

SARATH WITANACHCHI

DEPARTMENT OF PHYSICS
UNIVERSITY OF SOUTH FLORIDA
TAMPA, FL 33620
Tel. (813) 974-2789
e-mail: *witanach@chuma.cas.usf.edu*

Present Rank: Associate Professor

Education:

Ph.D.	in Electrical Engineering	Advisor: Prof. David T. Shaw, State University of New York at Buffalo	1990
MS	in Physics	State University of New York at Buffalo	1984
BS	in Natural Science	University of Colombo, Sri Lanka	1978

Employment:

Aug. 1995-Present	Associate Professor, Department of Physics, University of South Florida
Aug. 1990-Aug.1995	Assistant Professor, Department of Physics, University of South Florida
Aug. 1989-July 1990	Visiting Assistant Professor, Department of Electrical Engineering State Univ. of New York at Buffalo
Aug. 1988-Aug.1989	Research Associate, Institute on Superconductivity State University of New York at Buffalo

Grants and Awards:

Research Initiation Award, NSF, \$100,000 (Aug. 1993-Aug. 1996)

USF Presidential Excellence Award (2003)

US Patent # 5,660,746 for "Dual-Laser Process for Film Deposition".

US Patent #4,874,741 for "Plasma Assisted Laser Deposition of Superconducting Films"

US Patent # 6,697,557 B2: "Two-dimensional Optical Filter with High Spectral, Temporal, and Spectral Resolution"

Federal Funding (NSF and DOE): over \$2M

1. DOE, **\$495,457** (8/15/04-8/14/08). "A Fundamental Study of Bulk and Thin Film Type II Clathrate Materials"

2. NSF, DMII-Nanomanufacturing: **\$378,972** (9/1/2002-8/31/2005). “Pulsed Thermal Excitation of Self-Assembled Nanotemplates for Manufacturing Dimensionally Controlled Nanostructured Films.
3. NSF International Grant # INT-0080571, **\$23,320** (8/15/2000-7/31/2002), “US-Sri Lanka cooperative research: Low-cost fabrication of thin film solar cells.
4. NSF/DOE Grant # DMI-0078917, **\$347,431**, (9/1/2000-8/31/2003), “ A Fundamental study of laser-triggered hollow-cathode transient plasma for a multi-component film manufacturing process”
5. NSF Grant # DMI-9978738, **\$365,924** (8/15/1999-8/14/2002), “ In-situ fabrication of diamond structures for microelectromechanical systems (MEMS) using a novel pulsed laser process”
6. DOE, DE-FG02-96ER12199, **\$368,541** (8/15/96 to 8/14/99). “Experimental and Theoretical Investigation of Dual-laser Ablation for Stoichiometric Large-area Multicomponent CuInGaSe₂ Film Growth”.
7. NSF, Grant # DMI-9622114, **\$258,735** (12/1/96 to 11/30/99), “Pulsed Laser Ablation for Manufacturing: A Novel Dual-laser Film Growth Process”.

Professional Societies:

Materials Research Society (MRS)

Publications

49 refereed papers and 68 conference presentations

List of Publications

1. S. Witanachchi, H. Abou Mourad, H. Srikanth, and P. Mukherjee, “Anomalous conductivity and positive magnetoresistance in FeSi- SiO₂-Si structures in the vicinity of a resistive transition”, App. Phys. Letts. **90**, 052102 (2007).
2. S. Witanachchi, G. Dedigamuwa, and P. Mukherjee, “Laser-assisted spray pyrolysis for the growth of TiO₂ and Fe₂O₃ nanoparticle coatings”, J. Materilas Research **22**, March 2007.
3. R. Heindl, H. Srikanth, S. Witanachchi, P. Mukherjee , A. Heim, G. Matthews, S. Balachandran, S. Natarajan, and T. Weller, “Multifuncntional ferromagnetic-ferroelectric thin films for microwave applications”, Appl. Phys. Letts. **90**, 252507 (2007).

4. R. Heindl, H. Srikanth, S. Witanachchi, P. Mukherjee, T. Weller, A. S. Tatarenko, G. Srinivasan, "Structure, magnetism and tunable microwave properties of pulsed laser deposition grown barium ferrite/barium strontium titanate bi-layer films", *J. Appl. Physics* **101**, 503 (2007).
5. S. Witanachchi, H. Abou Mourad, and P. Mukherjee, "Anomalous metal-to-insulator transition in FeSi films deposited on SiO₂/Si substrates", *J. Appl. Phys.* **99**, 73710-73711-5 (2006).
6. Sarath Witanachchi, Robert Hyde, Matt Beekman, Devajyoti Mukherjee, Prithvi Mukherjee, and George S. Nolas, "Synthesis and Characterization of Bulk and Thin Film Clathrates for Solid State Power Conversion Applications", *IEEE Proceedings of the 25th International Conference on Thermoelectrics*, Viena, Austria, Aug. 2006, p45.
7. S. Witanachchi, R. Hyde, H. S. Nagaraja, M. Beekman, G. S. Nolas, and P. Mukherjee, "Growth and Characterization of Germanium-based type I Clathrate Thin Films Deposited by Pulsed Laser Ablation", *MRS Proceedings*, April . 2006.
8. S. Witanachchi, P. Mahawela, P. Mukherjee, "Laser triggered hollow-cathode plasma process for film growth", *Journal of Vacuum Science and Technology A* **22**(5), 2061 (2004).
9. P. Mukherjee, Shudong Chen, J. B. Cuff, P. Sakthivel, S. Witanachchi, "Evidence for the physical basis and universality of the elimination of particulates using dual-laser ablation. I. Dynamic time-resolved target melt studies, and film growth of Y₂O₃ and ZnO", *Journal of Applied Physics*, Volume **91**, Issue 4, 1828-1836, (2002).
10. P. Mukherjee, Shudong Chen, J. B. Cuff, S. Witanachchi, "Evidence for the physical basis and universality of the elimination of particulates using dual-laser ablation. II. Dynamic time-resolved target reflectivity of metals and film growth of Zn, *Journal of Applied Physics*, Volume **91**, Issue 4, 1837-1844 (2002).
11. P. Mukherjee, J. B. Cuff, S. Witanachchi, "Novel technique for low-jitter dual-laser synchronization in a thin film deposition system", *Review of Scientific Instruments*, Volume **72**, Issue 5, 2380-2386, (2001).
12. P. Mukherjee, Shudong Chen, S. Witanachchi, "Novel continuously tunable high spectral resolution optical filter for two-dimensional imaging", *Review of Scientific Instruments*, Volume **72**, Issue 6, 2624-2632, (2001).
13. S. Witanachchi, P. Mahawela, P. Mukherjee, "A hollow-cathode transient plasma process for thin film growth", *New Methods, Mechanisms and Models of Vapor Deposition. Symposium. Materials Research Society Symposium Proceedings Vol.616*, 235-240, (2000).

14. P. Mukherjee, S. Chang and S. Witanachchi, "Effect of initial plasma geometry and temperature on dynamic plume expansion in dual-laser ablation", *Applied Physics Letters* **74**, 1546 (1999).
15. P. Mukherjee, J.B. Cuff and S. Witanachchi, "Plume expansion and stoichiometry in the growth of multi-component thin films using dual-laser ablation", *J. Applied Surface Science*, **127-129**, 620 (1998).
16. S. Witanachchi, Y. Ying, A.M. Miyawa and P. Mukherjee, "Room temperature growth of conducting ZnO films", *Proceedings of the MRS*, Vol. **483**, p185-190 (1998).
17. P. Mukherjee, P. Sakthivel and S. Witanachchi, "Optical Detection of Slow Excited Neutrals in Plasma-Assisted Excimer Laser Ablation", *Proceedings of the Materials Research Society*, **397**, 93-98, 1996.
18. S. Witanachchi, K. Ahmed, P. Sakthivel and P. Mukherjee, "Dual- Laser Ablation for Particulate-Free Film Growth", *Applied Physics Letters*, **66**, 1469-1471 (1995).
19. S. Witanachchi and P. Mukherjee, "Role of Temporal Delay in Dual-Laser Ablated Plumes", *Journal of Vacuum Science and Technology*, **A13**, 1171 (1995).
20. S. Witanachchi and P. Mukherjee, "Spot-size Dependent Bifurcation of Laser Ablated Plumes", *Journal of Applied Physics*, **78**, 4099-4103 (1995).
21. S. Witanachchi and P.J. Wolf, "Activated Reactive Laser Deposition of GeO₂ Films", *Journal of Applied Physics*. **76**, 2185-2190, 1994.
22. P.J. Wolf, B.M. Patterson and S. Witanachchi, "Spectroscopic Investigation of Laser Ablated Germanium Oxide", *MRS Proceedings*, Vol. **334**, 347-352, 1994.
23. A. J. Kontkiewicz, A.M. Kontkiewicz, J. Siejka, S. Sen, G. Nowak, A.M. Hoff, P. Sakthivel, K. Ahmed, P. Mukherjee, S. Witanachchi, and J. Lagowski, " Evidence that blue luminescence of oxidized porous silicon originates from SiO₂", *Applied Physics Letters*. **65**, 1436-1438, 1994.
24. S. Sen, A.J. Kontkiewicz, A.M. Kontkiewicz, J. Siejka, G. Nowak, P. Sakthivel, K. Ahmed, P. Mukherjee, S. Witanachchi, A. M. Hoff and J. Loagowski, "Effect of rapid thermal oxidation on blue and red luminescence bands of porous silicon", *MRS proceedings*, 1994.
25. P. Mukherjee, P. Sakthivel, K. Ahmed and S. Witanachchi, "Study of Ion Activation in the In-situ Low Temperature Laser Deposition of Superconducting Films", *J. Appl. Phys.* **74**, 1205-1208 (1993).

26. S. Witanachchi, K. Ahmed, P. Sakthivel and P. Mukherjee, "An Ion Probe Study of Plasma Assisted Laser Deposition" in Laser Ablation in Materials Processing: Fundamentals and Applications, B. Braren, J.J. Dubowski and D.P. Norton, eds., MRS Symposium proceedings, Vol. **285**, 51-56 (1993).
27. S. Witanachchi, K. Ahmed, P. Sakthivel and P. Mukherjee, "Dynamics of Ionic Enhancement in the Plasma-Assisted Laser Deposition of High Tc Superconductors", in Superconductivity and Applications, H.S. Kwok, D.T. Shaw and M.J. Naughton. eds., AIP Conference proceedings, Vol. **273**, 102-111 (1993).
28. P. Mukherjee, P. Sakthivel, K. Ahmed and S. Witanachchi, "Enhanced Ionization in Activated Reactive Excimer Laser Ablated Plumes", Proceedings of the IEEE Lasers and Electro-Optics Society, p. 396, Nov. 1992.
29. S. Witanachchi, D.T. Shaw and H.S. Kwok, "Low Temperature Growth of Superconducting Thin Films and Heterostructures", in Advances in High Tc Superconductors, pp 495-504 Ed. J.J. Pouch, Trans Tech Publications, Switzerland (1993).
30. H.S. Kwok, H.S. Kim, S. Witanachchi, E. Petron, J.P. Zheng, S. Patel, E. Narumi and D. T. Shaw, "Plasma-Assisted Laser Deposition of YBaCuO", App. Phys. Lett., **59**, 3643-3645 (1991).
31. S. Witanachchi, L.S. Lee, L.W. Song, H. Kao, and D.T. Shaw, "Critical Current Enhancement in Multilayered YBaCuO/YBaCuNiO Structures", App. Phys. Lett., **57**, 3133-3135 (1990).
32. S. Witanachchi, S. Patel, Y. Z. Zhu, H.S. Kwok and D.T. Shaw, "Flexible Stainless Steel Foil as a Substrate for Super-conducting Y-Ba-Cu-O Films", J. Mate. Res., **5**, 717-720 (1990).
33. S. Witanachchi, L.S. Lee, H. Kao, D.T. Shaw. "Critical Current Enhancement in Superconducting Multilayer Structures", SPIE Proc., Santa Clara, CA, Oct. 1990.
34. S. Witanachchi, S. Patel, H.S. Kwok and D.T. Shaw, "As-Deposited Superconducting Films on Silicon at 400oC", Appl. Phys. Lett., **54**(6), 578-582 (1989).
35. S. Witanachchi, H.S. Kwok and D.T. Shaw, "Low Temperature Growth of Mirror Like Superconducting Thin Films on Sapphire", Materials Letters, **8**, 53-56 (1989).
36. J.P. Zheng, Q.Y. Ying, S. Witanachchi, Z.Q. Huang, D.T. Shaw and H.S. Kwok, "Role of the Oxygen Atomic Beam in Low Temperature Growth of Superconducting Films by Laser Deposition", App. Phys. Lett., **54**, 954-956 (1989).

37. S. Witanachchi, S. Patel, D.T. Shaw and H.S. Kwok, "Effect of Buffer Layers on Low Temperature Growth of Superconducting Thin Films on Sapphire", *Appl. Phys. Lett.*, **55**, 295-297 (1989).
38. S. Witanachchi, D.T. Shaw, H.S. Kwok, E. Narumi, Y.Z. Zhu and S. Patel, "Multilayer Flexible Oxide Superconducting Tape", *Pro. of the Conf. on Superconductivity and Applications*, Buffalo, NY, Sept. 1989.
39. S. Witanachchi, H.S. Kwok, X.W. Wang and D.T. Shaw, "Deposition of Superconducting Y-Ba-Cu-O Films at 400°C without post annealing", *Appl. Phys. Lett.* **53**, 234 (1998).
40. H.S. Kwok, P. Mattocks, D.T. Shaw, L. Shi, X.W. Wang, S. Witanachchi, Q.Y. Ying and J.P. Zheng, "Laser Evaporation Deposition of Superconducting and Dielectric Thin Films", *App.Phys. Lett.*, **52**,(21), 1825-1827 (1988).
41. H.S. Kwok, J.P. Zheng, S. Witanachchi, Q.Y. Ying and D.T. Shaw, "Growth of CdS_xSe_{1-x} Thin Films by Laser Evaporation Deposition", *Appl. Phys. Lett.*, **52**,(21), 1815-1816 (1988).
42. H.S. Kwok, J.P. Zheng, S. Witanachchi, Q.Y. Ying and D.T. Shaw, "Growth of Highly Oriented CdS Thin Films by Laser Evaporation", *Appl. Phys. Lett.*, **52**(13), 1095-1097 (1988).
43. S. Witanachchi, J.P. Zheng, Q.Y. Ying, D.T. Shaw and H.S. Kwok, "Laser Deposition of Superconducting and Semiconducting Thin Films", *Superconductivity and Applications*, Edited by H.S.Kwok and D.T. Shaw, pp 194-200, 1988.
44. D.T. Shaw, S. Witanachchi and H.S. Kwok, "Plasma Assisted Laser Evaporation of Superconducting Thin Films at 400°C", *Proc. High Temperature Superconducting Electron Devices*, Ed. by S. Tanaka, pp 25-30 (1988).
45. H.S. Kwok, S. Witanachchi, Q.Y. Ying and D.T. Shaw, "Plasma Assisted Laser Deposition of Superconducting Thin Films - A Basic Study", *Proc. of the SERI Conference*, Colorado Springs, CO, Nov. 1988.
46. H.S. Kwok, P. Mattocks, D.T. Shaw, L. Shi, X.W. Wang, S. Witanachchi, Q.Y. Ying, J.P. Zheng, and P. Bush, "Laser Evaporation Deposition of YBCO Thin Films", *High Temperature Superconductors*, Ed. by M.B. Brodsky, R.C. Dynes, K. Kitazawa and H.C. Tuller, *MRS proc.*, Vol. **99**, pp 735-738, Pittsburgh,1988.
47. H.S. Kwok, P. Mattocks, D.T. Shaw, L. Shi, X.W. Wang, S. Witanachchi, Q.Y. Ying and J.P. Zheng, "Growth of Highly Oriented CdS_xSe_{1-x} Thin Films by UV Laser Evaporation Deposition", *Lasers and Particle-Beam Processing of Semi-conductors*, Ed. by D.J. Ehrlich, G.S. Higashi and M.M. Oprysko, *MRS Proc.*, Vol. **101**, pp 337-342, Pittsburgh, 1988.

48. H.S. Kwok, P. Mattocks, D.T. Shaw, L. Shi, S.W. Wang, S. Witanachchi, Q.Y. Ying and J.P. Zheng, "Sensing, Discrimination and Signal Processing and Superconducting Materials and Instrumentation", SPIE Proc., Vol. 879, Ed. by J.A. Ionson and R. Nicols, pp 153-158, 1988,
49. S. Witanachchi, J. Huang and J.T. Ho, "Light Scattering Above the Nematic-to-Smectic-C Transition" *Phy. Rev. Lett.*, **50**(8), 594-597 (1983).

CONFERENCE PRESENTATIONS

1. S. Witanachchi, G. Dedigamuwa, M. Marek, P. Mukherjee and X. Jiang, "Direct deposition of PbSe nanoparticles in a polymer by a microwave plasma process", to be presented at Materials Research Society Spring Meeting, San Francisco, April 2007.
2. S. Witanachchi, H. Abou Mourad, H. Weerasingha, and P. Mukherjee, "Role of the SiO₂-Si interface on the thermally activated metallic-to-insulator transition observed in FeSi and CoSi films on Si substrates, to be presented at Materials Research Society Spring Meeting, San Francisco, April 2007.
3. M. Beekman, R. Hyde, D. Mukherjee, S. Witanachchi, P. Mukherjee, and G. S. Nolas, "Preparation and physical properties of type II clathrates", 31st International Conference on Advanced Ceramics & Composites, The American Ceramic Society, Daytona Beach, Florida, Jan. 21, 2007.
4. R. Hyde, M. Beekman, D. Mukherjee, G. Nolas, P. Mukherjee, and S. Witanachchi, "Growth and characterization of germanium-based type I clathrate thin films deposited by pulsed laser ablation" 31st International Conference on Advanced Ceramics & Composites, The American Ceramic Society, Daytona Beach, Florida, Jan. 21, 2007.
5. T. Wangenstein, P. Mukherjee, and S. Witanachchi, "Growth of CoCaO nanoparticle coatings by a laser-assisted spray pyrolysis method for thermoelectric applications", 31st International Conference on Advanced Ceramics & Composites, The American Ceramic Society, Daytona Beach, Florida, Jan. 21, 2007.
6. G. S. Dedigamuwa, P. Mukherjee, H. Srikanth, and S. Witanachchi, "Growth and magnetic characterization of barium ferrite nanoparticle coatings", 31st International Conference on Advanced Ceramics & Composites, The American Ceramic Society, Daytona Beach, Florida, Jan. 21, 2007.
7. Sarath Witanachchi, Robert Hyde, Matt Beekman, Devajyoti Mukherjee, Prithvi Mukherjee, and George S. Nolas, "Synthesis and Characterization of Bulk and Thin Film Clathrates for Solid State Power Conversion Applications", 25th International Conference on Thermoelectrics, Viena, Austria, Aug. 2006.

8. Pritish Mukherjee, and Sarath Witanachchi, "Control of nanograin size in laser-assisted spray pyrolysis coatings", presented at the 2006 NSF Design, Service and Manufacturing Grantees & Research Conference, St. Louis, Missouri, July 2006.
9. S. Witanachchi, H. S. Nagaraja, R. Heindl, H. Srikanth, and P. Mukherjee, "Multiferroic characteristics of highly oriented ferrite-ferroelectric multilayered and composite films deposited by laser ablation", Materials Research Society Spring Meeting, San Francisco, April 2006.
10. M. Beekman, R. Hyde, H.S. Nagaraja, P. Mukherjee, S. Witanachchi, and G.S. Nolas "Synthesis and Characterization of Bulk and Thin Film Silicon and Germanium Based Clathrate Materials", Materials Research Society Spring Meeting, San Francisco, April 2006.
11. S.Witanachchi, P. Mukherjee, H. S. Nagaraja, R. Hyde, M. Beekman, H. F. Rubin, and G. S. Nolas, "Dual-laser Deposition of Type I Clathrate Films", Materials Research Society (MRS) Symposium, Boston, Massachusetts, December 2005.
12. R. Hyde, P. Mukherjee, and S. Witanachchi, "Role of the magnetic field on large-area carbon film growth on silicon in a hollow-anode arc plasma process", Materials Research Society Spring Meeting, San Francisco, April 2002.
13. Pritish Mukherjee, and Sarath Witanachchi, "Formation of Nano-grained TiC films by laser ablation and laser assisted spray pyrolysis", presented in 2005 NSF Design, Service and Manufacturing Grantees & Research Conference, Phoenix, AZ, Jan. 2005.
14. Uma Choppali, Pritish Mukherjee, and Sarath Witanachchi "Dimensionally controlled growth of nano-grained films on chemically self-assembled gold nanotemplates", presented at Materials Research Society Meeting, , San Francisco, CA, April 12-16, 2004.
15. Pritish Mukherjee, Uma Choppali and Sarath Witanachchi, "Formation of Gold Nanotemplates for the Growth of Monodisperse Nano-grained Films", presented in 2004 NSF Design, Service and Manufacturing Grantees & Research Conference, Dallas, TX, Jan. 2004.
16. Gayan Dedigamuwa, Pritish Mukherjee, and Sarath Witanachchi, "Deposition of mono-dispersed TiC nanoparticle coatings by a laser-assisted pyrolysis process", presented at Materials Research Society Meeting, San Francisco, CA, April 12-16, 2004.
17. S. Witanachchi and P. Mukherjee, "Carbon film growth in a hollow-electrode pulsed arc process", 2002 NSF Design, Service and Manufacturing Grantees and Research Conference, San Juan, Puerto Rico (January 2002).

18. S. Witanachchi, P. Mukherjee, S. Abeylath, and M. G. M. U. Ismail, "Spray pyrolysis seeding followed by chemical bath deposition of highly oriented CdS films" Materials Research Society Spring Meeting, San Francisco, April 2002.
19. P. Mukherjee and S. Witanachchi, "Effect of pulsed laser substrate heating on in-situ diamond growth", Proceedings of the 2002 NSF Design, Service and Manufacturing Grantees and Research Conference, San Juan, Puerto Rico (January 2002).
20. P. Mukherjee and S. Witanachchi "Dual-laser ablation for the growth of diamond-like carbon films: A precursor to diamond MEMS". NSF Design and Manufacturing Grantees Conference, Vancouver, Canada (January 2000).
21. P. Mukherjee and S. Witanachchi "Reliability and Universal Applicability of dual-laser ablation as a manufacturing process for thin film growth". NSF Design and Manufacturing Grantees Conference, Vancouver, Canada (January 2000).
22. P. J. Mahawela, S. Witanachchi, and P. Mukherjee, " A novel laser-triggered hollow-cathode transient plasma for thin film growth", Materials Research Society Meeting, San Francisco, CA (April 2000).
23. A. M. Miyawa, S. Witanachchi, and P. Mukherjee, "Diamond-like carbon film growth from highly ionized dual-laser generated plasmas", Materials Research Society Meeting, San Francisco, CA (April 2000).
24. P. Mukherjee and S. Witanachchi "Dynamic Plume imaging for process diagnostics and control in Pulsed Dual Laser Ablation". NSF Design and Manufacturing Grantees Conference, Long Beach, California, January 1999.
25. P. Mukherjee and S. Witanachchi, "The development of pulsed dual-laser ablation for thin film manufacturing" Proceedings of the 1998 NSF Design and Manufacturing Grantees Conference, p. 487-488, Moterrey, Mexico, January 1998.
26. S. Witanachchi and P. Mukherjee, "Dual-laser ablation for thin film growth", 1998 (Invited) Spring meeting of the MRS, San Francisco, April 1998.
27. S. Witanachchi, A. M. Miyawa, Y. Ying, J. Cuff and P. Mukherjee, "Fluorine doping of ZnO films in reactive dual-laser ablation", International Conference on Metallurgical Coatings and Thin Films (ICMCTF '98), San Diego, April 1998.
28. P. Mukherjee and S. Witanachchi, "The development of pulsed dual-laser ablation for thin-film manufacturing", Proceedings of the 1998 NSF Design and Manufacturing Grantees Conference, January 1998, pp. 497-498.

29. S. Witanachchi and P. Mukherjee, "Dual-laser ablation for thin film growth", Presented at the 1998 Spring meeting of the MRS, San Francisco, April 1998.
30. S. Witanachchi, A.M. Miyawa, Y. Ying, J. Cuff and P. Mukherjee, "Fluorine doping of ZnO films in reactive dual-laser ablation", Presentation at the International Conference on Metallurgical Coatings and Thin Films (ICMCTF '98), San Diego, April 1998.
31. P. Mukherjee, J. Cuff, A.M. Miyawa, R. Jones and S. Witanachchi, "Large-area ZnO film growth by laser ablation for photovoltaic applications", Materials Research Society (MRS) Symposium, December 1997, Boston, Massachusetts.
32. S. Witanachchi and P. Mukherjee, "Plume expansion and ionization in dual-laser ablation for multicomponent stoichiometric film growth", International Conference on Laser Ablation (COLA), July 1997, Monterey Bay, California.
33. S. Witanachchi, J. Cuff, A.M. Miyawa, R. Jones and P. Mukherjee, "Growth of Cu (InGa)Se₂ films by dual-laser ablation", Materials Research Society (MRS) Symposium, December 1997, Boston, Massachusetts.
34. P. Mukherjee, S. Witanachchi and P. Sakthivel, "Dynamic Modeling of Laser-Ablated Plume Expansion Using Time-resolved Plasma Temperatures", in Conference on Lasers and Electro-Optics, 1996, vol. 9, OSA Technical Digest Series (Optical Society of America, Washington, D.C.), pp. 427-428, 1996.
35. S. Witanachchi and P. Mukherjee, "A Novel Dual-Laser Ablation Process for Defect Free Epitaxial Film Growth", Materials Research Society Meeting, Boston, MA, December 1995.
36. P. Mukherjee and S. Witanachchi, "Dual-Laser Ablation for Thin Film Growth: A Plume Diagnostic Investigation", Proceedings of the 1995 NSF Design and Manufacturing Grantees Conference, January 1995, pp. 621-622.
37. P. Mukherjee, P. Sakthivel and S. Witanachchi, "Optical Detection of Slow Excited Neutrals in Plasma-Assisted Excimer Laser Ablation", Materials Research Society Meeting, Boston, MA, December 1995.
38. P. Mukherjee, P. Sakthivel and S. Witanachchi, "An Investigation of the Physical Basis of A Novel Dual-Laser Ablation Process", Materials Research Society Meeting, Boston, MA., December 1995.
39. K. Ahmed, P. Mukherjee and S. Witanachchi, "Improved in-situ high TC Superconducting Films Grown by Dual-Laser Ablation", Materials Research Society Meeting, Boston, MA., December 1995.

40. K. Ahmed, P. Mukherjee and S. Witanachchi, " Epitaxial Growth of Y2O3 and Nd: YAG films on Si by Dual-Laser Ablation", Materials Research Society Meeting, Boston, MA., December 1995.
41. S. Witanachchi, K. Ahmed, P. Sakthivel and P. Mukherjee, " Dual-Laser Ablation of Particulate Free Optical Films" 41st International Symposium of the American Vacuum Society, Denver, CO, Oct. 25, 1994.
42. S. Witanachchi and P. Mukherjee, "Optical Film Growth by Dual-Laser Ablation", Proceedings of CLEO, Optical Society of America, May 1995.
43. P. Mukherjee, P. Sakthivel and S. Witanachchi, "Enhanced Plume Expansion in Dual-Laser Ablation", Proceedings of CLEO, Optical Society of America, May 1995.
44. P. Mukherjee, P. Sakthivel and S. Witanachchi, "Role of Surface Modification of the Target in the Pulsed Dual-Laser Ablation Process", Proceedings of the Conference on Lasers and Electro-Optics, Optical Society of America, May 1995.
45. P. Mukherjee, P. Sakthivel, K. Ahmed and S. Witanachchi, "University of Ionic Temporal Bifurcation in Laser-Ablated Plumes", Proceedings of the Conference on Lasers and Electro-Optics, 8, 212-213, 1994.
46. P. Mukherjee, P. Sakthivel, K. Ahmed and S. Witanachchi, "Selective Manipulation of Ionic Enhancement in Laser Ablated Plumes", CLEO, 1993.
47. S. Witanachchi, K. Ahmed, "The Effect of Substrate on the Surface Morphology of Superconducting Thin Films", Tenth Anniversary Meeting, Florida Society of Electron Microscopy, Crystal River, March 4, 1992.
48. S. Witanachchi, L.S. Lee, L.W. Song, H. Kao and D.T. Shaw, "Critical Currents in Superconducting Heterostructures", Material Research Soc., 1990 Fall meeting, Boston, MA.
49. A Krol, C.J. Sher, D.R. Storch, L.W. Song, Y.H. Kao, S. Witanachchi, Y.Z. Zhu and D.T. Shaw, " Soft X-Ray Studies of YBaCuO Thin Films Prepared by Laser Ablation", Material Research Soc., 1989 Fall Meeting, Boston, MA.
50. A Shah, T. Haugan, S. Witanachchi, S. Patel and D.T. Shaw, "YBaCuO Films From Nitrate Solution Using RF Plasma Deposition", Material Research Soc., 1989 Fall Meeting, Boston, MA.
51. D.T. Shaw, S. Patel, J. Chang, S. Witanachchi, Y.Z. Zhu, L.W. Song and Y.H. Kao, "Fabrication of High Tc Superconducting Composite Structures", Material Research Soc., 1989 Fall Meeting, Boston, MA.

52. S. Witanachchi, J. Chang, Y.Z. Zhu, S. Patel and D.T. Shaw, "Effect of Buffer Layers on the Superconducting Properties of YBaCuO Films on Metallic Substrates", Material Research Soc., 1989 Fall Meeting, Boston, MA.
53. S. Patel, S. Witanachchi, Y.Z. Zhu, H.S. Kwok and D.T. Shaw, Metallurgical Soc. Annual Meeting, Las Vegas, Nevada, Feb. 1989.
54. H.S. Kwok, D.T. Shaw, L. Shi, X.W. Wang, S. Witanachchi, Q.Y. Ying and J.P. Zheng, Materials Research Soc. Symposia, Reno, Nevada, Spring 1988.
55. H.S. Kwok, P. Mattock, D.T. Shaw, L. Shi, S. Witanachchi, Q.Y. Ying and J.P. Zheng, Materials Science of High Temperature Superconductors Symposia, AIME:TMS, Cincinnati, Ohio, Fall 1987.
56. D.T. Shaw, S. Witanachchi and H.S. Kwok, American Metallurgical Soc. Meeting, Chicago, Sept. 1988.
57. H.S. Kwok, S. Witanachchi and D.T. Shaw, The Metallurgical Soc. Meeting, Chicago, Sept. 1988.
58. D.T. Shaw, S. Witanachchi and H.S. Kwok, World Congress on Superconductivity, Houston, Texas, 1988.
59. S. Witanachchi, H.S. Kwok, P. Bush, S. Patel and D.T. Shaw, "Microstructure of the As-deposited Superconducting Y-Ba-Cu-O Films on Silicon and GaAs with Processing Temperatures Below 450°C", Materials Research Soc. Symposia, Boston, MA, Nov. 30-Dec. 3, 1988.
60. S. Witanachchi, H.S. Kwok and D.T. Shaw, "Superconducting Thin Films of Y-Ba-Cu-O with Processing Temperatures Below 450°C", Materials Research Soc. Symposia, Boston, MA, Nov. 30-Dec. 3, 1989.
61. D.T. Shaw, S. Witanachchi and H.S. Kwok, 16th IEEE International Conf. on Plasma Science, Buffalo, NY, May 1989.
62. S. Witanachchi, S. Patel, H.S. Kwok and D.T. Shaw, Ame. Phys. Soc. March Meeting, St. Louis, MO, March 1989.
63. D.T. Shaw, S. Witanachchi and H.S. Kwok, Superconductivity in Electronics-Commercialization Workshop, San Francisco, CA, Sept. 1989.
64. H.S. Kwok, W.S. Lau, D.T. Shaw, L. Shi, S. Witanachchi and Q.Y. Ying, SPIE Symposium on Innovative Science Technology, Orlando, Florida 1988.
65. H.S. Kwok, P. Mattock, D.T. Shaw, L. Shi, S. Witanachchi, Q.Y. Ying and J.P. Zheng, American Physical Society, New Orleans 1988.

66. S. Witanachchi, Q.Y. Ying, L. Shi, J.Pi Zheng, H.S. Kwok and D.T. Shaw, 7th Joint Symposium on Materials Science and Engineering, Buffalo, N.Y., July 22, 1988.
67. H.S. Kwok, S. Witanachchi and D.T. Shaw, American Vacuum Soc. Sym., (Upstate New York), Rochester, New York, 1988.
68. K. Etemadi, M. Yang, S. Witanachchi, and D.T. Shaw, "Thermal Plasma Synthesis of Aluminum Nitride Particles", Ame. Assoc. for Aerosol Res., Seattle, WA, Sept. 1987.
69. S. Witanachchi, S. Patel, H.S. Kwok and D.T. Shaw, "Iron Particle Formation in Photodissociation and Photoionization of Iron Pentacarbonyl", Ame. Assoc. for Aerosol Res., Seattle, WA, Sept. 1987.

Graduate Students Supervised

1. G. S. Riser (M.S.), "Electrical Characterization of Laser Deposited $Pb_{1-x}Sn_xTe$ Films", August 1994.
2. K. Ahmed (Ph.D) "A Novel Dual Laser Ablation Process for High Quality Film Growth", December 1996.
3. P. Panse (M.S.), "High-temperature Superconducting YBCO Thin Film Growth by Dual Laser Ablation", August 1994.
4. A. M. Miyawa (M.S.), "Role of Ions in the Growth of ZnO and Diamond Like Carbon (DLC) Films Deposited by Dual Laser Ablation", August 2000.
5. P. Mahawela (M.S.) "A Hollow-cathode Plasma Deposition System for Thin Film Growth", August 2000.
6. H. Abou-Mourad (Ph.D), "Metallic to insulator transition in disordered pulsed laser deposited silicide thin films" - April 2005.
7. G. Dedigamuwa (M.S.), "Formation of nanocoatings by laser-assisted spray pyrolysis and laser ablation on 2D nanotemplates" – May 2005.
8. H. Weerasinghe (M.S.), "Electrical Characterization of Metal-to-Insulator Transition in Iron Silicide thin films on Silicon substrates"- August 2006
9. Robert Hyde (Ph.D), expected graduation-November 2008.
10. T. Wangenstein (Ph.D), expected graduation - November 2008.
11. G. Dedigamuwa (Ph.D), expected graduation-November 2008.
12. Dev Mukherjee (Ph.D), expected graduation –March 2009.
13. Marek Merlak (M.S), expected graduation-July 2008.

Collaborators

Prof. Pritish Mukherjee, Physics- Co-Director LAMSAT

Prof. George Nolas, Physics- Clathrate films

Prof. Srikanth Hariharan, Physics- Ferromagnetic and ferroelectric films and nanostructures for multiferroic applications.

Prof. Lilia Woods, Physics- Modeling transport in nanostructured films.

Prof. Xiaomei Jiang, Physics- PbSe quantum dots for organic excitonic solar cells

Prof. Matthias Batzill, Physics- Oxide thin films

Prof. Martin Munoz, Physics- Semiconductor films

Prof. Don Morel, Electrical Engineering- Quantum dot based solar cells

Prof. Chris Ferakides, Electrical Engineering- Quantum dot based solar cells