinator, College of Engineering Outreach Program, Univ. of South Alabama (1996-1999)

- Campus Representative Member, Alabama EPSCoR Program (1994-1999)

Departmental Service

- Member, ME Department Chair Committee (2009-2010)

- Member, ME Graduate Program Committee (2009- present)

- Chair, ME Faculty and Instructor Search Committee (2008-2009)

- Coordinator, MS Degree Program in Materials Science & Engineering (2006-present)

- Coordinator, ME Graduate Seminar (2004-06)

- Member, ME Department Faculty Search Committee (2002 and 2003)

- Coordinator, Materials Science and Engineering Certificate Program (2002-05)

- Member, ME Curriculum and ABET Assessment Committee (2001-2003)

- Member, EE Department Graduate Committee (1997-1999)

- Member, EE Faculty Search Committee (1997)

- Member, EE Department of Scholarship Committee (1996-1998)

- Member, EE Curriculum and ABET Assessment Committee (1996-1998)

PROFESSIONAL SERVICE

Journal Editorial Board Member

Journal of Nanoscience and Nanotechnology (2006-present)

Advances in Technology of Materials and Materials Processing Journal (2007-present)

Journal of Materials Online (AZojomo; www.azom.com) (2007-present)

Journal Guest Editor

Guest Editor, (R. Ravindran, and *Ashok Kumar*) Journal of Metals, Theme: Electronic Materials, Vol. 53, No. 6 (2001)

Guest Editor (Rakesh K. Joshi and *Ashok Kumar*), Diamond and Related Nanomaterials for MEMS/NEMS Applications" Journal of Nanomaterials (Publication Date: May 2009)

Guest Editor (Rakesh K. Joshi and *Ashok Kumar*), Special issue on Graphene " Journal of Nanomaterials (to be published, late 2010)

Executive Council Member

- Allan Ray Putman Service Award Selection Committee, ASM International (2009-present)
- International Advisory Board Member, " International Conference on Surfaces, Coatings and Nanostructured Materials (NanoSMat) (2008-present)
- International Advisory Board Member, Micro and Nanotechnologies Book Series, Key Technology for Innovation (KTI), UK (2008-present)
- Member of Evaluation Board, Center for Nanoscale (CNM) at Argonne National Laboratory, Chicago, IL (2008-present)

- Member of Materials Research Society (MRS) Membership Committee (2008-present)

- Governing Member, American Society of Metals (ASM) Education Committee (2006-present)

- Local Organizational Committee Member for NATO Advanced Study Institute (Advisor for Jessica Weber) Functionalized Nanoscale Materials, Devices, and Systems for Chem.-bio Sensors, Photonics, and Energy Generation and Storage in Sinaia, Romania, June (2007)

- Member, ASM/TMS Mechanical Behavior of Materials Committee (2007-present)

- Scientific Advisory Board Member, Advanced Nano- Materials ANM -2007, Indian Institute of Technology, Mumbai, , January 8^{th}-10^{th} (2007)

- International Organizing Committee Member, Thin Film 2006 11^{th} -15^{th} December, Singapore (2006)

- Governing Committee Member, Dielectric Science and Technology, The Electrochemical Society (2003-2005)

- Vice-President, Thin Film Interfaces Committee and Advisor to Journal of Metal, TMS Society (2000-2002)

- Advisory Board Member, Surface Engineering Div. of TMS (1999-2001)

- Continuing Education Committee Member, TMS (1999-2000)

- Secretary, Thin Film Interfaces Committee and Advisor to Journal of Metal, TMS (1998-2000)

- Organizing Committee Member, International Conferences Series on Photo-Excited Processes and Applications (3-ICPEPA), Strasbourg, France (1999)

- Advisory Board Member, Surface Engineering, ASM International (1998-2000)

- Governing Committee Member, Alabama Materials Research Council (1996-1998)

- Governing Committee Member, 12^{th} International Conference on Surface Modification Technologies, ASM International (1998)

Technical Session Chair

- Session Chair (Thin Films) 32nd Annual Symposium on Applied Surface Analysis and AVS Florida Chapter and Florida Society for Microscopy, 2010 Annual Joint Symposium and Exhibition, March 7-10, Orlando (2010)

- Session Chair (Thin Films) 31nd Annual Symposium on Applied Surface Analysis and AVS Florida Chapter and Florida Society for Microscopy, 2009 Annual Joint Symposium and Exhibition, March 10-13, Orlando (2009)

- Surface Engineering 2002– Synthesis, Characterization and Applications, Materials Research Society Fall Meeting, Boston (2002)

- Advances in Surface Engineering- Fundamentals and Applications, Materials Research Society Fall Meeting , Boston (2001)

- High Temperature Coatings II, TMS Annual Meeting, Anaheim (CA), (1996)

- Advances in Materials for Smart System -Fundamental and Applications (Materials Research Society Fall Meeting, Boston), (1996)

- ROMOPTO, 97 , 5th Conference on Optics, Bucharest, Romania (1997)

- Surface Engineering, 97, CIMTEC Conference, Florence, Italy (1997)

- Chair (Electronic Materials), Alabama Materials Research Conference (1996-1999)

Society Membership

Materials Research Society (MRS)
American Society of Metals (ASM)
American Society of Mechanical Engineers (ASME)
American Vacuum Society (AVS)
Electrochemical Society (ECS)
American Association for the Advancement of Science (AAAS)
American Society of Engineering Education (ASEE)
American Ceramic Society (ACerS)

Symposium Organizer

1. *Ashok Kumar*, Yip-Wah Chung, and Ray W. J. Chia "Hard Coatings Based on Borides, Carbides and Nitrides: Synthesis, Characterization and Applications, TMS Annual Meeting, San Antonio (1998)

2. *Ashok Kumar*, Yip-Wah Chung, John Moore, and John Smugeresky, "Surface Engineering: Science and Technology I" TMS Annual Meeting, San Diego (1999)

3. N. M. Ravindra, *Ashok Kumar*, Sailesh M. Merchant, M. Anthony, and M. K. Sanganeria "Materials and Processes for Submicron Technologies" TMS Annual Meeting, New Orleans (2001)

4. Wen Jin Meng, *Ashok Kumar*, Yip-Wah Chung, Gary L. Doll, Yang-Tse Cheng, Stan Veprek, "Advances in Surface Engineering- Fundamentals and Applications, MRS Fall Meeting, Boston (2001)

5. *Ashok Kumar*, Yip-Wah Chung, John Moore, and John Smugeresky, "Surface Engineering: Science and Technology II" TMS Annual Meeting, Seattle (2002)

6. Seung Kang, M. K. Sanganeria, *Ashok Kumar*, Sailesh M. Merchant, and N. M. Ravindra "Materials and Processes for Submicron Technologies -II" TMS Annual Meeting, Seattle (2002)

7. *Ashok Kumar*, Wen Jin Meng, Yang-Tse Cheng, J. Zabinski, Gary L. Doll, and Stan Veprek, "Surface Engineering 2002 – Synthesis, Characterization and Applications, MRS Fall Meeting, Boston (2002)

8. *Ashok Kumar*, Jeffrey A. Lee, Ingrid Vos, Yaw Obeng, and Earl C. Johns, "Chemical-Mechanical Planarization – Integration, Technology and Reliability, MRS Spring Meeting, Boston (2005)

9. C. Fred Higgs, III, *Ashok Kuma*r, Subramanian Balakumar, and Chad S. Karach, "Science and Technology of Chemical Mechanical Planarization, MRS Spring Meeting, San Francisco (2009)

10. Symposium Organizing Committee, 37th Annual Applied Vacuum Science and Technology Symposium & 27th Annual Meeting of the Florida Society for Microscopy, March 8-10, University of Central Florida, Orlando (2009)

11. Symposium Organizing Committee, 38th Annual Applied Vacuum Science and Technology Symposium & 28th Annual Meeting of the Florida Society for Microscopy, March 7-10, University of Central Florida, Orlando (2010)

Service to the Community

- Supervised High School Teachers from Tampa Bay Area under NSF RET Program (2004-present)

- Outreach Activities with Hillsborough County Public Schools Under NSF GK-12 Track I and Track II grant (A Video Presentation of STARS Track 1 Refer to: http://stars.eng.usf.edu/) (2003 – present)

- Taught Materials Engineering Potions of Florida Professional Engineers (PE) Exam Review Course, Tampa, FL (2000)

- Judge, State of Alabama Science Fair, Mobile, March (1998)

- Outreach Coordinator for Students and Faculty (Physics Department) of Alabama School of Math and Science under NSF EPSCoR Program (1995-1998)

- Supervised Faculty and Students of Alabama School of Mathematics and Sciences as outreach activities under NASA EPSCoR Program (1994-2000)

PATENTS

1. Rajesh Ganesan, Tapas K. Das, Arun K. Sikder, and *Ashok Kumar*, "System and Method for the Identification of Chemical Mechanical Planarization Defects" (**United State Patent : 7377170**)

2. Arun Kumar, *Ashok Kumar*, Sri Ram Singh, S. Zekri, "DNA Microcavity Biochip for Respiratory Syncytial Virus (RSV) Diagnosis" (**United State Patent: 20070015175)**

3. Parshuram Zantye, Arun Kumar, and *Ashok Kumar*, "Nanoparticle-based CMP Slurry for Polymeric Interlayer Dielectric Planarization" (US patent filed, 2007)

4. Tapas K Das, Rajesh Ganeshan, Arun K. Sikder, and *Ashok Kumar*, "System and Method for Online End Point Detection for use in Chemical Mechanical Planarization" (**United State Patent: 7406396**)

5. *Ashok Kumar*, Manoj Kumar Singh, and Sathyaharish Jeedigunta, Integration of ZnO Nanowires with Nanocrystalline Diamond" (US patent filed, 2006)

6. *Ashok Kumar* and Manoj Kumar Singh, "Synthesis of Nanocrystalline Diamond Fibers" US patent filed (2006)

7. V. K. Gupta, *Ashok Kumar*, Cecil Coutinho, S. Mudhivarthi, "Novel Composites of Inorganic Oxides with PNIPAM-Siloxane based Polymeric Microgels for Chemical Mechanical Planarization (CMP) Processing" World Intellectual Property Application (**WO 2008052216),** May 2, 2008; US Parent Application (20090013609) January 15, 2009

8. Rakesh K Joshi and *Ashok Kumar*, "Novel Synthesis of Self-assembled DNA Nanotubes" US patent filed (2008)

9. Rakesh K Joshi and *Ashok Kumar*, "Development of Room Temperature CO Sensor using Pd Decorated ZnO Nanowires" US patent filed (2008)

10. S. Balachandran, T. Weller, *Ashok Kumar*, and Andrew Hoff, "Nanocrystalline Diamond (NCD) Capacitive RF-MEMS Switch" US patent filed (USF Ref. No. 10A017)

PUBLICATIONS

TEXT BOOKS

1. Rajiv Asthana, *Ashok Kumar*, and Narendra Dahotre, "Materials Science in Manufacturing" Butterworth-Heinemann, Elsevier (ISBN 13-978-0-7506-7716-5 and ISBN 10-0-7506-7716-3) (2006)

2. Sam Zhang, Lin Li, and *Ashok Kumar*, "Materials Characterization Techniques" CRC Press, Boca Raton, FL, CRC Press (ISBN: 978-1-4200-4294-8) (2008)

SCHOLARLY EDITED BOOKS

1. *Ashok Kumar*, Yip-Wah Chung, and Ray W. J. Chia Hard Coatings Based on Borides, Carbides and Nitrides: Synthesis, Characterization and Applications, (ISBN # 0-87339-389-9), The Minerals, Metals & Materials Society, Warrendale, PA (1998)

2. *Ashok Kumar***,** Yip-Wah Chung, John Moore, and John Smugeresky, TMS, (1999), Surface Engineering: Science and Technology I, (ISBN # 0-87339-427-5) The Minerals, Metals & Materials Society, Warrendale, PA (1999)

3. Wen Jin Meng, *Ashok Kumar*, Gary L. Doll, Yang-Tse Cheng, Stan Veprek, and Yip-Wah Chung, Surface Engineering 2001- Fundamentals and Applications, MRS Symposium Proceedings, Volume 697, (ISBN # 1-55899-633-8)), Materials Research Society, Warrendale, PA (2001)

4. *Ashok Kumar*, Yip-Wah Chung, John Moore, D. S. Misra, and K. Yatsui, "Surface Engineering: Science and Technology II, (ISBN # 0-87339-521-2) The Minerals, Metals & Materials Society, Warrendale, PA (2002)

5. *Ashok Kumar*, Wen Jin Meng, Yang-Tse Cheng, J. Zabinski, Gary L. Doll, and Stan Veprek (Editors), " Surface Engineering 2002 – Synthesis, Characterization and Applications, Volume 750, (ISBN # 1-55899-687-7), Materials Research Society, Warrendale, PA (2002)

6. *Ashok Kumar*, Jeffrey A. Lee, Ingrid Vos, Yaw Obeng, and Earl C. Johns, "Chemical-Mechanical Planarization – Integration, Technology and Reliability, Materials Research Society, Volume 687, Warrendale, PA (2005)

7. *Ashok Kumar*, C. Fred Higgs III, Chad S. Karach, and Subramanian Balakumar "Science and Technology of Chemical Mechanical Planarization, Volume 1157 (ISBN: 978-1-60511-130-8), Materials Research Society, Warrendale, PA (2010)

BOOK CHAPTERS

1. J. S. Kapat and *Ashok Kumar* "Chemical Vapor Deposition of Intermetallic and Ceramic Coatings" pp. 441-484, Edited by N. B. Dahotre and T. S. Sudarshan, Marcel Decker Inc., New York (1999)

2. Arun K. Sikder and *Ashok Kumar*, "Superhard Coatings in C-B-N System: Growth and Characterization", Vol. 2, Chap. 3, pp. 115-190, Handbook of Thin Films Materials, Edited by Prof. H. S. Nalwa, Academic Press (2001)

3. Zhenqing Xu, and *Ashok Kumar*, "Synthesis, Characterization, and Applications of Nanocrystalline Diamond Films", Nanocomposite Thin Film and Coatings, Editors: Sam Zhang and Nasar Ali, Imperial College Press, pp 207-279 (2007)

4. Souheil Zekri, Rahul Singhal, Nick Baksh, and *Ashok Kumar*, "Electrospinning of Micro and Nano Fibers for Biomedical Applications" Biomaterials and Biomedical Engineering, Editors: Waqar Ahmed, Nasar Ali, and Andreas Ochsner, pp 167-216, Trans Tech Publications Ltd. (2008)

5. Zhenqing Xu, Sathyaharish Jeedigunta, and *Ashok Kumar*, "Nanocrystalline Diamond Films" Encyclopedia of Nanoscience and Nanotechnology, American Scientific Publishers (in-press)

6. V. Renugopalkrishnan, A. M. Kannan, S. Srinivasan, V. Thavasi, S. Ramakrishna, P. Li, A. Mershin, S. Filipek, *Ashok Kumar*, J. Dutta, A. Jaya, L. Munukutta, S. Velumani, and G. F. Audette, "Nanomaterials for Energy Conversion Applications" Nanomaterials for Energy Storage Applications, Edited by Hari Singh Nalwa, ISBN: 1-58883-120-5, pp 1-24 (2008)

7. J. Weber, W. G. Yelton, *Ashok Kumar*, "Electrodeposition of Bi(1-x) Sb(x) Nanowires as an Advanced Material for Thermoelectric Applications", Functionalized Nanoscale Materials, Devices, & Systems, Springer, NATO Science Series 423-426 (2008)

8. S. Balachandran, T. Weller, *Ashok Kumar*, S. Jeedigunta, H. Gomez, J. Kusterer, and E. Kohn " Nanocrystalline Diamond for RF-MEMS Applications" 277-300,

Emerging Nanotechnologies for Manufacturing (Edited by Waqar Ahmed and Mark J. Jackson) Micro and Nano Technologies Series, Elsevier (ISBN No. 978-0-8155-1583-8) (2009)

9. Michael Ulrich Niemann, S. Srinivasan, Kimberly McGrath, *Ashok Kumar*, D. Yogi Goswami, Elias K. Stefanakos " Nanocrystalline Effects on the Reversible Hydrogen Storage Characteristics of Complex Hydrides" 'Materials Innovations in an Emerging Hydrogen Economy' Chapter 12, Series: Ceramic Transaction Series, Editors: George G. Wicks and Jack Simon (ISBN: 9780470408360), pp 111-117 (2009)

10. Subbiah Alwarappan and *Ashok Kumar*, "Biomedical Applications of Carbon Based Materials" CRC Handbook of Biological and Biomedical Coatings (in-press)

11. R. K. Joshi and *Ashok Kumar*, "Gas Sensors Composed of Metal Oxide Nanoparticles and Films" Hand Book on Science and Commercialization of Nanoparticles (in-press)

INVITED REVIEW JOURNAL PAPERS

1. Parshuram B. Zantye, *Ashok Kumar*, A. K. Sikder, "Chemical Mechanical Planarization for Microelectronics Applications" Materials Science and Engineering R, Vol. 45/3-6, pp 89-220 (2004) **(Impact Factor: 17.73)**, ***This article was listed in TOP 25 articles in all Materials Science journals published by Elsevier Science, 2005.***

2. J. Weber, R. Singhal, S. Zekri, *Ashok Kumar*, "One Dimensional Nanostructures: Fabrication, Characterization and Applications ", **International Materials Review**: 53 235-255 (2008)

3. Michael Niemann, Michael Jurczyk, Sesha Srinivasan, *Ashok Kumar*, A. Phani, Yogi Goswami, and Elias K Stefanakos, "Nanomaterials for Hydrogen Storage Applications: A Review" **Journal of Nanomaterials**, Volume 2008, Article ID 950967, 9 pages (2008)

REFEREED JOURNAL PUBLICATIONS

1. A. M. Gokhale and *Ashok Kumar* "Analysis of Particle Coarsening in Al-Pb Alloy" **Transaction of Indian Institute of Metal**, Volume 42, No.4, 401-404 (1989)

2. L. Ganapathi, *Ashok Kumar* and J. Narayan "Properties of $YBa_2Cu_3O_{7-\delta}$ Composites Superconductors" **Journal Applied Physics**. 66, 5935-5939 (1989)

3. L. Ganapathi, J. Narayan and *Ashok Kumar* "Variation of T_{co} in the 110 K Superconductor $Bi_{1.5}Pb_{0.5}Ca_2Sr_2Cu_3O_X$" **Applied Physics Letters**, 55 1460-1462 (1989)

4. *Ashok Kumar*, L. Ganapathi and J. Narayan "In-situ Processing of Textured Superconducting Thin Films of Bi-(Pb)-Ca-Sr-Cu-O_x by excimer laser ablation" **Applied Physics Letters**, 56, 2034-2036 (1990)

5. *Ashok Kumar*, L. Ganapathi, S. M. Kanetkar and J. Narayan "Synthesis of Superconducting $YBa_2Cu_3O_{7-\delta}$ Thin Films on Nickel Based Superalloy Using in-situ Pulsed Laser Ablation" **Applied Physics Letters**, 57, 2594-2596 (1990)

6. *Ashok Kumar*, L. Ganapathi, S. M. Kanetkar and J. Narayan "Single Chamber in-situ Processing of Superconducting $YBa_2Cu_3O_{7-\delta}$ Thin Films on Stainless Steel with Yttria-stabilized Zirconia Buffer Layer" **Journal of Applied Physics**, 69, 2410-241 (1991)

7. *Ashok Kumar* and J. Narayan "Superconducting $YBa_2Cu_3O_{7-\delta}$ Thin Films on Si (100) Substrates with $CoSi_2$ Buffer Layer by in-situ Pulsed Laser Evaporation Method" **Applied Physics Letters**, 59, 1785-1787 (1991)

8. *Ashok Kumar*, J. Narayan and X. Chen "Enhancement in Critical Current Density of $YBa_2Cu_3O_{7-\delta}$ Thin Films on Hastelloy with TiN Buffer Layers" **Applied Physics Letters**, 61, 976-978 (1992)

9. L. Ganapathi, *Ashok Kumar* and J. Narayan "Characterization of High-Tc $La_XY_{1-x}Ba_2Cu_3O_{7-\delta}$ Superconductors", **Physica C**, 167, 669-676 (1990)

10. L. Ganapathi, *Ashok Kumar* and J. Narayan "In-situ Processing of $LaBa_2Cu_3O_{7-\delta}$ Thin Films by Laser Ablation Method" **Physica C**, 168, 599-604 (1990)

11. *Ashok Kumar* and J. Narayan "Laser Deposition of $YBa_2Cu_3O_{7-\delta}$ Thin Films on Flexible Metallic Substrates with TiN Buffer Layers" **Superconductor Science and Technology**, Vol. 6**,** 662-669 (1993)

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109. Sriraj G. Manavalan, *Ashok Kumar* and Thomas Weller, " Metal Oxide Electrode in Ferroelectric Capacitors for Microwave Applications" Materials Research Society Fall Meeting, Boston, November 29-December 3, (2004)

110. Sriraj G. Manavalan, *Ashok Kumar* and Thomas Weller, "Structural and Electrical Characterization of Sputtered $BaSrTiO_3$ Thin Films for Tunable Microwave Devices" Materials Research Society Fall Meeting, Boston, November 29-December 3, (2004)

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112. S. Mudhivarthi, A Sikder, *Ashok Kumar* and J Harmon, "Dynamic Mechanical Analysis of Chemical Mechanical Polishing (CMP) pads", Florida Chapter of the AVS Science and Technology Society (FLAVS) symposium, Orlando, FL, Orlando, FL, March 8^{th} – 9^{th}, (2004)

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114. Arun Kumar, Souheil Zekri *Ashok Kumar* and Shree R. Singh, "Nanoscale DNA Biosensor for Respiratory Syncytial Virus (RSV) Diagnosis" Materials Research Society Spring Meeting, San Francisco, CA (2005)

115. Souheil Zekri, Doug Pringle, Thomas Koob and *Ashok Kumar*, "Mechanical Characterization of ZnO Nanowires/Gelatin Nanocomposites for Orthopedic Implants" Materials Research Society Spring Meeting, San Francisco, CA (2005)

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121. S. Balachandran, T. M. Weller, *Ashok Kumar*, "Ultrananocrystalline Diamond for Microwave Applications", 7th IEEE Wireless and Microwave Technology Conference, Florida, December (2005)

122. Venkataramanan Gurumurthy, Sathyaharish Jeedigunta, *Ashok Kumar*, John W. Bumgarner, "Comparative Study of Effects of Annealing on Barium Strontium Titanate Thin Films with Different Deposition Methods", Materials Research Society Fall Meeting, Boston, MA (2005)

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124. Souheil Zekri, *Ashok Kumar*, Geoffery Okogbaa and Louis Martin-Vega; "Development of Nanotechnology and Material Science Training Modules for Elementary Science Teachers" Materials Research Society Fall Meeting, Boston, MA (2005)

125. Michael Ulrich Jurczyk, *Ashok Kumar*, Elias Stefanakos, Arun Kumar and Sesha Srinivasan, "Study of Effect of Temperature and Pressure on the Hydrogen Sorption Capabilities of a Polyaniline-CNT Nanocomposite Material" Materials Research Society Fall Meeting, Boston, MA (2005)

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128. Zhenqing Xu and *Ashok Kumar*, "Nanocrystalline Diamond as an Interface for Biomedical Applications" Materials Research Society Fall Meeting, Boston, MA (2005)

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131. Michael Jurczyk, Arun Kumar, *Ashok Kumar*, S. Srinivasan, M. Smith, E. Stefanakos. "Effect of Physical State of Carbon Nanocomposite on Hydrogen Adsorption and Desorption." Materials and Technology for Hydrogen Storage and Generation, Spring MRS Meeting, San Francisco, CA, March 28 – April 1, (2005)

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141. Kamran Varahramyan, Sathyaharish Jeedigunta, Manoj K. Singh and *Ashok Kumar* "Catalytic Growth and Characterization of High Density ZnO Nanowires", Interdisciplinary Nanoscience REU Meeting, Aug 2005, USF, Tampa (2005)

142. Zhenqing Xu, Arun Kumar, Manoj Singh, *Ashok Kumar*, Sathyaharish Jeedigunta "DNA Sensor Based on the Modified Nitrogen-Doped Nanocrystalline Diamond Film", 8th Applied Diamond Conference, May 15th – May 19th 2005, Argonne (2005)

143. Sriraj G. Manavalan, *Ashok Kumar*, Saravana Natarajan, S. Jeedigunta and Thomas Weller "Structural and Electrical Characterization of Sputtered Ba0.5Sr0.5TiO3Thin Films for Tunable Microwave Devices", Materials Research Society Fall 2004 meeting, Nov 29th- Dec 3rd, Boston (2005)

144. S. Gaddipati., Mansouri. M, S. Jeedigunta, *Ashok Kumar*, Chiou. Y. L, "Modeling of Current Conduction in HfO_2 Stack Structures", 208th Electrochemical Society Meeting, October 16th -October 21st, Los Angeles, (2005)

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147. S. Mudhivarthi, S. Kuiry, M. Vinogradov, N. Gitis, and *Ashok Kumar*, "Effect of Slurry Flow Rate on Dishing, Erosion and Metal Loss during Copper CMP Process", Presented at 22nd international VMIC Conference, Fremont, CA, Oct 3rd – 6th, (2005)

148. S. Mudhivarthi, Parshuram Zantye, *Ashok Kumar*, and J.Y. Shim, "Effect of Temperature on the Chemical Mechanical Polishing (CMP) Slurry Abrasive Particle Agglomeration and Defectivity", Materials Research Society Spring Meeting, San Francisco, CA, Mar 28th – Apr 1st, (2005)

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150. K. Li, S. Mudhivarthi, S. Saigal and *Ashok Kumar*, "Finite Element Modeling of Nanoindentation for porous ILD", Materials Research Society Spring Meeting, San Francisco, CA, Mar 28th – Apr 1st, (2005)

151. P. B. Zantye, S. Mudhivarthi, *Ashok Kumar* and David Evans, "A Study of Chemical Mechanical Planarization Process for Shallow Trench Isolation" Materials Research Society Spring Meeting, San Francisco, CA, Mar 28th – Apr 1st, (2005)

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153. Jessica Otto, A. Kumar, *Ashok Kumar* and S. Bhansali "Carbon Nanotube Biosensors for Sweat Analyte Analysis", 1st Annual IGERT Symposium, USF, Tampa, FL, April (2005)

154. Jessica Otto, A. Kumar, *Ashok Kumar*, S. Bhansali "Novel Nanoscale Biosensor for Lactate Sweat Analysis", Materials Research Society Spring Meeting, San Francisco, CA, April (2005)

155. N. Gitis, Suresh Kuiry, R. Mudhivarthi, M. Vinogradov, and *Ashok Kumar*, "Effects of Slurry Flow Rate and Pad Conditioning Temperature on Dishing, Erosion, and Metal Loss during Copper CMP", Northern California AVS User Group Annual Meeting, Oct. 4-5, San Jose (2005)

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159. Sathyaharish Jeedigunta and *Ashok Kumar* "One Dimensional Nanostructures-Synthesis, Characterization and Applications", Tools and Techniques in Nanoscience, Pan American Conference, June 19^{th}- 30^{th}, San Jose, Costa Rica (2006)

160. Sathyaharish Jeedigunta, Zhenqing Xu and *Ashok Kumar* "Influence of the Plasma Treatment on the Structural Modification and the Electrical Conductivity of Nanocrystalline Diamond Films", ICNDST AND ADC Joint Conference 2006, May 15^{th} – May 18^{th}, Research Triangle Park, (2006)

161. Zhenqing Xu, Leonid Lev, Michael Lukitsch, Sathyaharish Jeedigunta, *Ashok Kumar* "Analysis of Mechanical Properties and Residual Stress of Nanocrystalline Diamond Film Deposited on WC-Co Substrate", , ICNDST AND ADC Joint Conference, 2006, May 15^{th} – May 18^{th}, Research Triangle Park, (2006)

162. Sathyaharish Jeedigunta, Manoj K. Singh, *Ashok Kumar* "UV-Blue Lasing Observation from a Patterned Growth of ZnO Nanotubes", 2^{nd} Annual IGERT symposium, April 5^{th} 2006, USF, Tampa, (2006)

163. Z. Xu, S. Jeedigunta, *Ashok Kumar* "Nanocrystalline Diamond for Biomedical Applications", 2^{nd} Annual IGERT symposium, April 5^{th} 2006, USF, Tampa (2006)

164. *Ashok Kumar*, Z. Xu, and S. Jeedigunta "Synthesis, Characterization, and Applications of Nanocrystalline Diamond Films", ICONSAT 2006, March 16^{th} – March 18^{th}, New Delhi (2006)

165. Jessica Weber, W. Graham Yelton and *Ashok Kumar* "Direct Electrodeposition of High Density $Bi_{1-x}Sb_x$ Nanowire Arrays on Si Substrates", 11^{th} Annual SIP Student Symposium, Albuquerque, NM, Aug (2006)

166. Jessica Weber and *Ashok Kumar* "Amperometric Biosensor based on ZnO Nanowires", 2nd Annual IGERT Symposium, USF, Tampa, FL, April (2006)

167. H. Wang, Q. Huang, and Ashok Kumar "Analysis of Correlated Functional Process Variables for Nanomanufacturing Process Control" IIE Annual Conference & Exposition, May 20-24, Orlando, FL, (2006)

168. Jessica Weber and *Ashok Kumar*, "Electrochemical Biosensors based on ZnO Nanowires", Gordon Research Conference: Bioanalytical Sensors, Ventura, CA, Feb (2006)

169. *Ashok Kumar*, "Metrology Issues in Chemical Mechanical Planarization Processes" NSF Design of Manufacturing and Industrial Innovation Grantee Conference, St. Louis, July (2006)

170. S. R. Mudhivarthi, V. Raghava Kakireddy, Jay Banerjee and *Ashok Kumar*, " Some Tribological Aspects of Thin Film Copper during CMP" 2006 ASME/STLE International Joint Tribology Conference, San Antonio, TX, Oct. 23-26 (2006)

171. S. Zekri, G. Okogbaa, G. Centeno, T. K. Das, *Ashok Kumar*, and L. Martin-Vega, "Implementation of a Material Science and Nanotechnology Module at the Fifth Grade Level", GK-12 Symposium of the Florida Academy of Sciences' 70th Annual Conference, Melbourne, FL, March 11, (2006)

172. S Mudhivarthi, *Ashok Kumar*, P. Zantye, H McCrab and E. Taylor, "Effect of Electrolytes during Electro-Polishing Process on Tribological, Structural and Surface Chemical Characteristics of Copper, 11th International CMP-MIC Conference, Fremont, CA, Feb 20th – 23rd, (2006)

173. S. Mudhivarthi, *Ashok Kumar*, N Gitis and M Vinogradov, "Mechanical, Tribological and Tissue Drag Testing of Surgical Sutures", IGERT symposium, University of South Florida, May 5th (2006)

174. S. Mudhivarthi, S. Kuiry, M. Vinogradov, N. Gitis, and *Ashok Kumar*, "Effect of Temperature on Pad Conditioning Process during Chemical Mechanical Planarization", 11th International CMP-MIC Conference, Fremont, CA, Feb 20th – 23rd, (2006)

175. S Mudhivarthi, C Coutinho, *Ashok Kumar* and V Gupta, "Novel Core-Shell Type Abrasive Particles for Oxide CMP Applications", 210th ECS meeting proceedings, Chemical Mechanical Planarization Symposium, Cancun, Mexico, Oct 29th – Nov 3rd, (2006)

176. S Mudhivarthi, V R Kakireddy, *Ashok Kumar* and Y. Obeng, "Effect of Slurry Characteristics on the Surface Tribology during Copper CMP Process", 210th ECS meeting proceedings, Chemical Mechanical Planarization Symposium, Cancun, Mexico, Oct 29th – Nov 3rd, (2006)

177. S. Mudhivarthi, V R Kakireddy, J Banerjee and *Ashok Kumar*, "Some Tribological Aspects of Thin Film during CMP", ASME/STLE International Joint Tribology Conference, San Antonio, Texas USA, Oct 23-25, (2006)

178. V. Gurumurthy, S. Jeedigunta , Samuel Baylis, Priscila Spagnol, *Ashok Kumar*, **"**Comparison of Microwave Capacitors Fabricated on MPECVD Diamond and Bulk Silicon" Diamond Fibers" Diamond Electronics – Fundamentals to Applications (Symposium J), Materials Research Society Fall Meeting, Nov. 27-30, 2007, Boston (2006)

179. Sathyaharish Jeedigunta, Priscila Spagnol, Zhenqing Xu, John Bumgarner, and *Ashok Kumar*, "Effect of Post Deposition Treatment of the Metal Contacts on the Electrical Properties of Nitrogen Doped Nanocrystalline Diamond Films" Diamond Fibers" Diamond Electronics – Fundamentals to Applications (Symposium J), Materials Research Society Fall Meeting, Nov. 27-30, 2007, Boston (2006)

180. Zhenqing Xu, Sathyaharish Jeedigunta, Manoj Singh, and *Ashok Kumar*, "Synthesis and Characterization of Nanocrystalline Diamond Fibers" Diamond Electronics – Fundamentals to Applications (Symposium J), Materials Research Society Fall Meeting, Nov. 27-30, 2007, Boston (2006)

181. *Ashok Kumar*, V. Gurumurthy, S. Jeedigunta, Sam Baylis, Tom Weller, " Performance of Barium Strontium Titanate Based Tunable Microwave Capacitors Fabricated on Diamond-on-Silicon" The 31st International Cocoa Beach Conference & Exposition on Advanced Ceramics & Composites, Hilton Resort Daytona Beach, Florida January 21-26, (2007)

182. Makoto Hirai, and *Ashok Kumar*, "Wavelength Tuning of Surface Resonance by Annealing Silver-Copper Nanoparticles" Towards Functional Nanomaterials: Synthesis, Characterization, and Applications, 136th Annual Meeting & Exhibition, TMS, Feb 25-March 1, Orlando (2007)

183. Michael Jurczyk, Sesha Srinivasan, *Ashok Kumar*, and Elias Stefanakos, "Investigation of a $LiBH_4/LiNH_2$ System for Hydrogen Storage" 8th Global Innovations Symposium: Metal Powders for Energy Production and Storage Applications, 136th Annual Meeting & Exhibition, TMS, Feb 25-March 1, Orlando (2007)

184. Makoto Hirai, and *Ashok Kumar*, "The Effects of Nitrogen Doping on Structural and Electrical Properties of ZnO Thin Films" Electronic, Magnetic, and Photonic

Materials Division: ZnO Thin Films and Liquid Crystals, 136th Annual Meeting & Exhibition, TMS, Feb 25-March 1, Orlando (2007)

185. Daniel Vilceus, and *Ashok Kumar*, "Quantitative Comparison of Thin Film Adhesion between Scratch Testing and Four Point Bend Testing Methods" Florida Chapter of the AVS Science and Technology Society and the Florida Society of Microscopy, 2007 Annual Joint Symposium, March 11-16, Orlando (2007)

186. Jessica E. Weber, W. Graham Yelton, and *Ashok Kumar*, "Electrochemical Characterization of Bismuth Antimony for Nanowire Fabrication" Florida Chapter of the AVS Science and Technology Society and the Florida Society of Microscopy, 2007 Annual Joint Symposium, March 11-16, Orlando (2007)

187. Veera Raghava Kakireddy, Raghu Mudhivarthi, and *Ashok Kumar*, "Investigation of Defects during Copper Chemical Mechanical Planarization, "Florida Chapter of the AVS Science and Technology Society and the Florida Society of Microscopy, 2007 Annual Joint Symposium, March 11-16, Orlando (2007)

188. Zhenqing Xu, *Ashok Kumar*, Zhi-Hui Xu, Xiaodong Li, "Synthesis and Characterization of Nanocrystalline Diamond Wires, Florida Chapter of the AVS Science and Technology Society and the Florida Society of Microscopy, 2007 Annual Joint Symposium, March 11-16, Orlando (2007)

189. Samuel Baylis, V. Gurumurthy, *Ashok Kumar*, and T. Weller, "Nano-fabricated Barium Strontium Titanate Varactors for Tunable Microwave Applications" Florida Chapter of the AVS Science and Technology Society and the Florida Society of Microscopy, 2007 Annual Joint Symposium, March 11-16, Orlando (2007)

190. C. Frewin, J. Sathyaharish, *Ashok Kumar*, and S. E. Saddow, "Silicon Carbide and Diamond Heteroepitaxy for Electrical and MEMS Device Applications" Celebration of Scholarship Day at the College of Engineering, Proceeding of College of Engineering Scholarship at USF, Tampa, April 5 (2007)

191. Jessica Weber, W. Graham Yelton, and *Ashok Kumar*, "Electrochemical Fabrication of Nanowire Arrays in Porous Alumina Templates" Celebration of Scholarship Day at the College of Engineering, Proceeding of College of Engineering Scholarship at USF, Tampa, April 5 (2007)

192. L. Abbati, Schettini, P. Spagnol, J. Bumgarner, T. Weller, *Ashok Kumar*, S. E. Saddow, and J. Wang, "High-Q MEMS Resonators for Remote Sensing Applications" Celebration of Scholarship Day at the College of Engineering, Proceeding of College of Engineering Scholarship at USF, Tampa, April 5 (2007)

193. Veera Raghava Kakireddy, Raghu Mudhivarthi, Lorene Hankla, and *Ashok Kumar*, "Interconnect Reliability and Copper Chemical Mechanical Planarization" Celebration of Scholarship Day at the College of Engineering, Proceeding of College of Engineering Scholarship at USF, Tampa, April 5 (2007)

194. Sathyaharish Jeedigunta, Zhenqing Xu, Qiang Hu, Jing Wang, and *Ashok Kumar*, "Investigation of Nanocrystalline Diamond Films and Wires for Multifunctional Applications" Celebration of Scholarship Day at the College of Engineering, Proceeding of College of Engineering Scholarship at USF, Tampa, April 5 (2007)

195. Michael Ulrich Jurczyk, Sesha Srinivasan, *Ashok Kumar*, Elias Stefanakos, Yogi Goswami, and Matt Smith, "Investigation of the Effects of Nano Catalysts on a LiBH4/LiNH@ System for Hydrogen Storage," Celebration of Scholarship Day at the College of Engineering, Proceeding of College of Engineering Scholarship at USF, Tampa, April 5 (2007)

196. Makoto Hirai, and *Ashok Kumar*, "Optical Properties and Microstructure of Silver-Copper Nanoparticles" Celebration of Scholarship Day at the College of Engineering, Proceeding of College of Engineering Scholarship at USF, Tampa, April 5 (2007)

197. Daniel Vilceus, and *Ashok Kumar*, "Quantitative Comparison of Thin Film Adhesion with the Use of Scratch and Four Point Bend Testing Methods" Celebration of Scholarship Day at the College of Engineering, Proceeding of College of Engineering Scholarship at USF, Tampa, April 5 (2007)

198. Puneet Khanna, Alejandro Villagra, Shekhar Bhansali, Edward Seto, Mark Jaroszeski, and *Ashok Kumar*, "Use of Nanocrystalline Diamond for Microfluidic Lab-on-a-Chip" Celebration of Scholarship Day at the College of Engineering, Proceeding of College of Engineering Scholarship at USF, Tampa, April 5 (2007)

199. Veera Raghava Reddy Kakireddy, Subrahmanya Raghu Mudhivarthi, and *Ashok Kumar*, "Investigation of Physical and Chemical Changes in CMP Pads due to Slurry Temperature" Advances and Challenges in Chemical Mechanical Planarization, Materials Research Society Spring Meeting, San Francisco, CA, April 9-13 (2007)

200. Subrahmanya Raghu Mudhivarthi, Cecil Coutinho, *Ashok Kumar*, and Vinay Gupta, "Development of Low Defect Slurries using Hybrid Abrasive Particles of different Surface Morphologies" Advances and Challenges in Chemical Mechanical Planarization, Materials Research Society Spring Meeting, San Francisco, CA, April 9-13 (2007)

201. Sathyaharish Jeedigunta, Priscilla Spagnol, *Ashok Kumar*, and John Bumgarner, "Nanocrystalline Diamond Thin Films for Marine Applications" 3rd Annual USF

Interdisciplinary Graduate Research Symposium, Research Park, USF, 79-81, April 11 (2007)

202. Jessica E. Weber, W. Graham Yelton, and *Ashok Kumar*, "Electrochemical Characterization of Bismuth Antimony for Nanowire Fabrication" 3rd Annual USF Interdisciplinary Graduate Research Symposium, Research Park, USF, 63-64, April 11 (2007)

203. Zhenqing Xu, *Ashok Kumar*, Qiang Hu, Sathyaharish Jeedigunta, Zhi-Hui Xu Xiaodong Li "Synthesis and Characterization of High Strength Nanocrystalline Diamond Wires" International Conference on New Diamond and Nano Carbons (NDNC 2007) at Osaka, Japan, May 28-31, (2007)

204. Q. Hu, S. Jeedigunta, Z. Xu, M. Hirai, and *Ashok Kumar* "Electrical Properties of Nanocrystalline Diamond Films and Wires", The 68th Autumn Meeting, 2007); The Japan Society Applied Physics II, 612 (2007)

205. R. Nandur, M. Hirai, *Ashok Kumar*, and Y. H. Sohn "Thermal Barrier Coatings for Gas Turbine Engine Applications", The 68th Autumn Meeting, 2007); The Japan Society Applied Physics II, 669 (2007)

206. S. Chowdhury, M. Hirai, V. R. Bhethanabotla, and *Ashok Kumar* "Silver-copper Nanoparticles for Metal-enhanced Fluorescence", The 68th Autumn Meeting, 2007); The Japan Society Applied Physics II, 1064 (2007)

207. M. Hirai and *Ashok Kumar* "Effect of Nitrogen Doping on Bonding State of ZnO Thin Films", The 68th Autumn Meeting, 2007; The Japan Society Applied Physics II, 665 (2007)

208. Cecil Coutinho, Subrahmanya Mudhivarti, Vinay K. Gupta and *Ashok Kumar*, "Hybrid Inorganic-Organic Microparticles for Oxide and Copper Chemical Mechanical Polishing", American Institute of Chemical Engineers (AICHE) National Conference, Salt Lake City (UT), November (2007)

209. Sanchari Chowdhury, Makoto Hirai, V. R. Bhethanabotla, *Ashok Kumar*, and Rajan Sen "Silver-copper Nanoparticle Platform for Metal-Enhanced Fluorescence" Nanotechnology and Nnaobiotechnology for Sensors III, American Institute of Chemical Engineers (AICHE) National Conference, Salt Lake City (UT), November (2007)

210. Srinath Balachandran, Joachim Kusterer, Dane Thompson, Thomas Weller, *Ashok Kumar*, and Erhard Kohn, "Thermal, Mechanical and microwave Characteristics of Nanocrystalline Diamond Bridges" Diamond Electronics-Fundamentals to Applications II, Materials Research Society Fall Symposium, November 26-30, Boston, MA (2007)

211. Qiang Hu, Makoto Hirai, Zhenqing Xu, Harish Jeedigunta, and *Ashok Kumar*, "Electrical Characteristics of Nitrogen-doped Nanocrystalline Diamond Fibers and Wires" Diamond Electronics-Fundamentals to Applications II, Materials Research Society Fall Symposium, November 26-30, Boston, MA (2007)

212. Sathyaharish Jeedigunta, Priscilla Spagnol, John Bumgarner, and *Ashok Kumar*, "Role of Nucleation on the Growth of Nanocrystalline Diamond (NCD) Films: A Particular Study in the Fabrication of Microcantilevers" Diamond Electronics-Fundamentals to Applications II, Materials Research Society Fall Symposium, November 26-30, Boston, MA (2007)

213. Zhenqing Xu, *Ashok Kumar*, Qiang Hu, Sathyaharish Jeedigunta, Zhu-Hui Xu, and Xiaodong Li, "Structural and Mechanical Properties of Nanocrystalline Diamond" Diamond Electronics-Fundamentals to Applications II, Materials Research Society Fall Symposium, November 26-30, Boston, MA (2007)

214. Sanchari Chowdhury, Makoto Hirai, Venkat Bhethanabotla, and *Ashok Kumar*, Enhancement of Dye Fluorescence by Silver-copper Nanoparticles" Excitons and Plasmon Resonances in Nanostructures, Materials Research Society Fall Symposium, November 26-30, Boston, MA (2007)

215. Qiang Huang and *Ashok Kumar*, "In-Situ Nanomanufacturing Process Control Through Multiscale Growth Modeling" NSF CMII Engineering Research and Innovation Conference, January 7-10, Knoxville (2008)

216. Qiang Huang and *Ashok Kumar*, "Analysis of Correlated Functional Variables for Process Conditions Diagnosis in Chemical Mechanical Planarization" NSF CMII Engineering Research and Innovation Conference, January 7-10, Knoxville (2008)

217. *Ashok Kumar*, Chhavi Manocha, and Raghu Mudhivarti, "Reliability Studies and Modeling for Process Optimization and Yield Improvements in Chemical Mechanical Planarization" NSF CMII Engineering Research and Innovation Conference" January 7-10, Knoxville (2008)

218. D. Walker, J. Weber, V. Nanduri, D. Prieto, T. Das, and *Ashok Kumar*, "Building the foundations of nanotechnology: from the classroom to the laboratory", NSF GK-12 Annual Meeting, Washington, D.C., Feb. (2008)

219. Cecil Coutinho, Subrahmanya Mudhivarti, Vinay K. Gupta and *Ashok Kumar*, "Novel Slurries of Hybrid Inorganic-Organic Abrasive Microparticles for Oxide CMP ", CMP – MIC, Fremont (CA), March (2008)

220. Cecil Coutinho, Subrahmanya Mudhivarti, Vinay K. Gupta and *Ashok Kumar*, "Hybrid and Composite Inorganic-Organic Microparticles for Chemical Mechanical Polishing", American Vacuum Society, Annual Symposium on Applied Surface Analysis, Orlando (FL), March 10-11, 2008 *(Invited)*

221. Humberto Gomez, Harish Jeedigunta, and *Ashok Kumar*, "Characterization of Seeding Methods for the Growth of Nano-crystalline Diamond Films" American Vacuum Society, Annual Symposium on Applied Surface Analysis, Orlando (FL), March 10-11, (2008)

222. Daniel Vilceus, and *Ashok Kumar*, "Adhesion Energy Characterization of Low-k Dielectrics Thin Films Using Scratch Testing" American Vacuum Society, Annual Symposium on Applied Surface Analysis, Orlando (FL), March 10-11, (2008)

223. Jessica E Weber, Ozlem Yavuz-Petrowski and *Ashok Kumar*, "Electrochemical Characterization of a Nanocrystalline Diamond Electrode" American Vacuum Society, Annual Symposium on Applied Surface Analysis, Orlando (FL), March 10-11, (2008)

224. Michael Ulrich Jurczyk, Sesha Srinivasan, *Ashok Kumar*, Elias Stefanakos, and Yogi Goswami, "Investigation of Complex Hydrides (LiBH4/LiNH2) for Hydrogen Storage Applications" American Vacuum Society, Annual Symposium on Applied Surface Analysis, Orlando (FL), March 10-11, (2008)

225. Denis Kitenge, Makoto Hirai, and *Ashok Kumar*, "Synthesis of YSZ-Ag Nanocomposites for Gas Sensor Applications" American Vacuum Society, Annual Symposium on Applied Surface Analysis, Orlando (FL), March 10-11, (2008)

226. Jessica. Weber, S. Jeedigunta, and *Ashok Kumar*, "Development of a Nanocrystalline Diamond Electrode for Lactic Acid Detection", Symposium P: Carbon Nanotubes and Related Low-Dimensional Materials, Materials Research Society Spring Meeting, San Francisco, March 24-28 (2008)

227. Jessica Weber, M. Oliver, *Ashok Kumar*, T. Das, and G. Okogbaa, "Implementation of an Innovative Nanotechnology Module at the Fifth Grade Level", Symposium OO: The Role of Lifelong Education in Nanoscience and Engineering, Materials Research Society Spring Meeting, San Francisco, March 24-28 (2008)

228. Qiang Huang, Xi Zhang, Hui Wang, and *Ashok Kumar*, "Experiment and Modeling of Chemical Mechanical Planarization for Interconnect Technology" Materials Research Society International Research Conference, Chongqing, China, June 9-12 (2008)

229. *Ashok Kumar*, Michael Ulrich Jurczyk, Sesha Srinivasan, Elias Stefanakos, and Yogi Goswami "Synthesis and Modification of Complex Hydrides for Hydrogen Storage Applications" Materials Research Society International Research Conference, Chongqing, China, June 9-12 (2008)

230. *Ashok Kumar*, "Nanocrystalline Diamond Films for Biomedical Applications" Materials Research Society International Research Conference, Chongqing, China, June 9-12 (2008)

231. *Ashok Kumar* and Qiang Huang, "Reliability and Integration Issus in Chemical Mechanical Planarization for Interconnect Applications" Materials Research Society International Research Conference, Chongqing, China, June 9-12 (2008)

232. Cecil A. Coutinho, Subrahmanya R. Mudhivarthi, *Ashok Kumar* and Vinay K. Gupta, "Chemical Mechanical Polishing of Oxide Layers using Novel Ceria-Polymer Microcomposites", American Institute of Chemical Engineers (AICHE) National Conference, Philadelphia (PA), November (2008)

233. J. Weber, S. Pillai, S. R. Singh, and *Ashok Kumar*, "Development of a Nanobiosensor for Salmonella Detection", Next Generation Bioceramics, Advanced Ceramics and Composites, Daytona Beach, FL, Jan. (2009)

234. J. Weber, J. Zimmer, B. Johnson, *Ashok Kumar*, "Electrochemical Performance of Boron-doped Nanocrystalline Diamond Electrodes", Bioactive Nanomaterials and Nanostructured Materials for Biomedical Applications, Advanced Ceramics and Composites, Daytona Beach, FL, Jan. (2009)

235. Jessica E Weber, Shreekumar Pillai, Shree R Singh, and *Ashok Kumar*, "DNA Electrochemistry using Aligned Carbon Nanotube Arrays" 37th Annual Applied Vacuum Science and Technology Symposium & 27th Annual meeting of the Florida Society for Microscopy, March 8-10, University of Central Florida, Orlando (2009) **Young Leader Award**

236. Rakesh K Joshi, Amrita Kumar, and *Ashok Kumar*, "Self-assembled DNA Nanotubes" 37th Annual Applied Vacuum Science and Technology Symposium & 27th Annual meeting of the Florida Society for Microscopy, March 8-10, University of Central Florida, Orlando (2009)

237. Farah Alvi, Rakesh K Joshi, and *Ashok Kumar*, "Controlling the Aspect ratio of ZnO Nanowires through Modulating Erosion Rate of ZnO Nanorods" 37th Annual Applied Vacuum Science and Technology Symposium & 27th Annual meeting of the Florida Society for Microscopy, March 8-10, University of Central Florida, Orlando (2009) **Best Poster Award**

238. Denis Kitenge, Makoto Hirai, Rakesh K Joshi, and *Ashok Kumar*, "YSZ-Ag/AU Nanocomposite Films for Gas Sensor Applications" 37th Annual Applied Vacuum Science and Technology Symposium & 27th Annual meeting of the Florida Society for Microscopy, March 8-10, University of Central Florida, Orlando (2009)

239. Humberto Gomez, Srintah Balachandran, Sathyharish Jeedigunta, *Ashok Kumar*, and Tom Weller, "Structural-Property Relationship in CVD Processed Nanocrystalline Diamond Films" 37th Annual Applied Vacuum Science and Technology Symposium & 27th Annual meeting of the Florida Society for Microscopy, March 8-10, University of Central Florida, Orlando (2009)

240. Qiang Hu, Rakesh K Joshi, and *Ashok Kumar*, "Electrons Diffusion Study of Nitrogen Doped Nanocrystalline Diamond Films" 37th Annual Applied Vacuum Science and Technology Symposium & 27th Annual meeting of the Florida Society for Microscopy, March 8-10, University of Central Florida, Orlando (2009)

241. Jessica E Weber, Shreekumar Pillai, Shree R. Singh, and *Ashok Kumar*, "Novel DNA Sensor based Carbon Nanotube Lab-on-a-Chip" 37th Annual Applied Vacuum Science and Technology Symposium & 27th Annual meeting of the Florida Society for Microscopy, March 8-10, University of Central Florida, Orlando (2009)

242. F. Alvi, R. Joshi, Q. Huang, and *Ashok Kumar*, "Kinetic Scheme of Synergetic Effect in Vapor-liquid-solid Growth of Metal Oxide Nanowires" Computational Nanoscience- How to Exploit Synergy between Predictive Simulations and experiment. Material Research Society Spring Meeting, San Francisco, California, 13-17 April (2009)

243. F. Alvi, R. Joshi, and *Ashok Kumar* "Tunability of Aspect Ratio in ZnO Nanowires through Different Amine based Structural Agents" Functional Metal-Oxide Nanostructures", Material Research Society Spring Meeting, San Francisco, California, 13-17 April (2009)

244. F. Alvi, R. K. Joshi and *Ashok Kumar*," Controlling the Aspect Ratio of ZnO Nanowires through Modulating Erosion Rate of ZnO Nanorods" Nanotech Spring Meeting Houston, Texas, 3-7 May (2009)

245. F. Alvi, R.K. Joshi, Q. Huang, and *Ashok Kumar*, "Monte Carlo Simulation based Model for Solution Growth of ZnO Nanowires". Nanotech Spring Meeting Houston, Texas, 3-7 May, (2009) Study of diamond film adhesion for WC-Co cutting tool materials", ASME 2009, Orlando Fl, November (2009).

246. Humberto Gomez, Delcie Durham, and *Ashok Kumar*, "Diamond films for Cutting Tool Materials: Adhesion Improvement and Dry Machining Performance.", DIAMOND 2009, Athens Greece, September (2009).

247. Humberto Gomez, Rakesh Joshi, and *Ashok Kumar* "Graphene as Fast Response Gas Sensors", NANOFLORIDA 2009, Orlando FL, August (2009).

248. Humberto Gomez, Christopher L Ferwin, *Ashok Kumar*, Stephen E. Saddow, Corrado Bongiorno, Markus Italia and Chris Locke, "Study of the Adhesion and Biocompatibility issues of Nanocrystalline Diamond (NCD) Films on 3C-SiC Substrates" Materials Research Society Fall Meeting, Boston, MA, Nov. 30-Dec. 4 (2010)

249. Humberto Gomez, Feng Qin, *Ashok Kumar*, Kevin Chou, and Bob Johnson, "Adhesion Influence of Diamond Coatings on WC-Co Turning Inserts for High Performance Machining Applications" Materials Research Society Fall Meeting, Boston, MA, Nov. 30-Dec. 4 (2010)

250. Jessica Weber, Humberto Gomez, *Ashok Kumar*, Shreekumar Pillai, and Shree R. Singh, "Electrochemical Impedance based DNA Sensor utilizing Functionalized Nanocrystalline Diamond Electrode" Materials Research Society Fall Meeting, Boston, MA, Nov. 30-Dec. 4 (2010)

251. Roger Narayan and *Ashok Kumar*, "Laser Processing of functional Microstructured and Nanostructured Biomaterials" Materials Research Society Fall Meeting, Boston, MA, Nov. 30-Dec. 4 (2010)

252. Rudran Retnadurai, Michael Neiman, Sesha S. Srinivasan, Ayala Phani, Yogi Goswami, Elias Stefanakos, and *Ashok Kumar*, "Study of the Growth of PANI nanofibers by various Methods and its effects on Hydrogen Storage" Materials Research Society Fall Meeting, Boston, MA, Nov. 30-Dec. 4 (2010)

253. Nidhi Joshi, Rakesh K Joshi, Seyhan Boyoglu, Shree R. Singh, and *Ashok Kumar*, "Applicability of Gold Nanoparticles for Preventions of Respiratory Syncytial Virus" Materials Research Society Fall Meeting, Boston, MA, Nov. 30-Dec. 4 (2010)

254. Mikhail Ladanov, Garrett Mathews, and *Ashok Kumar*, "Prototype of an Energy Harvesting Nanogenerators Implant based on ZnO Nanowires" Nano-Bio Collaborative 2010, Tampa, FL, March 11-12, (2010)

255. Subbiah Alwarappan, Rakesh Joshi, Humberto Gomez, Chen-Zhong Li, and *Ashok Kumar*, "Graphene based Miniaturized Electrodes for the Detection of Neuro-transmitters" Nano-Bio Collaborative 2010, Tampa, FL, March 11-12, (2010)

INVITED TALKS

1. *Ashok Kumar***,** Pulsed Laser Deposition of Superconducting Thin Films, Research Seminar, Los Alamos National Laboratory, Los Alamos, August (1990)

2. *Ashok Kumar*, "Pulsed Laser Deposited Thin Films for Industrial Applications", Research Seminar, IBM East Fishkill Facility, Electronic Packaging Department, New York, November (1990)

3. *Ashok Kumar* and J. Narayan, "Thin Film Technology of High Temperature Superconductors", Institute Seminar, Indian Institute of Technology, Delhi, December (1990)

4. *Ashok Kumar*, "Synthesis and Characterization of Bulk and Thin Film Superconductors", Research Seminar, Argonne National Laboratory, Argonne, Chicago, January (1991)

5. *Ashok Kumar*, "Superconducting Thin Film Devices on Si (100) Substrates with Buffer Layers", Engineering Graduate Seminar, Yale University, CT (1992)

6. *Ashok Kumar*, "Processing and Characterization of Superconducting Films", Materials Engineering, Graduate Seminar, Auburn University, May (1993)

7. *Ashok Kumar*, "Laser Processing of Materials", Industrial Advisory Board Meeting, University of South Alabama, Mobile April (1995)

8. *Ashok Kumar*, "Synthesis and Characterization of Advanced Thin Film Materials", Graduate Seminar, Univ. of New York at Stony Brook, Stony Brook, March (1996)

9. *Ashok Kumar*, "Laser Processing of Advanced Materials", Materials Engineering Graduate Seminar, University of Alabama at Birmingham, Birmingham March(1997)

10. *Ashok Kumar*, "Pulsed Laser Deposition of Transition Metal of Carbides and Nitrides Coatings", Ninth Cimtec- World Ceramic Congress & Forum on New Materials, Florence, Italy 14^{th}-19^{th} June (1998)

11. *Ashok Kumar*, "Emerging Thin Film Technology, USF Research Seminar, Tampa May (1999)

12. *Ashok Kumar*, "Research and Opportunities in Advanced Materials", Institute Seminar, Nagaoka Institute of Technology, Nagaoka Japan, December (2000)

13. *Ashok Kumar*, "Diamond Synthesis and Application", General Motors, Detroit , June (2001)

14. *Ashok Kumar*, "Chemical Mechanical Planarization of Interconnect Materials, Cabot Microelectronics , Chicago, June (2001)

15. *Ashok Kumar*, "Reliability of Low-k Materials", Institute of Microelectronics Singapore, December (2002)

16. *Ashok Kumar*, "Investigation of Materials Issues in Interconnect Materials", Nanyang Technology University, Singapore, December (2002)

17. *Ashok Kumar*, "Nano-world! What We Expect", Nagaoka Institute of Technology, Nagaoka, Japan, December (2002)

18. *Ashok Kumar*, "Multifunctional Sensor Technology", NSF REU Seminar, USF Tampa, June (2003)

19. *Ashok Kumar*, "Atomic Force Microscope, Improving Science Education Through Technology Training Workshop," Alabama State University, Montgomery, March 20-21, (2003)

20. *Ashok Kumar*, "CMP of Microelectronics Materials, Seagate Technology, Pittsburgh, September (2003)

21. *Ashok Kumar*, "Impact of Nanotechnology" , NSF REU Seminar, Tampa June (2004)

22. *Ashok Kumar*, "Characterization of $Ba_{0.5}Sr_{0.5}TiO_3$ Thin Films for Tunable Microwave Applications" 2nd International Conference on Thin Film 2004 and Nanotech 2004, July 13-17, Singapore (2004)

23. *Ashok Kumar*, International Funding Opportunities, Institute for Microelectronics, Singapore, July (2004)

24. Parshuram B. Zantye, *Ashok Kumar*, and Jiro Yota, "Chemical Mechanical Polishing *CMP) of Doped and Undoped Ceramic and Polymeric Dielectric Materials for Microelectronic Applications" 207th Meeting of the Electrochemical Society, Toronto, Canada, May 15-20 (2005)

25. *Ashok Kumar*, "Nanotechnology and its Impact", NSF REU Seminar, USF Tampa, June (2005)

26. *Ashok Kumar*, and S. Mudhivarthi, "Study of Interfacial Properties of Multilayered Thin Films for Cu Interconnects Applications, 11th International Ceramic Congress and 4th Forum on New Materials, June 4-9, Acireale, Sicily (Italy) (2006)

27. *Ashok Kumar*, Nanotechnology: What It Means for the Electronics, Energy, and Industries, 28 June, Indian Institute of Technology, New Delhi (2006)

28. *Ashok Kumar*, **Plenary Lecture**, "Micro and Nano-Scale Applications of Nanocrystalline Diamond Films" 3rd Japan-Mexico International Symposium on Hybridized Material with Super-Functions" Dec 3- 6, Monterrey, Mexico (2006)

29. *Ashok Kumar*, "Synthesis, Characterization, and Applications of Nanocrystalline Diamond Thin Films" Advanced Nano Materials- ANM 2007, IIT Mumbai (India), Jan 8-10 (2007)

30. *Ashok Kumar*, "Manufacturing Issues in Chemical Mechanical Planarization for Microelectronics Applications" 31st International Cocoa Beach Conference & Exposition on Advanced Ceramics and Composites, Jan 21-26, Daytona Beach, FL (2007)

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