

CURRICULUM VITAE

Pritish Mukherjee

Present position: Professor and Chair
Department of Physics
University of South Florida.

Education

<u>Institution</u>	<u>Field of Study</u>	<u>Degree</u>	<u>Date</u>
State Univ. of New York at Buffalo <i>(Dissertation: A Picosecond Laser Study of the Vibrational Quasicontinuum of Polyatomic Molecules)</i>	Electrical Engineering	Ph. D.	1987
State Univ. of New York at Buffalo <i>(Thesis: A Study of Calcium-induced Aggregation of Phospholipid Vesicles by Dynamic Laser Light Scattering)</i>	Physics (Bio-physics)	M. A.	1984
University of Delhi, India	(Theoretical) Physics	M. Sc.	1978
University of Delhi, India	Physics	B.Sc.(Hons.)	1976

Employment

Aug. 2003 – Present	Chair, Department of Physics, University of South Florida
Aug. 2001 – Present	Professor of Physics, University of South Florida
Aug. 1994 - July 2001	Associate Professor of Physics, University of South Florida
Aug. 1988 - July 1994	Assistant Professor of Physics, University of South Florida
Mar. 1987 - Aug. 1988	Postdoctoral Research Fellow, Los Alamos National Laboratory
Dec.1986 - Mar. 1987	Postdoctoral Research Assistant, State University of New York at Buffalo

Fellowships, Honors and Awards

Inducted to National Academy of Inventors, 2011
Inducted to USF Academy of Inventors, 2009
USF President's Award for Faculty Excellence, 2003
Florida State University System Undergraduate Teaching Incentive Award, 1997
Florida State University System Undergraduate Teaching Incentive Award, 1994
Outstanding Undergraduate Teaching Award, University of South Florida, 1993
Research Initiation Award, National Science Foundation, 1992
Research and Creative Scholarship Award, Research Council, USF, 1991
National R&D 100 Award, 1990
Research and Creative Scholarship Award, Research Council, USF, 1988
Postdoctoral Fellow at Los Alamos National Laboratory, 1987-88

Professional Affiliations

American Physical Society (APS)
Optical Society of America (OSA)

Publications

Authored / co-authored 256 papers published in refereed scientific journals, or presented at refereed or invited scientific conferences in the areas of materials physics, applied laser physics, chemical physics, nonlinear semiconductor physics and biophysics, including 111 peer-reviewed articles. 3 U.S. patents issued and 2 pending.

GRANTS AWARDED

A total of \$6,169,105 of external funds have been received as PI or co-PI, of which \$5,514,568 is peer-reviewed Federal grant support. A listing of all the grants received follows:

- P. Mukherjee, G. S. Nolas, H. Srikanth and S. Witanachchi, Continuation to “Design, Fabrication, Characterization and Modeling of Integrated Functional Materials”, Department of Defense, Grant # W81XWH, \$700,000, 9/31/10 – 9/30/15.
- P. Mukherjee and S. Phillpot, “Florida Cluster for Advanced Smart Sensing Technologies (FCASST) – a USF/UF Collaborative Research Cluster”, Florida State University System Board of Governors’ New Florida 2010 Award, \$500,000, 2010-2012.
- P. Mukherjee, G. S. Nolas, H. Srikanth and S. Witanachchi, “Design, Fabrication, Characterization and Modeling of Integrated Functional Materials”, Department of Defense, Grant # W81XWH-07-1-0708, \$2,531,000, 9/31/07 – 9/30/12.
- G.S. Nolas, P. Mukherjee and S. Witanachchi, DOE, “A Fundamental Study of Bulk and Thin Film Type II Clathrate Materials”, United States Department of Energy, \$495,457, 8/15/04 to 8/31/08.
- P. Mukherjee and S. Witanachchi, "Pulsed thermal excitation of self-assembled nanotemplates for manufacturing dimensionally controlled nanostructured films", National Science Foundation, \$378,392, 9/1/02 to 8/31/05.
- S. Witanachchi and P. Mukherjee, " A Fundamental Study of Laser-Triggered Multiple Hollow-Cathode Transient Plasmas for a Multi-Component Film Manufacturing Process", National Science Foundation, \$347,430, 9/1/00 to 8/31/03.

- P. Mukherjee and S. Witanachchi, "In-situ Fabrication of Diamond Structures for Microelectromechanical Systems (MEMS) using a Novel Pulsed Laser Process", National Science Foundation, \$335,013, 9/1/99 to 8/31/02.
- P. Mukherjee and S. Witanachchi, "Pulsed Laser Ablation for Manufacturing: A Novel Dual-Laser Film Growth Process", National Science Foundation, \$258,735, 12/1/96 to 11/30/99.
- S. Witanachchi and P. Mukherjee, "Experimental and Theoretical Investigation of Dual-Laser Ablation for Stoichiometric Large-Area Multicomponent $\text{CuIn}_{1-x}\text{Ga}_x\text{Se}_2$ Film Growth", United States Department of Energy, \$368,541, 8/15/96 to 8/14/99.
- "Fundamentals of Natural Science for Non-Science Students", National Science Foundation, \$100,000, 2/20/95 to 4/30/98. (co-PI with Profs. Henry Mushinsky, Biology; H. Len Vacher, Geology; Jay Worrell, Chemistry)
- P. Mukherjee, "Plasma-Assisted Pulsed Laser Deposition of High Temperature Superconducting Thin Films: Novel Optical Plume Diagnostics", National Science Foundation, Research Initiation Award, \$100,000, 9/1/92 to 8/31/95.
- P. Mukherjee, "Investigation of a Saturation-Free, Linearly Variable Gas Attenuator at 10.6 μm ", Hughes Aircraft Company, Electro-Optical and Data Systems Group, \$54,537, 3/5/91 to 3/4/92.
- P. Mukherjee, "Laser Ablation of Tissue Using Picosecond Laser Pulses", Research and Creative Scholarship Award, Research Council and Division of Sponsored Research, USF, \$6,500, 1/1/91 to 6/30/92.
- P. Mukherjee, "Ultrafast Nonlinear Carrier Generation in Semiconductors Using Picosecond Laser Pulses", Research and Creative Scholarship Award, Research Council and Division of Sponsored Research, USF, \$3,825, 12/1/88 to 12/31/89.

BOOK CHAPTERS

- K. Stojak, H. Srikanth, P. Mukherjee, M.H. Phan and N.T.K. Thanh, “Size- and Shape-Variant Magnetic Metal and Metal Oxide Nanoparticles: Synthesis and Properties”, in *Complex-Shaped Metal Nanoparticles*, Eds. Tapan K. Sau and Andrey L. Rogach, Wiley, Chapter 5, pp. 1-34, (2012).
- D. Mukherjee, S. Witanachchi and P. Mukherjee, “Laser Ablation for Multiferroic Heterostructures” in *Laser Ablation - Fundamentals, Methods and Applications*, Ed. C. Gerhard, Nova Sci. Publishers Inc. , NY, USA (in press).
- A. Datta, D. Mukherjee, S. Witanachchi and P. Mukherjee, “Nanostructured Ferroelectrics” in *Encyclopedia of Nanoscience and Nanotechnology*, Ed. H. S. Nalwa, American Sci. Publishers (in preparation).

REFEREED PUBLICATIONS

- D. Mukherjee, M. Hordagoda, P. Lampen, M. H. Phan, H. Srikanth, S. Witanachchi and P. Mukherjee, “Simultaneous enhancements of polarization and magnetization in epitaxial $\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ multiferroic heterostructures enabled by ultrathin CoFe_2O_4 sandwich-layers”, *Physical Review B* 91, 054419, (2015).
- J. Devkota, M. Howell, S. Mohapatra, P. Mukherjee, H. Srikanth and M.H. Phan, “Magneto-reactance based detection of MnO nanoparticle-embedded Lewis lung carcinoma cancer cells”, *Journal of Applied Physics* 2015 (in press)
- H. Khurshid, Z. Nemati, J. Alonso, M.H. Phan, P. Mukherjee, M. L. Fdez-Gubieda, J. M. Barandiarán, and H. Srikanth, “Anisotropy effect in magnetic hyperthermia: A comparison between spherical and cubic exchange-coupled $\text{FeO}/\text{Fe}_3\text{O}_4$ nanoparticles”, *Journal of Applied Physics* 2015 (in press)
- Z. Nemati, H. Khurshid, J. Alonso, M.H. Phan, P. Mukherjee, and H. Srikanth, “From core/shell to hollow $\text{Fe}/\gamma\text{-Fe}_2\text{O}_3$ nanoparticles: Evolution of the magnetic behavior”, *Physical Review B* 2015 (under review)
- J. Devkota, A. Ruiz, F.X. Qin, P. Mukherjee, H. Srikanth and M.H. Phan, “Soft ferromagnetic microribbons with enhanced GMI properties for high frequency sensor applications”, *Physics Express*, 4:10, (2014).
- A. Chaturvedi, A.T. Le, P. Mukherjee, H. Srikanth and M.H. Phan, “Magneto-impedance effect in electrodeposited $\text{Cu}/\text{FeNi}/\text{Cu}/\text{FeNi}$ multilayer wires”, *Sciencejet*, 3:48, (2014).

- D. Mukherjee, M. Hordagoda, C. Kons, A. Datta, S. Witanachchi and P. Mukherjee, “Measurements of polarization switching in LiNbO₃-type ZnSnO₃/ZnO nanocomposite thin films”, 2014 MRS Fall Meeting Proceedings (accepted).
- A. Datta, D. Mukherjee, C. Kons, S. Witanachchi, and P. Mukherjee, “Ferroelectricity in strategically synthesized Pb-free LiNbO₃-type ZnSnO₃ nanostructure arrayed thick films”, 2014 MRS Fall Meeting Proceedings (accepted).
- D. Denmark, D. Mukherjee, J. Bradley, S. Witanachchi, and P. Mukherjee, “Systematic study on the remote triggering of thermo-responsive hydrogels using RF heating of Fe₃O₄ nanoparticles”, 2014 MRS Fall Meeting Proceedings (accepted).
- J. Devkota, T. Luong, J. S. Liu, H. Shen, F. X. Qin, J. F. Sun, P. Mukherjee, H. Srikanth and M. H. Phan, “A soft ferromagnetic multiwire-based inductance coil sensor for sensing applications”, *Journal of Applied Physics*, 116 (23), 234504, DOI: 10.1063/1.4904411, (2014).
- D. Mukherjee, A. Datta, C. Kons, M. Hordagoda, S. Witanachchi and P. Mukherjee, “Intrinsic anomalous ferroelectricity in vertically aligned LiNbO₃-type ZnSnO₃ hybrid nanoparticle-nanowire arrays”, *Applied Physics Letters*, 105 (21), 212903, DOI: 10.1063/1.4902557, (2014).
- A. Datta, D. Mukherjee, C. Kons, S. Witanachchi and P. Mukherjee, “Evidence of superior ferroelectricity in structurally welded ZnSnO₃ nanowire arrays”, *Small*, 10 (20), 4093-4099, DOI:10.1002/sml.201401249, (2014).
- D. Mukherjee, J. Devkota, A. Ruiz, M. Hordagoda, R. Hyde, S. Witanachchi, P. Mukherjee, H. Srikanth and M. H. Phan, “Impacts of amorphous and crystalline cobalt ferrite layers on the giant magneto-impedance response of a soft ferromagnetic amorphous ribbon”, *Journal of Applied Physics*, 116 (12), 123912, DOI: 10.1063/1.4896583, (2014).
- A. Datta, D. Mukherjee, S. Witanachchi and P. Mukherjee, “On-the-surface photoconductive response of pelletized thin In₂S₃ nanosheets”, *Materials Research Bulletin*, 55, 176-181, DOI: 10.1016/j.materresbull.2014.03.039 (2014).
- J. Devkota, J. Wingo, T. T. T. Mai, X. P. Nguyen, N. T. Huong, P. Mukherjee, H. Srikanth and M. H. Phan, “A highly sensitive magnetic biosensor for detection and quantification of anticancer drugs tagged to superparamagnetic nanoparticles”, *Journal of Applied Physics*, 115 (17), 17B503, DOI: 10.1063/1.4862395 (2014).

- D. Mukherjee, M. Hordagoda, P. Lampen, M. H. Phan, H. Srikanth, S. Witanachchi and P. Mukherjee, “Enhanced magnetism and ferroelectricity in epitaxial $\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3/\text{CoFe}_2\text{O}_4/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ multiferroic heterostructures grown using dual-laser ablation technique”, *Journal of Applied Physics*, 115(17), 17D707, DOI: 10.1063/1.4863165 (2014).
- H. Khurshid, Z. N. Porshokouh, M. H. Phan, P. Mukherjee and H. Srikanth, “Impacts of surface spins and inter-particle interactions on the magnetism of hollow $\gamma\text{-Fe}_2\text{O}_3$ nanoparticles”, *Journal of Applied Physics*, 115 (17), 17E131, DOI:10.1063/1.4868619 (2014).
- A. Datta, D. Mukherjee, S. Witanachchi and P. Mukherjee, “Hierarchically ordered nano-heterostructured PZT thin films with enhanced ferroelectric properties”, *Advanced Functional Materials*, 24 (18), 2638-2647, DOI: 10.1002/adfm.201303290 (2014).
- H. Khurshid, M. H. Phan, P. Mukherjee and H. Srikanth, “Tuning exchange bias in $\text{Fe}/\gamma\text{-Fe}_2\text{O}_3$ core-shell nanoparticles: impacts of interface and surface spins”, *Applied Physics Letters*, 104 (7), 072407, DOI: 10.1063/1.4865904 (2014).
- J. Devkota, T. T. T. Mai, K. Stojak, P. T. Ha, H. N. Pham, X. P. Nguyen, P. Mukherjee, H. Srikanth, and M. H. Phan, “Synthesis, inductive heating, and magnetoimpedance-based detection of multifunctional Fe_3O_4 nanoconjugates”, *Sensors and Actuators B - Chemical*, 190, 715-722, (2014), DOI:10.1016/j.snb.2013.09.033.
- D. Mukherjee, M. Hordagoda, R. Hyde, N. Bingham, H. Srikanth, S. Witanachchi and P. Mukherjee, “Nanocolumnar interfaces and enhanced magnetic coercivity in preferentially oriented cobalt ferrite thin films grown using oblique-angle pulsed laser deposition”, *ACS Applied Materials & Interfaces*, 5, Issue:15, 7450-7457, (2013), DOI:10.1021/am401771z.
- A. Datta, D. Mukherjee, M. Hordagoda, S. Witanachchi, P. Mukherjee, R. V. Kashid, M. A. More, D. S. Joag and P. G. Chavan, “Controlled Ti seed layer assisted growth and field emission properties of $\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3$ nanowire arrays”, *ACS Applied Materials & Interfaces*, 5, Issue:13, 6261-6267, (2013), DOI:10.1021/am4012879.
- H. Khurshid, S. Chandra, W.F. Li, M.H. Phan, G. C. Hadjipanayis, P. Mukherjee and H. Srikanth, “Synthesis and magnetic properties of core/shell $\text{FeO}/\text{Fe}_3\text{O}_4$ nano-octopods”, *Journal of Applied Physics* 113, (2013).
- A. Datta and P. Mukherjee, “Fabrication of Group IIIA layered sulfide semiconductor nanostructures by physical vapor deposition process and their enhanced optical and electronic properties”, *MRS Online Proceedings Library* 1550, mrss13-1550-q03-19, (2013).

- N. F. Huls, M. H. Phan, A. Kumar, S. Mohapatra, S. Mohapatra, P. Mukherjee and H. Srikanth, “Transverse susceptibility as a biosensor for detection of Au-Fe₃O₄ nanoparticle-embedded human embryonic kidney cells”, *Sensors*, 13, Issue:7, 8490-8500, (2013), DOI:10.3390/s130708490.
- J. Devkota, A. Ruiz, P. Mukherjee, H. Srikanth and M. H. Phan, “Magneto-impedance biosensor with enhanced sensitivity for highly sensitive detection of Nanomag-D beads”, *IEEE Transactions on Magnetics*, 49, Issue:7, 4060-4063, (2013), DOI:10.1109/TMAG.2012.2235414.
- H. Khurshid, S. Chandra, W-F. Li, M. H. Phan, G. C. Hadjipanayis, P. Mukherjee and H. Srikanth, “Synthesis and magnetic properties of core/shell FeO/Fe₃O₄ nano-octopods”, *Journal of Applied Physics*, 113, Issue:17, Article Number:UNSP 17B508, (2013), DOI:10.1063/1.4794978.
- A. Ruiz, D. Mukherjee, J. Devkota, M. Hordagoda, S. Witanachchi, P. Mukherjee, H. Srikanth and M.H. Phan, “Enhanced giant magneto-impedance effect in soft ferromagnetic amorphous ribbons with pulsed laser deposition of cobalt ferrite”, *Journal of Applied Physics*, 113, Issue:17, Article Number: 17A323, (2013), DOI:10.1063/1.4795802.
- J. Devkota, C. Wang, A. Ruiz, S. Mohapatra, P. Mukherjee, H. Srikanth and M. H. Phan, “Detection of low-concentration superparamagnetic nanoparticles using an integrated radio frequency magnetic biosensor”, *Journal of Applied Physics*, 113, Issue:10, Article Number: 104701, (2013), DOI:10.1063/1.4795134.
- H. Khurshid, S. Chandra, P. Mukherjee and H. Srikanth, “Synthesis and magnetic properties of hybrid nanostructures of Pt-FexOy”, *Journal of Materials Chemistry C*, 1, Issue:40, 6553-6558, (2013), DOI:10.1039/c3tc31114g.
- H. Khurshid, W-F. Li, S. Chandra, M. H. Phan, G. C. Hadjipanayis, P. Mukherjee and H. Srikanth, “Mechanism and controlled growth of shape and size variant core/shell FeO/Fe₃O₄ nanoparticles”, *Nanoscale*, 5, Issue 17, 7942-7952, (2013), DOI:10.1039/c3nr02596a.
- J. Devkota, A. Ruiz, P. Mukherjee, H. Srikanth, M. H. Phan, A. Zhukov and V.S. Larin, “Magneto-resistance, magneto-reactance, and magneto-impedance effects in single and multi-wire systems”, *Journal of Alloys and Compounds*, 549, 295-302, (2013), DOI:10.16/j.jallcom.2012.09.003.
- A. Datta, D. Mukherjee, S. Witanachchi and P. Mukherjee, “Low temperature synthesis, optical and photoconductance properties of nearly monodisperse thin In₂S₃ nanoplatelets”, *Royal Society of Chemistry Advances*, 3, Issue:1, 141-147, (2013), DOI: 10.1039/c2ra22035k.

- D. Mukherjee, N. Bingham, M. Hordagoda, M. H. Phan, H. Srikanth, S. Witanachchi and P. Mukherjee, “Influence of microstructure and interfacial strain on the magnetic properties of epitaxial $\text{Mn}_3\text{O}_4/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ layered-composite thin films”, *Journal of Applied Physics*, 112 (8), 083910, DOI: 10.1063/1.4759237, (2012).
- D. Mukherjee, R. Hyde, M. Hordagoda, N. Bingham, H. Srikanth, S. Witanachchi and P. Mukherjee, “Challenges in the stoichiometric growth of polycrystalline and epitaxial $\text{PbZr}_{0.52}\text{Ti}_{0.48}\text{O}_3/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ multiferroic heterostructures using pulsed laser deposition”, *Journal of Applied Physics*, 112 (6), 064101, DOI:10.1063/1.4751027, (2012).
- D. Mukherjee, S. Witanachchi, R. Hyde, and P. Mukherjee, “Advantages of dual-laser ablation in the growth of multicomponent thin films”, *AIP Conference Proceedings* 1464, 325 (2012).
- H. Khurshid, W. F. Li, M. H. Phan, P. Mukherjee, G. C. Hadjipanayis and H. Srikanth, “Surface spin disorder and exchange-bias in hollow maghemite nanoparticles”, *Applied Physics Letters*, 101 (2), 022403, DOI: 10.1063/1.4733621, (2012).
- D. Mukherjee, R. Hyde, P. Mukherjee, H. Srikanth and S. Witanachchi, “Publisher’s Note: “Role of dual-laser ablation in controlling the Pb depletion in epitaxial growth of $\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3$ thin films with enhanced surface quality and ferroelectric properties”[*J. Appl. Phys.* 111, 064102, (2012)]”, *Journal of Applied Physics*, 111 (8), 089905, DOI: 10.1063/1.4704981, (2012).
- A. Chaturvedi, K. Stojak, N. Laurita, P. Mukherjee, H. Srikanth and M.H. Phan, “Enhanced magnetoimpedance effect in Co-based amorphous ribbons coated with carbon nanotubes”, *Journal of Applied Physics*, 111 (7), 07E507, DOI: 10.1063/1.3676214, (2012).
- D. Mukherjee, N. Bingham, M. H. Phan, H. Srikanth, P. Mukherjee and S. Witanachchi, “Ziz-zag interface and strain-influenced ferromagnetism in epitaxial $\text{Mn}_3\text{O}_4/\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$ thin films grown on SrTiO_3 (100) substrates”, *Journal of Applied Physics*, 111 (7), 07D730, DOI: 10.1063/1.3680531, (2012).
- D. Mukherjee, P. Mukherjee, H. Srikanth and S. Witanachchi, “Carrier-mediated interaction of magnetic moments in oxygen vacancy-controlled epitaxial Mn-doped ZnO thin films”, *Journal of Applied Physics*, 111 (7), 07C318, DOI: 10.1063/1.3679067, (2012).
- D. Mukherjee, R. Hyde, P. Mukherjee, H. Srikanth and S. Witanachchi, “Role of dual-laser ablation in controlling the Pb depletion in epitaxial growth of $\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3$ thin films with enhanced surface quality and ferroelectric

- properties”, *Journal of Applied Physics*, 111 (6), 064102, DOI: 10.1063/1.3694035, (2012).
- S. Chandra, A. I. Figueroa, B. Ghosh, A. K. Raychaudhuri, M. H. Phan, P. Mukherjee and H. Srikanth, “Fabrication and magnetic response probed by RF transverse susceptibility in $\text{La}_{0.67}\text{Ca}_{0.33}\text{MnO}_3$ nanowires”, *Physica B - Condensed Matter*, 407 (1), 175-178, DOI: 10.1016/j.physb.2011.10.021, (2012).
 - D. Ferizovic, L. Peng, H. Sultana, P. Mukherjee, S. Witanachchi, M. C. Tamargo and M. Munoz, “Photoreflectance spectroscopy study of a strained-layer CdTe/ZnTe superlattice”, *Journal of Applied Physics*, 110 (9), 093703, DOI: 10.1063/1.3657785, (2011).
 - T. Wangensteen, M. Merlak, T. Dhakal, P. Mukherjee, S. Witanachchi, B. Poudel and G. Joshi, “Growth of nanoparticulate films of $\text{Ca}_3\text{Co}_4\text{O}_9$ by a microwave plasma-assisted spray process”, *Journal of Materials Research*, 26 (15), 1940-1946, DOI: 10.1557/jmr.2011.191, (2011).
 - D. Mukherjee, T. Dhakal, M. H. Phan, H. Srikanth, P. Mukherjee and S. Witanachchi, “Role of crystal orientation on the magnetic properties of CoFe_2O_4 thin films grown on Si (100) and Al_2O_3 (0001) substrates using pulsed laser deposition”, *Physica B- Condensed Matter*, 406 (13), 2663-2668, DOI: 10.1016/j.physb.2011.03.080, (2011).
 - T. Wangensteen, T. Dhakal, M. Merlak, P. Mukherjee, M. H. Phan, S. Chandra, H. Srikanth and S. Witanachchi, “Growth of uniform ZnO nanoparticles by a microwave plasma process”, *Journal of Alloys and Compounds*, 509 (24), 6859-6863, DOI: 10.1016/j.jallcom.2011.03.161, (2011).
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 - D. Mukherjee, T. Dhakal, R. Hyde, P. Mukherjee, H. Srikanth and S. Witanachchi, “Role of epitaxy in controlling the magnetic and magnetostrictive properties of cobalt ferrite-PZT bilayers”, *Journal of Physics D – Applied Physics*, 43 (48), 485001, DOI: 10.1088/0022-3727/43/48/485001, (2010).
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- D. Mukherjee, T. Dhakal, H. Srikanth, P. Mukherjee and S. Witanachchi, “Growth of ZnO:Mn/ZnO:V heterostructures and ferroelectric-ferromagnetic characterization”, *Materials Research Society Symposium Proceedings* Vol. **1161**-I02-02 (2009).
- R. Heindl, H. Srikanth, S. Witanachchi, P. Mukherjee, A. Heim, G. Matthews, S. Balachandran, S. Natarajan, and T. Weller, “Multifunctional ferromagnetic-ferroelectric thin films for microwave applications”, *Appl. Phys. Lett.* **90**, 252507 (2007).

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- M. Sheik-bahae, A. Tavano, P. Mukherjee and H. S. Kwok, "New Method of Measuring Relaxation Times in Semiconductors and Metals" in *Conference on Lasers and Electro-Optics, 1985*, OSA Technical Digest Series (Optical Society of America, Washington, DC), ThC5, pp. 160-161, 1985.
- P. Mukherjee and H. S. Kwok, "Picosecond Pulse Duration Dependent Free Carrier Absorption in Semiconductors", *Materials Research Society Meeting*, Nov. 1984.

PATENTS

- "A Dual-Laser Process for Film Deposition", co-inventors: P. Mukherjee and S. Witanachchi, U.S. Patent No. 5,660,746, 1997.
- P. Mukherjee and S. Witanachchi, "Two-Dimensional Optical Filter and Associated Methods", U.S. Patent No. 6,697,557, February 24, 2004.
- G.S. Nolas, S. Witanachchi and P. Mukherjee, "Clathrate compounds for electronic applications", US Patent 7,534,414, May 19, 2009.
- P. Mukherjee and S. Witanachchi, "Method of Affecting In-situ Diamond Growth", patent pending.
- S. Witanachchi, L. Woods, G.S. Nolas and P. Mukherjee, "A Novel Nano-structured Material System with High Thermoelectric Figure-of-merit", provisional patent submitted.

RESEARCH COLLABORATORS

Dr. Jacob L. Jones, University of Florida, Gainesville, Florida
Dr. Manh-Huong Phan, University of South Florida, Tampa, Florida
Dr. Hafsa Khirshid, University of South Florida, Tampa, Florida
Dr. Devajyoti Mukherjee, University of South Florida, Tampa, Florida
Dr. Anuja Datta, University of South Florida, Tampa, Florida
Dr. Tara Dhakal, University of South Florida, Tampa, Florida
Dr. Susmita Pal, University of South Florida, Tampa, Florida
Dr. George S. Nolas, University of South Florida, Tampa, Florida
Dr. Hari Srikanth, University of South Florida, Tampa, Florida
Dr. Sarath Witanachchi, University of South Florida, Tampa, Florida
Dr. Xiaomei Jiang, University of South Florida, Tampa, Florida
Dr. Matthias Batzill, University of South Florida, Tampa, Florida
Dr. Timothy R. Gosnell, Los Alamos National Laboratory, Los Alamos, New Mexico
Dr. Jeffrey Saffer, Jackson Laboratories, Bar Harbor, Maine
Dr. Irving J. Bigio, Los Alamos National Laboratory, Los Alamos, New Mexico
Mr. Michael P. Hasselbeck, State University of New York at Buffalo, Buffalo, New York
Dr. Mansoor Sheik-bahae, State University of New York at Buffalo, Buffalo, New York
Dr. Hoi Sing Kwok, State University of New York at Buffalo, Buffalo, New York
Dr. John T. Ho, State University of New York at Buffalo, Buffalo, New York

Service on Thesis, Dissertation,

Project and Comprehensive Examination Committees

Newton Sims	M.S. Physics (Dec. 1989)	Member
Vonguilay Phomsakha	M. S. Physics (May 1990)	Member
Palanikumaran Sakthivel	M.S. Physics (April 1991)	Major Professor
Daniel Oman	M. S. Physics (April 1991)	Major Professor
Neil Weston	M. S. Physics (April 1992)	Major Professor
Phillip Roland	M. S. Physics (Aug. 1993)	Major Professor
Wayland Stewart	Ph. D. Electrical Engg. (July 1993)	Member
William Wilcox	Ph. D. Engg. Science (Dec. 1995)	Member
Carol de Vera*	M. S. Physics (Dec. 1995)	Member
Palanikumaran Sakthivel	Ph. D. Engg. Science (Dec. 1995)	Major Professor
Yi-Cheng Tong#	M. S. Physics (May 1996)	Member
Pushkaraj Panse	M. S. Physics (Aug. 1996)	Member
Khurshid Ahmed	Ph. D. Engg. Science (Dec. 1996)	Member
Christian Keyser*	M. S. Physics (Aug. 1997)	Member
Edward Zubeck*	M.S. Physics (Dec. 1997)	Major Professor
Shudong Chen	M. S. Physics (Dec. 1999)	Major Professor
Shudong Chen	M. S. Engg. Science (Dec. 1999)	Major Professor
John Cuff	M.S. Physics (Aug. 2000)	Major Professor
John Cuff	M. S. Engg. Science (Aug. 2000)	Major Professor
Martin Miyawa	M. S. Physics (Aug. 2000)	Member
Martin Miyawa	M. S. Engg. Science (Aug. 2000)	Member
Prasanna Mahawela	M. S. Engg. Science (Aug. 2000)	Member
David Totzke	M.S. Engg. Science (Aug. 2000)	Member
David Totzke	M.S. Physics (Aug. 2000)	Member
Harshini Fernando*	M.S. Physics (Dec. 2001)	Member
Alicia Garcia-Lopez	M.S. Chem. Engg. (July 2001)	Member
Dan Factor#	M.S. Physics (April 2002)	Major Professor
Susan McAveety#	M.S. Physics (April 2002)	Major Professor

Vida Castillo	Ph.D. Applied Physics (July 2002)	Member
Ranko Hajndl	M. S. Physics (Dec. 2002)	Member
Jeff Sanders	M. S. Physics (April 2003)	Member
Randolph Ertenberg	M. S. Physics (October 2003)	Member
Betul Unlusu	Ph. D. Chem. Engg. (April 2004)	Member
James Winslow	M. S. Physics (May 2004)	Major Professor
James Winslow	M. S. Engg. Science (May 2004)	Major Professor
Lane Manoosingh	Ph. D. Elect. Engg. (June 2004)	Member
Uma Choppali*	M. S. Physics (July 2004)	co-Major Prof.
Yong-Rae Kim	Ph. D. Applied Physics (Dec. 2004)	Member
Houssam Abou-Mourad	Ph. D. Applied Physics (April 2005)	co-Major Prof.
Gayan Dedigamuwa	M. S. Physics (May 2005)	Member
Leo Krzewina	Ph. D. Applied Physics (Mar. 2006)	Member
Jermaine Kennedy	Ph. D. Applied Physics (April 2006)	Member
Drew Rebar	M. S. Physics (May 2006)	Member
Ranko Heindl	Ph. D. Applied Physics (Nov. 2006)	Member
Robert Hyde	M. S. Physics (Nov. 2006)	Major Professor
Robert Hyde	M. S. Engg. Science (Nov. 2006)	Major Professor
Raghu Mudhivarathi	Ph. D. Mech. Engg. (Nov. 2007)	Member
Natalia Kovalchuk	Ph. D. Applied Physics (April 2008)	Member
Gayan Dedigamuwa	Ph. D. Applied Physics (Nov. 2009)	Member
Marek Merlak	M. S. Physics (May 2010)	Member
Devajyoti Mukherjee	Ph. D. Applied Physics (Sep. 2010)	co-Major Prof.
Robert Hyde	Ph. D. Applied Physics (Apr. 2011)	co-Major Prof.
Ted Wangenstein	Ph. D. Applied Physics (June 2012)	co-Major Prof.
Dino Ferizovic	Ph. D. Applied Physics (Nov. 2012)	co-Major Prof.
Michael Blosser	M.S. Physics (Jan. 2013)	Member
Sayan Chandra	Ph. D. Applied Physics (Oct. 2013)	Member

*Project Report.

#Comprehensive Examination.

Currently directing four Ph.D. students, and serving on the following thesis/dissertation committees:

- Lakmal Hetiarachchi (Ph. D., Applied Physics) (co-Chair)
- Mahesh Hordagoda (Ph. D. Applied Physics) (co-Chair)
- Marek Merlak (Ph. D. Applied Physics) (co-Chair)
- Daniel Denmark (Ph. D. Applied Physics) (co-Chair)

Postdoctoral Scientist Direction

The following postdoctoral scientists were directed and supported on research funding:

Previously directed postdoctoral scientists:

Dr. Susmita Pal

Dr. Tara Dhakal

Dr. Antao Chen (FCASST Research Associate Professor)

Currently directed postdoctoral scientists:

Dr. Devajyoti Mukherjee CIFM* (co-directing with Dr. Sarath Witanachchi)

Dr. Hafsa Khurshid CIFM (co-directing with Dr. Hari Srikanth)

Dr. Anuja Datta FCASST** Research Assistant Professor

Dr. Manh-Huong Phan FCASST Research Assistant Professor

**CIFM: Center for Integrated Functional Materials*

***FCASST: Florida Cluster for Advanced Smart Sensing Technologies*

Undergraduate and High School Student Research Direction

A variety of undergraduate students have completed their Physics Undergraduate Research requirement in my laboratory. I have directed the Honors theses of Fayssal El-Jabbali, Alisha Khan, Jaya Kolla and Rachel Price. I also participated in Priscilla Sato's Honors thesis as a committee member.

Over the years, gifted high school students have participated in research experiences in my laboratory during the USF Mathematics Summer Program. In particular, one high school student has been involved in more intense research activities each summer in our laboratory from 2001-2004.

The last three high school students were Laila Booshehri (King High School International Baccalaureate Program student), Rene Chen (Wharton High School), and Andy Barthel (Wharton High School). Rene won first place in the Senior Physics category at the Hillsborough County Regional Science Fair and the United States Army Special Award in March 2003 for her project on "Phase Fluctuation Optical Heterodyne Spectroscopy" that was performed under my direction. She was chosen to represent Hillsborough County in Physics at the State level. Andy won first place in the Senior Physics category at the Hillsborough County Regional Science Fair and among others awards, the Intel Special Award in March 2004 for his project on a new optical alignment for a two-dimensional fiber-based spectral imaging system that was performed under my direction. He was chosen to represent Hillsborough County in Physics at the State level and was selected for the Nationals.

PROFESSIONAL SERVICE

- Invited reviewer for the Partner University Fund (PUF), French-American Cultural Exchange (FACE) Foundation Grant Program, 2010 and 2011.
- Invited participant in the Museum of Science and Industry (MOSI) Innovation Express Contest judging at the University of South Florida, February 1, 2010.
- Invited reviewer, USF Excellence in Innovation Awards Selection Committee for the Academy of Inventors, 2009/2010 and 2010/2011.
- Invited panel reviewer for USF Florida Energy Systems Consortium (FESC) Grants, 2009 and 2010.
- Invited scientific mentor for research physicists in Radiation Oncology at the Moffitt Cancer and Research Center, Tampa, April 2008.
- Invited reviewer for 15 United States Physics departments, National Survey of Physics Doctoral Programs, National Research Council, USA, May 2007.
- Invited reviewer for Full Professor promotion, Department of Engineering Physics, Air Force Institute of Technology (AFIT), Ohio, May 2007.
- Invited reviewer, ENG Directorate of NSF (DMII), July 19, 2006.
- Invited reviewer and panelist for the Materials Processing and Manufacturing Program (MPM) proposals in the Division of Manufacturing and Industrial Innovation (DMIII) of the Engineering Directorate at the National Science Foundation, January 10, 2006.
- Invited continuing member in the search for physicists for Radiation Oncology at the Moffitt Cancer Research Center, 2005-present.
- Invited member in the search for a Physics Chief for the Radiation Oncology Division of the Moffitt Cancer Center, 2005-2006.
- Invited panel reviewer for the ENG Directorate of NSF (DMII), January 13, 2004.

- Invited by the Director of the Engineering Directorate at NSF to participate in a national panel on the feasibility of implementing a Nanoscale Experimentation and Testing Network (NEXT) on January 10, 2001. This panel was comprised of about a dozen experts from academia and industry and five NSF Program Directors, including the Director of the Engineering Directorate and the Director of DMII at NSF.
- Hosted a group of approximately 40 scientists comprising NSF grantees from across the nation and NSF Program Directors for an on-site tour of our research laboratories at USF on January 9, 2001.
- Invited reviewer on the CAREER Awards Panel, DMII, NSF, November 1, 2001.
- Invited reviewer CTS Division, NSF, March 14, 2000.
- Invited reviewer, ENG Directorate of NSF (DMII), June 7, 2000.
- Invited participant in an international "Workshop on Pulsed Laser Deposition" hosted by NIST and NRL on May 12-13, 1998, Arlington, Virginia.
- Invited panel reviewer for DMII in the Engineering Directorate of the National Science Foundation, December 10, 1997.
- Invited panel reviewer for the Division of Design, Manufacturing and Industrial Innovation (DMII) in the Engineering Directorate of the National Science Foundation, June 4-5, 1996.
- Invited proposal reviewer, National Science Foundation Small Business Innovation Research, October 1994.
- Reviewer for articles in scientific journals including Applied Physics Letters, Applied Optics, Optics Letters and the Journal of Applied Physics.
- Invited and volunteered as a science judge for the 39th Annual State Science and Engineering Fair of Florida on April 14, 1994, as well as other subsequent Science Fairs at the elementary school level.

STATEMENT OF SERVICE AT USF

While serving on Committees at USF, I have enjoyed the opportunity to interact with colleagues, staff and students within the Physics Department, the College of Arts and Sciences, and the University. While learning a lot from these interactions, I have been involved in a variety of planning efforts at the University, College and Department level at USF through participation in many ad-hoc committees as well as membership in other standing committees at various levels. Some of these are indicated below:

University Committees / Service

- USF Programming Development Committee, USF Budget Re-organization Initiative, invited by President Judy Genshaft, 2013-present.
- Search Committee for Dean of the College of Engineering, USF, invited by Provost Ralph Wilcox, 2013-present.
- USF Compliance Committee, invited by the Office of Research and Innovation, USF, 2012-2013.
- USF World Incentivizing, Recognizing and Rewarding International Engagement (IRRIE) Workgroup, invited by Vice President Karen Holbrook, 2012-2013.
- USF 2013-2018 Strategic Planning Workgroup, invited by President Judy Genshaft, 2011-2012.
- Steering Committee for USF Visualization Center, invited by Vice Provost Graham Tobin, 2012-present.
- Chair, Ad-hoc Faculty Ethics Panel, invited by Associate Provost Dr. Dwayne Smith, 2010.
- USF System Impactful Research, Economic Leadership and Community Engagement (IRELCE) Task Force, invited by President Judy Genshaft, 2010.
- Ad-hoc Committee to Review USF Tenure and Promotion Guidelines, selected by Provost Ralph Wilcox, 2010.
- Faculty Liason, Academic Campus Environment (ACE) Workgroup of the USF Board of Trustees, invited by Provost Ralph Wilcox, 2009-2011.
- Search Advisory Committee for USF Provost and Senior Vice President for Academic Affairs, invited by President Judy Genshaft, 2009.
- USF Faculty Senate By-Laws Subcommittee, invited by the USF Faculty Senate Executive Committee, 2008-2009.

- Search Advisory Committee for Associate Vice President for Research and Innovation, invited by Dr. Karen Holbrook, Vice President for Research and Innovation to Chair this national search, 2008-2009.
- USF Faculty Roles, Responsibilities and Rewards (FR³) Task Force, invited by Provost Ralph Wilcox, 2008-2009.
- USF Interdisciplinary Research Building (IDRB) Materials Research Facilities Build-out Advisory Committee, appointed by Dr. Karen Holbrook, Vice President for Research, and Dr. Ralph Wilcox, Provost, USF, 2008-2011.
- Provost's Advisory Group on Principles and Procedures for Changes in Academic Structure, invited by Provost Ralph Wilcox to this four-member group, 2008.
- USF Budget Priorities Advisory Taskforce, invited by Provost Renu Khator, 2007-2008.
- USF Budget Priorities Advisory Taskforce Subcommittee on the College of Marine Sciences, invited to chair this subcommittee by Interim Provost Ralph Wilcox, 2008.
- USF Travel Faculty Focus Group, 2007.
- USF Focus Group Concerning Campus Safety, invited by the USF Provost's Office, 2007.
- USF Nanotechnology and Nanomaterials Research Center (NNRC) Steering Committee, invited by College of Engineering Dean John Wiencek, 2007.
- Interdisciplinary Science Teaching and Research (ISA) Building Committee, appointed by the Provost, 2006-2011.
- ISA Architect Selection Committee, 2007.
- ISA Construction Manager (CM) Selection Committee, 2007.
- USF Functional Multiscale Materials by Design (FMMD) Initiative, invited by USF Graduate School Dean Delcie Durham to co-Chair the conception and administration of this \$2M USF research program, 2006-2008.
- USF Faculty Senate Executive Committee, elected by members of the USF Faculty Senate, 2006-2007.
- USF Faculty Senate, elected to a three-year term as a Senator, 2006-2009.
- Provost's Budget Faculty Advisory Committee, appointed by the Provost on the recommendation of the USF Faculty Senate, 2004-2005.
- USF Council of Chairs, ex-officio, convened by the Provost, USF, 2003- present.
- USF Nanotechnology Facilities Planning Steering Committee, appointed by the Provost, 2001-2003.
- National Science Foundation Engineering Research Center Proposal Steering Committee, invited by the Dean, College of Engineering, 2002-2003.

- University Graduate Program Directors' Committee, ex-officio as Director of Graduate Studies, Physics, 1997-2002.
- USF Diversity Task Force, invited by the Provost, March 2000 – 2001.
- University Advisory Workgroup on Enhancing the Recruitment and Retention of Underrepresented Faculty and Staff, invited by the Dean of CAS to represent CAS at the request of the Associate Vice President for Diversity Initiatives, 2000-2001.
- Faculty Search Committee, Center for Microelectronics Research (CMR), College of Engineering, invited by the Director of CMR, 2000-2001.
- Lucent / USF Fellowship Evaluation Committee, invited by the Director of the Center for Microelectronics Research (CMR), May 2000.
- Participant in the OPPAGA (Office of Program Policy Analysis and Government Accountability) site visit at USF, invited by the Provost, February 1999.
- Taskforce on Liberal Arts Education at USF, Chair, Science Subcommittee, invited by the Provost, September 1998 - February 1999.
- Participant, Lucent/I-4 meetings, invited by the Director of CMR, College of Engineering, Fall 1998.
- Ad hoc Faculty Senate Committee on Tenure and Promotion Guidelines, invited by the President of the Faculty Senate, December 1994 - February 1995.

College of Arts and Sciences (CAS) Committees / Service

- CAS SNSM Computer Modeling Faculty Search Committee, search for six faculty positions, appointed by CAS Dean's Office, 2012-2013.
- CAS SNSM STEM Education Faculty Search Committee, search for four faculty positions, appointed by CAS Dean's Office, 2012-2013.
- CAS Distinguished University Professor Review Committee, invited to serve on three-member committee by CAS Associate Dean John Cochran, 2011.
- CAS Staff Performance Bonus Plan (PBP) Review Committee, invited by CAS Dean's Office, 2010.
- CAS Council of Chairs Steering Committee, appointed by CAS Dean Dr. Eric Eisenberg, 2010-2011.
- CAS Council of School of Natural Sciences and Mathematics (SNSM) Chairs, ex-officio, 2008-present.
- CAS Distinguished University Professor Nomination Committee, invited to serve on three-member committee by CAS Associate Dean John Cochran, 2008.

- CAS Council of Chairs' Steering Committee, invited by Dean Eric Eisenberg to represent the School of Natural Sciences and Mathematics regarding School and CAS governance, 2008.
- CAS Biology Department Reorganization Steering Committee, appointed by CAS Dean Eric Eisenberg, 2006-2007.
- CAS Area Representative for the USF Faculty and Staff Campaign, 2006.
- College of Arts and Sciences Staff Performance Bonus Program Selection Committee, appointed by the College Dean John Skvoretz, 2005.
- College of Arts and Sciences Chairs' Steering Committee, elected by the CAS Council of Chairs, 2004-2007.
- CAS Council of Chairs, ex-officio, convened by the Dean, College of Arts and Sciences, 2003-present.
- College of Arts and Sciences Tenure and Promotion Committee, 2001-2003.
- College of Arts and Sciences Research Advisory Council, 2001-2002.
- College of Arts and Sciences in 2010 (Chair, Quality Subcommittee), November 1998 – 2000.
- Philosophy Faculty Search Committee, invited by the Chair, Department of Philosophy, CAS, 2000-2001.
- Geology Faculty Search Committee, invited by the Chair, Department of Geology, CAS, 2000.
- CAS Salary Equity Appeals Committee, invited by the CAS Dean's Office, 1998-1999.
- College of Arts and Sciences Advisory Council, 1996 - 1998.
- Geology Faculty Search Committee, invited by the Chair, Department of Geology, 1995.
- Faculty Development Committee, College of Arts and Sciences, USF, 1993-1995.
- CAS Teaching Incentive Program (TIP) Review Committee, 1994 - 1995.
- CAS Statistical Research Associate Search Committee, 1994
- Academic Computing Committee, College of Arts and Sciences, 1992- 1994.
- CAS Environmental Science Planning Committee, 1993 – 1994.

- CAS Liberal Studies Advisor, since 1993.

Physics Department Committees / Service

- Physics Faculty Advisory Committee, elected by the Physics Faculty, 1999-2003.
- Physics Faculty Advisory Committee, elected by the Physics Faculty, 1994-1997, Chair (1997); drafted and worked on the adoption of the Physics Faculty Governance Document, 1996.
- Director of Graduate Studies, Department of Physics, 1997-2002.
- Physics Faculty Search Committees in Materials Physics and Biomedical Physics, Chair, 2002-2003.
- Physics Faculty Search Committees in Materials Physics and Biomedical Physics, Chair, 2001-2002.
- Physics Faculty Search Committees in Materials Physics and Biomedical Physics, Chair, 2000-2001.
- Physics Faculty Search Committee in Materials Physics, Chair, 1999-2000.
- Physics Graduate Committee, Fall 1996 – present, Chair, 1997-2002.
- Physics Ph. D. Pre-proposal Committee, September 1998- February 1999.
- Physics Faculty Search Committee, Chair, 1997-1998.
- Development of a Dual M.S. Degree Program, Fall 1996.
- Committee on Graduate Admissions, Department of Physics, 1995 - 1996.
- Educational Policy Committee, Department of Physics, 1993-1996.
- Physics TIP Evaluation Committee, 1995.

LIST OF COURSES TAUGHT

General Physics I & II (both algebra- and calculus-based)	(2000 level)
Modern Physics (relativity and quantum mechanics)	(3000 level)
Applications of Physics to Biology and Medicine I & II	(4000 level)
Solid State Physics I & II	(5000/6000 level)
Lasers and Applications	(6000 level)

CURRICULUM AND PROGRAM DEVELOPMENT

- Received \$180,000 in funding from alumnus Mr. Roy Jewell to endow the Emory H. and Barbara P. Jewell Award for Faculty Excellence in perpetuity at the Department of Physics at USF, 2012.
- Led the planning and the coordination of the move of the Department of Physics teaching and research facilities from the PHY building to the new seven-story Interdisciplinary Sciences (ISA) building in Fall 2011.
- Obtained seed funding of \$500K from the Florida State University System Board of Governors and led the establishment of the Florida Cluster for Advanced Smart Sensing Technologies (FCASST) in the Department of Physics at USF. FCASST is a collaborative research cluster with the Materials Science and Engineering Department at the University of Florida at Gainesville.
- Coordinated the conception of the School of Natural Sciences and Mathematics (SNSM) in the College of Arts and Sciences at USF in 2008. Participated in the subsequent development of governance and research clusters in SNSM, 2008-present.
- Developed and implemented a plan for the successful transfer of Astronomy from the Mathematics Department to the Physics Department at USF in 2008, and led subsequent program growth.
- Obtained Federal funding and led the establishment of the Center for Integrated Functional Materials (CIFM) in the Department of Physics at USF, 2007.
- Participated in the development of the blueprint for the \$90M Interdisciplinary Sciences Building at USF in 2006.

- Developed and implemented an Eminent Scholar Program in the Physics Department at USF in 2006/2007. Recruited 1973 Physics Nobel Laureate Prof. Ivar Giaever as our first Eminent Scholar.
- Developed and initiated a new graduate course titled “Advances in Pure and Applied Physics” in Spring 2007. This course was designed to bring the excitement of discovery and innovation in physics from pioneers who have helped shape the field. The course was designed as the educational component of the Eminent Scholar Program in the Physics Department at USF.
- Initiated, as Physics Chair, a new undergraduate course into the Physics curriculum for majors in “Mathematical Methods” in Fall 2006.
- Conceived and established the Facility for the Optical Characterization of Materials (FOCM) in the Department of Physics at USF, 2006.
- Developed and implemented the formation of a three-member external Physics Executive Advisory Board chaired by Physics Nobel Laureate Ivar Giaever in 2004.
- Obtained funding for and established the Physics Materials Diagnostic Facility (PMDF) in the Physics Department at USF, 2003.
- Developed and taught a new two-semester, eight credit hour sequence in “Applications of Physics to Biology and Medicine” for non-physics majors, Fall 2002 to Spring 2003.
- Developed a new minor in Biomedical Physics, including two new courses PHZ 4731 and PHZ 4732 (Applications of Physics to Biology and Medicine I and II, respectively), 2003.

- Implemented the recruitment of graduate students and programmatic development for our new doctoral program in Applied Physics as Director of Graduate Studies from 1997-2002.
- Proposed a Duckwall Foundation Practicum Grant resulting in an endowment of \$200,000 from the Foundation, which, along with the \$100,000 match from the State will provide industrial practicum funding for our graduate students in perpetuity, March 2000.
- Developed a blueprint for our Ph.D. proposal in Applied Physics, September 1998-February 1999.
- Developed and implemented a dual M.S. degree program in Physics and Electrical Engineering, Fall 1996.