

ELISA RIEDO
CURRICULUM VITAE

Associate Professor, School of Physics

Georgia Institute of Technology

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American Citizen

Educational Background:

B.S., Physics, 1995, *Summa cum Laude*, University of Milano, Italy

Ph.D., Physics, 2000, University of Milano, Italy

Employment History:

July 2009- present: Associate Professor, School of Physics, Georgia Tech (USA)

2006-present: Adjunct Professor, School of Chemistry and Biochemistry, Georgia Tech (USA)

2003- 2009: Assistant Professor, School of Physics, Georgia Tech (USA)

1999 – 2003: Post Doctoral Fellow, École Polytechnique Fédérale Lausanne (EPFL) (Switzerland)

1998 - 1999: Research Assistant, European Synchrotron Research Facility (ESRF) (France)

Feb-Jun 1998: Research Assistant, TASC – INFM labs, Trieste (Italy)

June 1998: Visiting Research Assistant, Forschungszentrum of Jülich (Germany)

1996 - 1998: Research Assistant, CoreCom (Politecnico of Milan and Pirelli) (Italy)

1995: Research stage at CERN, Geneva, (Switzerland)

Current Fields of Interest:

Soft and Hard Matter by Nanoscale Experiments:

- * Nano-confined fluids and Solid-Fluid Interactions: Physics and chemistry of fluids, in particular water, when confined in nano-spaces. Structural properties and nano-rheology.
- * Scanning probe nanopatterning and nanofabrication: thermochemical nanolithography (TCNL) for nanoelectronics, nano-optics, biology and energy applications.
- * NanoMechanics: Elasticity, friction and mechanical properties of nano-objects from nanotubes to DNA.

Honors and Awards:

- 2013: APS Fellow, Division of Condensed Matter Physics
- 2006: GT College of Science Cutting Edge Research Award
- 2005: Selected as *Highly Creative Researcher in Nanoscience and Nanotechnology* for the “Project on Creativity Capabilities and the Promotion of Highly Innovative Research” (CREA), a joint USA/European endeavor.
- 2002: Best Poster, Gordon International Conference Tribology 2002.
- 1999: Best ESRF Graduate Student Grant Award, ESRF, Grenoble.
- 1995: Physics Degree *Summa cum Laude*.

Refereed Publications:

1. Ricardo Garcia, Armin Knoll, and Elisa Riedo “Advanced Scanning Probe Lithography”, Review Paper for **Nature Nanotechnology**, invited.
2. Hsiang-Chih Chiu, Kyung Duk Koh, Marina Evich, Annie L. Lesiak, Markus W. Germann, Angelo Bongiorno, Elisa Riedo and Francesca Storici “How RNA intrusions change DNA structure and elastic properties”, submitted.
3. Si Zhou, Suenne Kim, Emiliano Di Gennaro, Yike Hu, Cheng Gong, Chien-Yuan Chang, Xi Lu, Hsiang-Chih Chiu, Claire Berger, Walt de Heer, Elisa Riedo, Yves J. Chabal, Carmela Aruta, and Angelo Bongiorno “Epitaxial Graphene Oxide Films: Order, Structure and Elasticity”, **Advanced Materials Interfaces** (2014), accepted.
4. Keith M. Carroll, Xi Lu, Suenne Kim, Yang Gao, Hoe-Joon Kim, Suhas Somnath, Laura Polloni, Roman Sordan, William P. King, Jennifer E. Curtis, Elisa Riedo “Parallelization of

- Thermochemical Nanolithography”, **Nanoscale** 6 (3), 1299 – 1304, (2014).
5. Deborah Ortiz-Young, Hsiang Chih Chiu, Suenne Kim, Kislon Voitchovsky and Elisa Riedo “The interplay between apparent viscosity and wettability in nanoconfined water”, **Nature Communications**, DOI: 10.1038/ncomms3482 (2013).
 6. K. M. Carroll, A. J. Giordano, D. Wang, V. K. Kodali, J. Scrimgeour, W. P. King, S. R. Marder, E. Riedo, and J. E. Curtis, “Fabricating nanoscale chemical gradients with thermochemical nanolithography,” **Langmuir**, 29 (27), 8675–8682 (2013).
 7. Suenne Kim, Si Zhou, Yike Hu, Muge Acik, Yves J. Chabal, Claire Berger, Walt de Heer, Angelo Bongiorno, and Elisa Riedo “Room Temperature Metastability of Multilayer Epitaxial Graphene Oxide”, **Nature Materials**, 11, 544, (2012).
 8. Hsiang-Chih Chiu, Sedat Dogan, Mirjam Volkmann, Christian Klinke, and Elisa Riedo “Adhesion and size dependent friction anisotropy in boron nitride nanotubes”, **Nanotechnology**, 23, 455706 (2012).
 9. H.-C. Chiu, S. Kim, C. Klinke, and E. Riedo, “Morphology dependence of radial elasticity in multiwalled boron nitride nanotubes” , **Appl. Phys. Lett.** 101, 103109 (2012).
 10. Marcel Lucas, and Elisa Riedo, Invite d Review Article: “Combining scanning probe microscopy with optical spectroscopy for applications in biology and materials science”, **Rev. Sci. Instrum.** 83, 061101 (2012) (Cover Article).
 11. Hsian-Chih Chiu, Beate Ritz, Suenne Kim, Erio Tosatti, Christian Klinke, Elisa Riedo “Sliding on a Nanotube: Interplay of Friction, Deformations and Structure” **Adv. Mat.**, 24, 2879 (2012). (Cover Article)
 12. Suenne Kim, Yaser Bastani, Haidong Lu, William P. King, Seth Marder, Kenneth H. Sandhage, Alexei Gruverman, Elisa Riedo, and Nazanin Bassiri-Gharb “Direct fabrication of arbitrary-shaped ferroelectric nanostructures on plastic, glass and silicon substrates”, **Adv. Mat.**, 23, 3786–3790, (2011). (Cover Article)
 13. Z. Q. Wei, D. B. Wang, S. Kim, S. Y. Kim, Y. K. Hu, M. K. Yakes, A. R. Laracuente, Z. T. Dai, S. R. Marder, C. Berger, W. P. King, W. A. de Heer, P. E. Sheehan, and E. Riedo, "Nanoscale Tunable Reduction of Graphene Oxide for Graphene Electronics," **Science**, 328, 1373-1376, (2010).
 14. Wen Chen, Gozde Guler, Elizabeth Kuruvilla, Gary B. Schuster, Hsiang-Chih Chiu, Elisa Riedo, “Development of Self-Organizing, Self-Directing Molecular Nanowires: Synthesis

- and Characterization of Conjoined DNA-2,5-Bis(2-thienyl)pyrrole Oligomers”, **Macromolecules**, 43, 4032, (2010).
15. M. Lucas, Z. L. Wang, and E. Riedo, “Growth direction and morphology of ZnO nanobelts revealed by combining in situ atomic force microscopy and polarized Raman spectroscopy” **Phys. Rev. B** 81, 045415 (2010).
 16. D. B. Wang, S. Kim, W. D. Underwood, Lee, W. P. King, R. Marder, E. Riedo, “Direct Writing and characterization of PPV nanostructures”, **Appl. Phys. Lett.** 95, 233108 (2009).
 17. Marcel Lucas, Xiaohua Zhang, Ismael Palaci, Christian Klinke, Erio Tosatti, and Elisa Riedo “Hindered rolling and friction anisotropy in supported carbon nanotubes” **Nature Materials** 8, 876 (2009). Featured in News&Views of Nature Materials.
 18. D. Wang, V. Kodali, W. D. Underwood, J. E. Jarvholm, T. Odaka, S. C. Jones, M. Rumi, Z. Dai, W. P. King, S. R. Marder, J. E. Curtis, and E. Riedo “Thermochemical nanolithography of multi-functional templates for assembling nano-objects” **Adv. Funct. Mat.** 19, 3696 (2009) (Cover Article).
 19. M. Lucas, Z.L. Wang, and E. Riedo, “Combined polarized Raman and atomic force microscopy: In situ study of point defects and mechanical properties in individual ZnO nanobelts” **Appl. Phys. Lett.** 95, 051904 (2009).
 20. E. Gnecco, E. Riedo, W.P. King ,S.R. Marder and R. Szoszkiewicz, “Linear ripples and traveling circular ripples produced on polymers by thermal AFM probes” **Phys. Rev. B** 79, 235421 (2009).
 21. M. Lucas, K. Gall, and E. Riedo, “Tip size effects on AFM nanoindentation of a gold single crystal” **J. Appl. Phys.** 104, 113515 (2008).
 22. M. Lucas, A. M. Leach, M. T. McDowell, S. E. Hunyadi, K. Gall, C. J. Murphy, and E. Riedo, “Plastic deformation of pentagonal silver nanowires: Comparison between AFM nanoindentation and atomistic simulations” **Phys. Rev. B** 77, 245420 (2008).
 23. T.-D. Li, and E. Riedo “Nonlinear viscoelastic dynamics of nanoconfined wetting liquids”, **Phys. Rev. Lett.** 100, 106102 (2008) (Featured in the NSF News and other News Media).
 24. D. B. Wang, M. Lucas, R. Szoszkiewicz, E. Riedo, T. Okada, S. C. Jones, S. R. Marder, Lee, W. P. King, “Local wettability modification by thermochemical nanolithography with write-read-overwrite capability”, **Appl. Phys. Lett.** 91, 243104 (2007) (Highlighted by Virtual Journal of Nanoscale Science & Technology).

25. R. Szoszkiewicz, T. Okada, S. C. Jones, T.-D. Li, W. P. King, S. R. Marder and E. Riedo “High-speed, thermochemical nanolithography with sub-15 nm feature size”, **Nano Letters** 7, 1064 (2007). (Highlighted by Scientific American, UPI, and other News Media).
26. M. Lucas, W. Mai, J.H. Song, Z.L. Wang and E. Riedo “Aspect ratio dependence of the elastic properties of ZnO nanobelts”, **Nano Letters** 7, 1314 (2007).
27. T.-D. Li, J. Gao, R. Szoszkiewicz, U. Landman and E. Riedo “Structured and viscous water in subnanometer gaps”, **Phys. Rev. B** 75, 115415 (2007). (Highlighted by Virtual Journal of Nanoscale Science & Technology, Virtual Journal of Biological Physics Research, and other News Media).
28. S. Yoo, W. J. Potscavage Jr., B. Domercq, S.-H. Han, T.-D. Li, S. C. Jones, R. Szoszkiewicz, D. Levi, E. Riedo, S. R. Marder, B. Kippelen, “Analysis of improved photovoltaic properties of pentacene/C60 organic solar cells: Effects of excitons blocking layer thickness and thermal annealing”, **Solid-State Electronics** 51, 1367 (2007).
29. M. Lucas, W. Mai, J.H. Song, Z.L. Wang and E. Riedo “Size dependence of the mechanical properties of ZnO nanobelts”, **Philos. Mag.** 87, 2135 (2007).
30. L. Sirghi, R. Szoszkiewicz and E. Riedo, “Volume of Nanoscopic Menisci”, **Langmuir** 22, 1093 (2006).
31. R. Szoszkiewicz and E. Riedo, “Nucleation time of nanoscale water bridges”, **Phys. Rev. Lett.** 85, 135502 (2005).
32. J.H. Song and X.D. Wang and E. Riedo and Z.L. Wang, “Elastic Property of Vertically Aligned Nanowires/Nanotubes”, **Nano Letters** 12, 1954 (2005).
33. R. Szoszkiewicz and E. Riedo, “Friction forces as a local probe of Phase transitions”, **App. Phys. Lett.** 87, 033105 (2005). (Highlighted by Virtual Journal of Nanoscale Science & Technology, 2005).
34. J.H. Song and X.D. Wang and E. Riedo and Z.L. Wang, “Systematic study on experimental conditions for large-scale growth of aligned ZnO nanowires on nitrides”, **J. Phys. Chem. B** 109, 9869 (2005).
35. I. Palaci, S. Fedrigo, H. Brune, C. Klinke, M. Chen and E. Riedo, “Radial Elasticity of Multiwalled Carbon Nanotubes”, **Phys. Rev. Lett.** 94, 175502, (2005). (Highlighted by Virtual Journal of Nanoscale Science & Technology, 2005, and other News Media).

36. E. Gnecco, E. Riedo, R. Bennewitz, E. Meyer, H. Brune, "Thermally activated phenomena in nanoscopic sliding friction" **TriboTest** 12, 2169 (2006).
37. E. Riedo and E. Gnecco, "Thermally activated effects in Nanofriction", **Nanotechnology** 15 S288 (2004).
38. E. Riedo, I. Palaci, C. Boragno, H. Brune, "2/3 power law dependence of Capillary Force in Nanoscopic Friction", **J. Phys. Chem. B** 108, 5324 (2004).
39. E. Riedo, H. Brune, "Nano-Friction and Young Modulus in Hard Coatings", **Appl. Phys. Lett.** 83, 1986 (2003).
40. E. Riedo, E. Gnecco, R. Bennewitz, E. Meyer, H. Brune, "Interaction Potential and Attempt Frequency Governing Sliding Friction", **Phys. Rev. Lett.** 91, 084502, (2003). (Highlighted by Virtual Journal of Nanoscale Science & Technology, 2003).
41. E. Riedo, F. Levy, H. Brune, "Kinetics of capillary condensation in nanoscopic sliding friction", **Phys. Rev. Lett.** 88, 185505-4, (2002). (Highlighted by Nature Material May 2002 and Virtual Journal of Nanoscale Science & Technology April 29, 2002).
42. R. Haerle, E. Riedo, A. Pasquarello, A. Baldereschi "sp²/sp³ hybridization ratio in amorphous carbon from C1s core-level shifts: X-ray photoelectron spectroscopy and first-principles calculation", **Phys. Rev. B.** 65, 045101, (2002).
43. S. Abbet, E. Riedo, H. Brune, U. Heiz, A. M. Ferrari, L. Giordano, G. Pacchioni, "Identification of defect sites on MgO(100) thin films by decoration with Pd atoms and studying CO adsorption properties", **J. Am. Chem. Soc.** 123(25), 6172, (2001).
44. E. Riedo, J. Chevrier, F. Comin, H. Brune, "Nanotribology of carbon based thin films: the influence of film structure and surface morphology", **Surf. Sci.** 477/1, 25, (2001).
45. C. Aruta, J. Zegenhagen, B. Cowie, D. Luebbert, T. Baumbach, G. Pasquini, G. Balestrino, P. G. Medaglia, F. Ricci, E. Riedo, L. Ortega, "Structure of superconducting [BaCuO_x]₂/[CaCuO₂]_n superlattices on SrTiO₃(0001) investigated by X-ray scattering", **Phys. Stat. Sol. (A)** 183, 353, (2001).
46. E. Riedo, F. Comin, J. Chevrier, A. M. Bonnot, "Composition and chemical bonding of pulsed laser deposited carbon nitride thin films", **J. Appl. Phys.** 88, 4365, (2000).
47. E. Riedo, F. Comin, J. Chevrier, F. Schmithusen, S. Decossas, M. Sancrotti, "Structural properties and surface morphology of amorphous Carbon and Carbon Nitride films," **Surf. Coat. Technol.** 125, 124, (2000).

48. E. Riedo, E. Magnano, S. Rubini, M. Sancrotti, E. Barborini, P. Piseri, P. Milani, "EELS and XPS analysis of carbon films grown by cluster beam deposition with different nanostructures", **Solid State Comm.** 116, 287, (2000).
49. G. Ghislotti, E. Riedo, D. Ielmini, M. Martinelli, "Intersubband relaxation time for InGaAs/AlAs quantum wells with a large transition energy ", **Appl. Phys. Lett.** 75, 3626 (1999).
50. G. Ghislotti, D. Ielmini, E. Riedo, M. Martinelli, "Picosecond time-resolved photoluminescence studies of recombination processes in CdTe", **Solid State Comm.** 111, 211, (1999).

Invited Review Publications in Books :

1. D. Wang, V. Kodali, J. Curtis, E. Riedo, "Nanofabrication of Functional Nanostructures by Thermochemical Nanolithography" book chapter in *Tip Based Nanofabrication: Fundamentals and Applications*, Springer (2011).
2. D. Wang, R. Szoszkiewicz, V.K. Kodali, J.E. Curtis, S.R. Marder, E. Riedo, "A New-AFM Based Lithography Method: Thermochemical Nanolithography," *Applied Scanning Probe Methods, Volume 10: Biomimetics and Industrial Applications*, (2010).
3. R. Szoszkiewicz, E. Riedo, "New AFM Developments to Study Elasticity and Adhesion at the Nanoscale," book chapter in *Applied Scanning Probe Methods V*, in the NanoScience and Technology series, Springer (2007).
4. L. Merchan, R. Szoszkiewicz, E. Riedo, "NanoMechanics: Elasticity in Nano-Objects," book chapter in *Fundamentals of Friction and Wear on the nanoscale*, in the NanoScience and Technology series, Springer (2007).

Grant Proposal Activity:

Submitted

- * Renewal for NSF – MRSEC, co-PI
- * NSF – CMMI, PI
- * NSF-2DARE, Pre-proposal selected (42 out of 189) and invited to full proposal submission

Funded

- * NSF - CMMI - "Collaborative Research: Nanomanufacturing Reduced Graphene Oxide".
Multi-Investigators (3), PI. 03/2011 – 3/2014. 3 years. \$350,000
- * Georgia Tech – IBSI “Physical detection and mechanical properties of ribonucleotides embedded in DNA”
Multi-Investigators (2), co-PI. 2 years.
- * NSF – MRSEC “The Georgia Tech Laboratory for New Electronic Materials”.
Multi-Investigators (19), co-PI. 12/2008 – 11/2014. 6 years. \$8,000,000.
Funds to Riedo’s Lab \$30,000/year.
- * DOE, “Nanomechanics: elasticity and friction in nano-objects”.
Single Investigator, PI. 08/2006 – 07/2016. 10 years. \$1,355,809.
- * Renewal of NSF – STC “Materials and Devices for Information Technology Research”.
Multi-Investigators (34), co-PI. 08/2007 – 07/2013. 5 years. \$17,976,000.
Funds to Riedo’s Lab about \$350,000 over 5 years. (Expired)
- * NSF-NUE “NUE: The Nanotechnology Certificate Program at Georgia Tech”.
Multi-Investigators (6), co-PI. 09/2008 – 8/2010. 3 years. \$199,567.
Funds to Riedo’s Lab \$3,472 for year 1. (Expired).
- * Renewal NSF-DMR, “Liquid dynamics in nano-confined geometries: Nano-hydrodynamics”.
Single Investigator, PI. 09/2007 – 08/2010. 3 years. \$300,000. (Expired).
- * College of Science Cutting Edge Research Award.
Single Investigator, PI. 01/2006 – 06/2008. \$50,000. (Expired).
- * NSF-STC International Research Experience Program.
Multi-Investigators (2), PI. 01/2006 – 03/2008. \$138,000. (Expired).
- * Seed Project in NSF–STC “Materials and Devices for Information Technology Research”.
Single Investigator, PI. 02/2005 – 08/2007. 2 years. \$158,700. (Expired).
- * ACS Petroleum Research Foundation, “Short and Long Range Hydrophobic Forces at the nanoscale: role of roughness and chemistry”. (Expired).
Single Investigator, PI. 09/2004 – 08/2008. 2 Years (extended). \$80,000 (Expired).
- * NSF-DMR, “Interaction Forces in Water at the Nanoscale”.
Single Investigator, PI. 06/2004 – 06/2007. \$151,000 (Expired).
- * President’s Undergraduate Research Award, fall semester 2004. \$1,500 (Expired).

- * Swiss NSF grant, visiting researcher for 6 months. (Expired).

Patents and Licenses:

- * United States Patent Application: Thermochemical Nanolithography Components, Systems, And Methods, Serial No.: 12/791,466, Issue Date: 18 June 2013, US 8,468,611
- * Thermochemical Nanolithography Components, Systems, And Methods EP2435880, 11 September 2013
- * License for “Thermochemical Nanolithography Components, Systems, And Methods” ID 4720.

Invited Talks at International Conferences:

- * June 2014 (upcoming)- CIMTEC 2014, Montecatini Terme
- * January 2014 – Workshop on “Thermal Lithography”, IBM Zurich
- * November 2013 - Conference on Frontiers of Condensed Matter Physics, ICTP, Trieste
- * October 2013: AVS 60th International Symposium and Exhibition, “Novel 2D Materials”
- * August 2012: "Dynamics and Jamming in Complex Environments," 2012 ACS National Meeting in Philadelphia, PA
- * August 2012: MRS Joint Meeting, XXI International Materials Research Congress, Cancun
- * April 2012: Lorentz Center Workshop “Fundamentals of Friction and Lubrication” (Netherlands)
- * February 2012: NSF Site Visit of GT MRSEC – co-PI Seminar
- * September 2011: Joint ICTP-FANAS Conference on Trends in Nanotribology, International Center of Theoretical Physics (ICTP)
- * June 2011: International Conference on Mechanical Behavior of Materials, ICM11, Villa Erba
- * May 2011: South east Soft Materials Workshop, Georgia Institute of Technology
- * September 2010: DOE/BES Mechanical Behavior and Radiation Effects of Materials Contractors' Meeting, Washington DC, (USA).
- * June 2010: 8th International Workshop on Epitaxial Semiconductors on Patterned Substrates and Novel Index Surfaces Como (Italy)
- * October 2009: “NanoComposite 2009” Lake Louise, Canada.

- * August 2009: “Gordon Conference: Chemistry and Physics of Liquids”, Holderness School, Plymouth NH (USA).
- * October 2008: “Conference on the Physics, Chemistry, and Biology of Water 2007”, Vermont (USA).
- * June 2008: “Physics of Micro- and NanoFluids”, Lorentz Center, Leiden (NL).
- * April 2008: “Behavior of Defects in Materials - Contractors Meeting 2008”, Warrenton, VA (USA).
- * October 2007: “Conference on the Physics, Chemistry, and Biology of Water 2007”, Vermont (USA).
- * October 2006: Workshop on “Frontiers of Scanning Probe Microscopy,” Purdue University, West Lafayette, Indiana, (USA).
- * September 2006: 5th ESF-Nanotribology Workshop, Antalya (Turkey).
- * March 2006: ACS National Meeting in Atlanta, Georgia (USA).
- * Fall 2004: GT Materials Council Nano-materials Forum, (USA).
- * June 2005: 4rd ESF-Nanotribology Workshop, Porcherolles (France).
- * September 2003: International Conference, “TNT03: Trends in NanoTechnology, 2003,” Salamanca (Spain).
- * February 2003: International Conference, “From elasticity to plastic flow in condensed media,” Les Houches (France).

Invited Seminars and Colloquia at Universities/Research Centers:

- * June 2013: IBM, Zurich (CH)
- * September 2012: New York University, (USA)
- * June 2012: IBM, Zurich (CH).
- * June 2010: Politecnico of Milan (Italy).
- * March 2009: University of Miami (USA).
- * November 2008: Agilent Workshop, Georgia Tech, (USA).
- * September 2008: The Johns Hopkins University, (USA).
- * April 2008: Colloid & Soft Matter Bag Lunch Seminar series, Georgia Tech, (USA).
- * April 2007: University of South Florida (USA).
- * July 2006: Solvay Workshop, Georgia Tech, (USA).

- * June 2006: University of Maryland (USA).
- * May 2006: School of Chemistry and Biochemistry, Georgia Tech, (USA).
- * April 2006: University of South Florida (USA).
- * January 2006: Emory University (USA).
- * January 2006: University of Maryland (USA).
- * September 2005: North Carolina State University (USA).
- * Spring 2005: Invited lecture in MSE, Georgia Tech, (USA).
- * Fall 2004: COPE seminar series, Georgia Tech, (USA).
- * Summer 2004: School of Physics, REU seminar series, Georgia Tech, (USA).
- * Spring 2004: Center for Process Systems Engineering series, Georgia Tech, (USA).
- * January 2003: Georgia Institute of Technology (USA).
- * November 2002: CNRS Grenoble (France).
- * October 2002: University of Basel (Switzerland).
- * September 2002: PCSM-ESPCI, Paris (France).
- * May 2002: University of Paris VII (France).
- * April 2002: University of Cambridge (England).
- * September 2000: EPFL Lausanne (Switzerland).

Contributed Presentations at International Conferences:

- * October 2012: The (SES) Society of Engineering Science Technical Meeting, Georgia Tech.
 - * June 2012: SuperFOx, Como, (Italy)
 - * November 2011: Material Research Society Meeting, Boston (USA).
 - * March 2008: American Physical Society Meeting, New Orleans, Louisiana (USA).
 - * November 2005: Material Research Society Meeting, Boston (USA).
 - * March 2005: American Physical Society Meeting, Los Angeles, California (USA).
 - * March 2004: Frontiers in Tribology 2004, Oak Ridge, Tennessee (USA).
- Students and Post Docs in Riedo's Lab presented 5 posters and about 30 talks since 2003.
- * October 2002: 1st ESF-Nanotribology Workshop, Porto Venere (Italy).
 - * August 2002: Gordon Conference, Tribology, Boston (USA).
 - * April 2002: European Physical Society (EPS), 2002, Brighton, (UK).

- * Feb 2002: SPS 2002, EPFL, Lausanne (Switzerland).
- * January 2002: SAOG-GSSI 18th Annual Meeting, Hard Coatings-Recent developments of various processes and applications, University of Fribourg (Switzerland).
- * June 1999: European Material Research Society (E-MRS) 1999 Spring Meeting, Congress Center – Palais de la Musique et des Congres - Strasbourg (France).
- * September 1998: 5th International Conference on Nanometer-scale Science and technology (NANO 5), International Convention Center, Birmingham, (UK).
- * April 1998: International School of Solid State Physics, Erice, (Italy).
- * July 1997: International School of Ultrafast Spectroscopy, Erice, (Italy).

Committees - Georgia Tech:

Faculty search committee (2013-2014)

Colloquium committee (2011-2013)

Reappointment, Promotion and Tenure Committee (2011-2013)

Condensed Matter search committee (2013)

Biophysics search committee (2011)

Materials Task Force member (2011)

Globalization Task Force member (2011-2012)

New course development: *Nanoscale Properties and Characterization* (2011-2012)

Physics Chair Faculty Search Committee (2010)

School of Physics Ph.D. Thesis Committees (2007, 2008, 2010)

School of Chemistry and Biochemistry OP-Ph.D. Thesis Committees (2006 and 2008)

Material Science Engineering Ph.D. Thesis Committee (2006 and 2007)

Mechanical Engineering Ph.D. Thesis Committee (2007)

Biophysics Search Committee, Physics (2007-08-09-10)

Strategic Planning Committee: Physics (2007-08)

Physics Faculty Advisory Committee (elected in 2007)

Undergraduate physics major advisement (2004-2007)

Physics Graduate Students Committee (2007)

Physics Special Topics Seminar, Chair (2007)

Physics Chair Faculty Search Committee (2005)

Georgia Tech Sigma-Xi best PhD thesis Committee (2006)

Physics Society of Physics advisor (2004-2005)

Physics Undergraduate Committee (2005)

Physics Colloquium Committee (2004, 2005)

Physics Graduate Exam Committee (2004-2005)

Editorial Boards and Meeting Organization:

- * Editorial Board Member for *Nature "Scientific Reports"* (2012-present)
- * Editorial Board Member for "*Review of Scientific Instruments*" (2008-2010).
- * Member of the program committee for the 2014 AVS Symposium on Novel 2D Materials
- * Session Chair at the 2013 AVS Symposium on Novel 2D Materials.
- * Session Chair at the 2012 ACS Symposium on Dynamics and Jamming.
- * Co-Organizer of the *Focus Topic* "Tribophysics" at the 2010 March Meeting of the American Physical Society (APS).
- * Founder and co-Organizer of the "Southeast Workshop Series on Soft Materials", GeorgiaTech Campus, yearly since 2008.
- * Co-Organizer of the Conference "Nano and Giga Challenges in Electronics, Photonics and Renewable Energy", Hamilton, Ontario, Canada, August 10-14, 2009.
- * Co-Organizer and Chair of the *Focus Topic* "Friction, Fracture, and Deformation" at the 2007 March Meeting of the American Physical Society (APS).
- * Co-chair of the symposium on "Nanotechnology and MEMS: Experiments and Modeling", 12th International Conference on Experimental Mechanics (ICEM12), 2004.

Review Activities:

Reviewer for:

- * The National Science Foundation (NSF) and NSF-Panel Reviewer (March 2007 and January 2008))
- * The ACS Petroleum Foundation
- * The Department of Energy (DOE)
- * The Swedish National Science Foundation
- * The European Science Foundation (ESF)

- * Nature Nanotechnology, Nature Materials, Nature Communications, ACS Nano, Physical Review Letters, Physical Review B, Journal of Physical Chemistry B, Journal of Chemical Physics, Tribology Letters, Applied Physics Letters, Review of Scientific Instruments, Advanced Materials, Applied Surface Science, Langmuir, Nano Letters.

Professional Societies:

- * American Physical Society, American Chemical Society, Material Research Society

Outreach Activities:

- * November 2012, Lecture for "Inquiring Minds @ Tech" Public Lecture Series
- * Lecture on *A Molecular Foundry @ GT* for the Physics Homecoming Event (Spring 2011)
- * Presentation for a Career Panel at the 2008 NSF-STC retreat in Atlanta, Spring 2008.
- * WIC (Women in Chemistry) & CMDITR - Georgia Tech Leadership Lunch "Female Faculty Work Life Balance", October 2008.
- * Organization of the Women in Science Film Festival on Georgia Tech campus, March 2005.

Postdoctoral Fellows Supervised:

<i>Name</i>	<i>Term</i>	<i>New Position</i>
Hsiang-Chih Chiu	2009-present	Assistant Professor, Taiwan
Suenne Kim	2008-present	Assistant Professor, Korea
Soo-Young Kim	2007- 2008	Assistant Professor, Korea
Marcel Lucas	2006- 2009	Staff Member at LANL
Robert Szoszkiewicz	2004-2005-2006	Assistant Professor, Kansas State Univ.

Visiting researchers:

<i>Name</i>	<i>Term</i>	<i>Fellowship/Institution</i>
Lucel Sirghi	Fall 2004-Spring 2005	Fulbright Fellow (Al. I. Cuza University, Romania)

Graduate Students Supervised:

<i>Student</i>	<i>Degree</i>	<i>Year / Institution</i>	<i>New Position/Awards</i>
Edoardo Albisetti	Ph.D.		
Yang Gao	Ph.D.		
Alex Turinske	Ph.D.		
Xi Lu	Ph.D.	Passed Qualifying Ex. (2012)	

Ted Chang	Ph.D.	Passed Qualifying Ex. (2012)	
Deborah Ortiz	M.S.	Passed Qualifying Ex. (2008)	Spelman College
Ismael Palaci	Ph.D.	Ph.D., EPFL, Switzerland	Siemens (CH)
Debin Wang	Ph.D.	2010 (successful defense 6/4/2010) GT	Post Doc at LBNL, Berkeley Amelio Award (2010)
Tai-De Li	Ph.D.	2008 (successful defense 6/4/2008) GT	Post Doc Position, UC Berkeley Amelio Award (2008)
Brian Kocher	M.S.	GT	

Undergraduate Students Supervised:

<i>Student</i>	<i>Term</i>	<i>Title</i>	<i>New Position/Awards</i>
Arvind Narayan	2012		
Patrick Doyle	2012-2013	Student Assistant	
Nicki Reishus	Summer 2008	REU student	
Odion Okojie	Summer 2007	REU student	
John Kickhofel	2006-2008	Student Assistant	M.S. student, EPFL/ETHZ (CH)
Andrew Dunnells	2007-2008	Student Assistant	
Ajay Patel	2007-2008	Student Assistant	M.D. student, Univ. of Minnesota
Guy Harris	2007	Student Assistant	
Steve Medina		Student Assistant	
E. Henderson	Summer 2006	REU Student	
Kristin Beck	Summer 2006	REU Student	Goldwater Scholarship
Jonathan Diaz	2006	Research Assistant	Goldwater Scholarship
Scott Eric Toupin	Summer 2005	REU Student	
Ariel Bedford	Summer 2005	REU Student	
Diane Crenshaw	Summer 2004	REU Student	
Michael Chen	2004-2005	Research Assistant	Ph.D. student, Amherst College
Anna Pavlova	2004-2006	Research Assistant and PURA fellow	Ph.D. student, UC Santa Barbara