Assistant Professor
Department of Physics and Astronomy
College of Science and Engineering
Texas Christian University

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RESEARCH INTERESTS

Nanotechnology, applications of nanomaterials in biomedicine. Development of multifunctional drug delivery, imaging and sensing nanoscale systems. Cancer therapeutics. Nanomaterials synthesis and characterization, development of nanomaterials with tunable optical and electronic properties for microelectronic and optoelectronic devices.

EDUCATION

Rice University,
Ph.D. in Applied Physics **May 2011**

Master of Science **January 2008**
Advisor: R. Bruce Weisman

University of Tennessee, Knoxville,
Department of Physics and Astronomy
Bachelor of Science in Physics (minors: Chemistry and Mathematics) **May 2005**

Kazan State University,
Department of Chemical Physics
Diploma with Distinction **June 2006**
US equivalent Master of Science, Summa cum laude.

PROFESSIONAL EXPERIENCE

Texas Christian University, (Fort Worth, TX)
Department of Physics and Astronomy
Assistant Professor of Biophysics **August 2015 – present**

Research: bio-nanotechnology, biological applications of carbon nanomaterials; development of multifunctional drug delivery, imaging, sensing nanosystems.

Central Connecticut State University, (New Britain, CT)
Department of Physics and Engineering Physics
Assistant Professor **August 2014 - August 2015**

Chair of Departmental Research Committee
Co-chair of Departmental Curriculum Committee

Research: Development of graphene-based materials for optical biosensor applications, biological internalization and clearance of carbon nanotubes.

Rice University, (Houston, TX) **September 2011 – August 2014**
Complimentary Postdoctoral Appointment

Characterization of nanomaterials for biotechnology. Optical characterization of graphene oxide.

Ensysce Biosciences Inc., (Houston, TX)
Research Scientist **July 2011 - August 2014**

Development of nanomaterials-based molecular imaging and cancer therapeutics agents.

IBM T. J. Watson Research Center, (Yorktown Heights, NY)
Research intern **July 2008 - October 2008**

Fabrication and characterization of graphene and carbon nanotube-based optoelectronic devices.

Honda Research Institute, USA Inc., (Columbus,OH)
Research intern **July 2007 - September 2007**

Development of nanomaterials characterization methods. Preferential nanotube synthesis.

TEACHING

Courses taught at Texas Christian University

PHYS 20474 Physics I
PHYS 20484 Physics II / Laboratories
Physics 30493 Physics III Modern Physics
PHYS 40653 Electromagnetic Fields
PHYS 40663 Electromagnetic Radiation and Optics
PHYS 50713 Contemporary Topics in Physics: Applied nanotechnology methods
PHYS 60970 Research Problems
PHYS 90980 Dissertation

Courses taught at Central Connecticut State University

General Physics I (Phys 121)
University Physics I (Phys 125/ Laboratory)
Advanced Physics Laboratory (Phys 450)
Electronics I (Phys 331)
Independent Study in Physics (Phys 452)

HONORS AND AWARDS

2013-2016:	Biography is published in Who is Who in America directory
2012:	Received US Permanent Residence as an Outstanding Researcher
2010:	NRC Postdoctoral Fellowship
2009:	Micron Technology Award at Rice Quantum Institute Annual Colloquium
2007:	Best Poster Presentation Nominee at Materials Research Society Fall Meeting
2007 –2011:	Welch Foundation Predoctoral Fellowship
2004:	Univ. of Tennessee Robert Talley Award for Outstanding Undergraduate Research
2003:	Judson Hall Robertson Memorial Award in Analytical Chemistry
2002–2005:	National Deans List
2002:	University of Tennessee, Knoxville, Department of Physics and Astronomy, Outstanding First Year Student Award.

PROFESSIONAL AFFILIATIONS

American Physical Society
American Electrochemical Society
Materials Research Society

PUBLICATIONS

1. Marlius Castillo, Christine Pho, Sergei V. Dzyuba and Anton V. Naumov, *Chirality-Selective Photoluminescence of Single-Wall Carbon Nanotubes in Imidazolium Ionic Liquids*: Effect of the Anion, Manuscript in press at Journal of Physical Chemistry B.
2. Md. T. Hasan, B. J. Senger, M. Culp, A. V. Naumov, *Optical Band Gap alteration of Graphene oxide via Oxidative Treatment*, Manuscript in press at Nature Scientific Reports.
3. Md. T. Hasan, B. J. Senger, P. Mulford, C. Ryan, H. Doan, Z. Gryczynski, A. V. Naumov. *Modifying Optical Properties of Reduced/Graphene Oxide with Controlled Ozone and Thermal Treatment in Aqueous Suspensions*. Nanotechnology **2017**, 28 (6).
4. A. Naumov, F. Grote, M. Overgaard, A. Roth, C.E. Halbig, K. Nrgaard, D. M. Guldi, S. Eigler, Graphene Oxide A One- versus Two-Component Material. JACS 138 (36), pp 11445-11448, **2016**.
5. A.V. Naumov, D.A. Tsyboulski, S.M. Bachilo and R.B. Weisman Length-dependent Optical Properties of Single-Walled Carbon Nanotube Samples. Chemical Physics, (422), 255-263, **2013**.
6. J. K. Streit, S. M. Bachilo, C. Y. Khripin, A. Naumov, M. Zheng and R. B. Weisman Measuring Single-Walled Carbon Nanotube Length Distributions from Di_usional Trajectories. ACS Nano, 6 (9), pp 8424 – 8431, **2012**.
7. JD. L. Kirkpatrick, M. Weiss, A. Naumov, G. Bartholomeusz, R. B. Weisman and O. Gliko, *Carbon nanotubes: Solution for the therapeutic delivery of siRNA?* Materials, 5(2), 278-301, **2012**.
8. C. C. Galande, A.D. Mohite, A.V. Naumov, W. Gao, H. Gao, L .Ci, A. Srivastava, R.B.Weisman, P.M.Ajayan, *Quasi-Molecular Fluorescence from Graphene Oxide*. Scienti_c Reports, 1 (85), **2011**.
9. A.V. Naumov, S. Ghosh, D.A. Tsyboulski and R.B.Weisman, *Sources of Absorption Backgrounds in Single-Walled Carbon Nanotube Spectra*. ACS Nano, 5 (3), pp 1639-1648, **2011**.
10. M. Freitag, M. Steiner, A. Naumov, J. P. Small, A. A. Bol, V. Perebeinos and P. Avouris, *Carbon Nanotube Photo- and Electroluminescence in Longitudinal Electric Fields*. ACS Nano, 3 (11), pp 3744-3748, **2009**.
11. M. Steiner, M. Freitag, V. Perebeinos, A. Naumov, J.P. Small, A.A. Bol and P. Avouris, *Gate-Variable Light Absorption and Emission in a Semiconducting Carbon Nanotube*. Nano Lett., 9 (10), pp 3477-3481, **2009**.
12. A.V. Naumov, O.A. Kuznetsov, A. R. Harutyunyan, A.A. Green, M.C. Hersam, D.E. Resasco, P.N. Nikolaev and R. B.Weisman *Quantifying the Semiconducting Fraction in Single-Walled Carbon Nanotube Samples through Comparative Atomic Force and Photoluminescence Microscopies*. Nano Lett., 9 (9), 3203-3208, **2009**.
13. A.V. Naumov, S. M. Bachilo, D.A. Tsyboulski and R. B. Weisman, *Electric Field Quenching of Carbon Nanotube Photoluminescence*. Nano Lett., 8 (5), pp 1527-1531, **2008**.

BOOKS AND BOOK CHAPTERS

1. A. V. Naumov. *Optical Properties of Graphene Oxide. Book Chapter, Graphene Oxide. Fundamentals and Applications*. Wiley Publishing, Oxford, UK. Wiley Publishing, Oxford, UK. ISBN: 978-1-119-06940-9, **2016.**
2. A.V. Naumov *Single-Walled Carbon Nanotubes and Graphene Oxide: Advanced Characterization and Optical Properties,* Book, LAP LAMBERT Academic Publishing, Saarbrcken, Germany, ISBN: 978-3-659-11154-9, **2012**.

PRESENTATIONS

INVITIED TALKS

1. **Naumov, A.V.** O. Glico, M. Weiss, R. B. Weisman, D. L. Kirckpatrick, June 1, 2016 Single-walled carbon nanotubes as multimodal agents for biological imaging and drug delivery, Electrochemical Society Meeting, San Diego, CA
2. **Naumov A.V**. "Biological Applications of Carbon Nanomaterials" January 2016, Texas A&M University of Commerce, Commerce, TX

CONFERENCE PRESENTATIONS

1. **Naumov, A. V.**, E. Sizemore, Md. T. Hasan Origins and Applications of Optical Properties of Graphene Derivatives Texas Section of the AAPT, Texas Section of the APS and Zone 13 of the Society of Physics Students Conference, Richardson, TX, October 20 2017.
2. **Naumov A. V.**, E. Sizemore, C. Pho, Md. T. Hasan Graphene Oxide Vehicles for Molecular Imaging and Cancer Detection, Innovation in Cancer Prevention and Research Conference, Austin, TX November 13 2017.
3. **Naumov A. V.**, E. Sizemore, Md. T. Hasan Graphene Oxide for Drug Delivery, Imaging and Sensing, Gordon Research Conference in Cancer Nanotechnology, Mount Snow, VT June 21, 2017
4. **Naumov A. V.**, E. Sizemore, Md. T. HasanGraphene Oxide: A Modifiable Platform for Drug Delivery Imaging and Sensing, Electrochemical Society Meeting, New Orleans, LA June 1, 2017
5. **Naumov A. V.**, Md. T. Hasan, B. Senger, Variation of Optical Properties and Electronic Structure of Graphene Oxide in Aqueous Suspension Under Oxidative and Thermal Treatment Materials Research Society Conference, Boston, MA November 30, 2016
6. **Naumov A.V.**, Md. T. Hasan, M. Culp, C. Pho, B. Senger, August 4, 2016, Optical properties of graphene oxide and its biological and optoelectronics applications, Texas Chapter of American Vacuum Society, Richardson, TX
7. **Naumov A. V.**, C. Galande, A. D. Mohite, P. M. Ajayan, R. B. Weisman, December 2, 2015 Controllable Modification and the Study of Optical Properties of Graphene Oxide Materials Research Society Conference, Boston, MA.
8. Lombardo N. , **A. V. Naumov**, November 6, 2015, The Study of the Origins of Photoluminescence in Graphene Oxide, 2015 Joint Fall Meeting of the APS and AAPT New England Sections; Hanover, NH.
9. **Naumov A. V.**, D. A. Tsyboulski, S. M. Bachilo, R. B. Weisman, October 30, 2015, Variation of optical properties of single-walled carbon nanotubes with length, Fall 2015 Joint Meeting of the Texas Section of the AAPT, Texas Section of the APS and Zone 13 of the Society of Physics Students, Waco, TX.
10. **Naumov A. V.**, C. Galande, A. D. Mohite, P. M. Ajayan, R. B. Weisman, May 27, 2015, Controllable Modification of Optical Properties of Graphene Oxide. Electrochemical Society Spring Meeting, Chicago, IL.
11. Lombardo N., C. Maloney, K. Hesse, **A. V. Naumov,** April 25, 2015, Altering the Optical Properties of Reduced Graphene Oxide by Ozone Treatment, Spring 2015 Meeting of the APS New England Section, Boston, MA.

12. **Naumov A. V.**, C. Galande, A. D. Mohite, P. M. Ajayan, R. B. Weisman, March 6 ,2015, Development of graphene oxide materials with controllably modified optical properties. American Physical Society March Meeting, San Antonio, TX.
13. **Naumov A. V.**, C. Galande, A. D. Mohite, P. M. Ajayan, R. B. Weisman, December 1, 2014, Modifying Optical Properties of Reduced Graphene Oxide by Controlled Functionalization. Materials Research Society Conference, Boston, MA.
14. **Naumov A. V.**, D. A. Tsyboulski, S. M. Bachilo, R. B. Weisman, December 4 2013, Length-Dependent Optical Properties of Single-Walled Carbon Nanotube Samples. Materials Research Society Conference, Boston, MA.
15. Kirkpatrick D. L., O. Gliko, M. Weiss, I. Owusu, **A. V. Naumov**, April 15 2013, Single-walled carbon nanotubes for delivery of siRNA: Antitumor efficacy comparing formulated complexes in EGFR overexpressing A431 xenografts. American Association for Cancer Research National Cancer Institute - European Organization for Research and Treatment International Conference: Molecular Targets and Cancer Therapeutics, Washington, DC.
16. Kirkpatrick L., O. Gliko, M. Weiss, **A. V. Naumov,** R. B. Weisman, November 13 2011, Single-walled carbon nanotubes provide a safe and effective means for delivery of siRNA. American Association for Cancer Research - National Cancer Institute - European Organization for Research and Treatment of Cancer International Conference: Molecular Targets and Cancer Therapeutics, San Francisco, CA.
17. Galande C., A. Mohite, **A. V. Naumov,** W. Gao, L. Ci, A. Ajayan, H. Gao, A. Srivastava, R. B. Weisman, P. M. Ajayan, March 23 2011, Aromatic molecule-like fluorescence from Graphene Oxide, American Physics Society March Meeting, Dallas, TX.
18. Mohite A., C. C. Galande, **A. V. Naumov,** A. Srivstava, R. B. Weisman, P. M. Ajayan, December 1 2010, Probing Coupled Electronic and Vibrational States in Graphene Oxide Using Fluorescence Spectroscopy, Materials Research Society Conference, Boston, MA.
19. **Naumov A. V.,** S. Ghosh, D. A. Tsyboulski, S. M. Bachilo, R. B. Weisman, December 1 2010, Absorption Backgrounds in Single-Walled Carbon Nanotube Spectra, Materials Research Society Conference, Boston, MA.
20. **Naumov A. V.,** D. A. Tsyboulski R. B. Weisman, December 1 2010, Direct Measurements of Exciton Mobility in Single-walled Carbon Nanotubes Using Far-Field Near-Infrared Fluorescence Microscopy, Materials Research Society Conference, Boston, MA.
21. **Naumov A. V.,** S. Ghosh, D. A. Tsyboulski, S. M. Bachilo, R. B. Weisman, August 6 2010, Absorption Backgrounds in Single-Walled Carbon Nanotube Spectra, 24th Annual Summer Research Colloquium, Rice Quantum Institute, Rice University, Houston, TX.
22. Mohite A., C. C. Galande, **A. V. Naumov,** A. Srivstava, R. B. Weisman, P. M. Ajayan, June 29 2010, Probing coupled electronic and vibrational states in Graphene Oxide using Fluorescence spectroscopy, NT10: 11th International Conference on the Science and application of Nanotubes, Montreal, Quebec, Canada.
23. **Naumov A. V.,** O. A. Kuznetsov, A. R. Harutyunyan, A. A. Green, M. C. Hersam, D. E. Resasco, P. N. Nikolaev, R. B. Weisman, August 7 2009, Quantifying Semiconducting Fraction in Single-Walled Carbon Nanotube Samples Through Comparative Atomic Force and Photoluminescence Microscopies, 23d Annual Summer Research Colloquium, Rice Quantum Institute, Rice University, Houston, TX.
24. **Naumov A. V.,** O. A. Kuznetsov, A. R. Harutyunyan, A. A. Green, M. C. Hersam, D. E. Resasco, P. N. Nikolaev, R. B. Weisman, December 1 2008, Quantitative characterization of the semiconducting fraction in single-walled carbon nanotube samples, Materials Research Society Fall Meeting, Boston, MA.
25. **Naumov A. V.,** S. Bachilo, R. B. Weisman, March 10 2008, Electric Field-Induced Effects on Single-Walled Carbon Nanotube Photoluminescence, American Physics Society March Meeting, New Orleans, LA.

26. **Naumov A. V.,** D. Tsyboulski, S. Bachilo, R. B. Weisman, November 27, 2007, Structure-dependent Electric Field Effects on Carbon Nanotube Photoluminescence, Materials Research Society Fall Meeting, Boston, MA.
27. Bachilo S., **A. V. Naumov,** R. B. Weisman, May 7 2007, Influence of External Electric Field on Fluorescence of Single-Walled Carbon Nanotubes in Dielectric Matrix, Electrochemical Society 211 Meeting, Chicago, IL.
28. **Naumov A. V.,** D. A. Tsyboulski, S. M. Bachilo, R. B. Weisman, November 30 2006, Electric Field Quenching of Carbon Nanotube Fluorescence, Materials Research Society Fall Meeting, Boston, MA.
29. **Naumov A. V.,** D. A. Tsyboulski, S. M. Bachilo, R. B. Weisman, August 11 2006, Electric Field Effects on Carbon Nanotube Fluorescence, 20th Annual Summer Research Colloquium, Rice Quantum Institute, Rice University, Houston, TX.
30. **Naumov. A. V.,** R. Compton, R. Pagni, November 11 2004, Investigation of Transformation/Destruction of Carbon 70 in a Photochemical Reaction, American Physical Society, Southeast Section Meeting, Oak Ridge, TN.
31. **Naumov A. V.,** R. N. Pagni, R. M. Compton, Methods of Separation of Chiral Carbon Nanotubes, The American Association of Physics Teachers, Tennessee Chapter Meeting, Knoxville, TN, March 16 2004.
32. **Naoumov A. V.,** R. N. Pagni, March 3 2003, Toward the Separation and Enantiomeric Excess of Chiral Carbon Nanotubes, American Physics Society March Meeting, Austin, TX.

PRESENTATIONS BY STUDENTS

1. Hasan Md. T., B. Senger, P. Mulford M. E. Culp, **A. V. Naumov** "Optical Band Gap of Graphene Oxide" Texas Chapter of American Vacuum Society, Denton, TX, August 15 2017.
2. Sizemore E., Md. T. Hasan, M. E. Culp, G. Akkaraju **A. V. Naumov** "Extended Investigation of Properties of Graphene Oxide as a Drug Delivery/Imaging Platform" Texas Chapter of American Vacuum Society, Denton, TX, August 15 2017.
3. Hasan Md. T., B. Senger, P. Mulford M. E. Culp, **A. V. Naumov** "Tuning the Optical Band Gap of Graphene Oxide by Ozone Treatment" Electrochemical Society Meeting, New Orleans, LA, May 30 2017.
4. Sizemore E., Md. T. Hasan, M. E. Culp, G. Akkaraju **A. V. Naumov** "Investigating Properties of Graphene Oxide as a Drug Delivery/Imaging Platform" Electrochemical Society Meeting, New Orleans, LA, May 30 2017.
5. Hasan Md. T., B. Senger, P. Mulford M. E. Culp, **A. V. Naumov** "Tuning the Optical Band Gap of Graphene Oxide by Ozone Treatment" Annual TCU Student Research Symposium, Fort Worth, TX, April 21 2017.
6. Sizemore E., Md. T. Hasan, M. E. Culp, G. Akkaraju **A. V. Naumov** "Investigating Properties of Graphene Oxide as a Drug Delivery/Imaging Platform" Annual TCU Student Research Symposium, Fort Worth, TX, April 21 2017.
7. Paz T, E. Sizemore, M. Burnette, K. N. Green, G. R. Akkaraju, **A. V. Naumov** "Biotin-Graphene Oxide Formulation for Cancer Therapeutics and Imaging" Annual TCU Student Research Symposium, Fort Worth, TX, April 21 2017.
8. Pho C., F. Grote, C. Ryan, **A. V. Naumov** "Optical Properties of Graphene Oxide" Annual TCU Student Research Symposium, Fort Worth, TX, April 21 2017.
9. Pho C. T., M. E. Culp, G. R. Akkaraju, and **A. V. Naumov**, Introduction of Nanomaterials to Biological Cells for Development of Anti-Cancer Drug Delivery Vehicle, Texas Chapter of American Vacuum Society, Richardson, TX, August 3, 2016.
10. Hasan Md. T., B. Senger, P. Mulford, **A. V. Naumov**, Optical Properties of Graphene Oxide under Oxidative and Thermal Treatment, Texas Chapter of American Vacuum Society, Richardson, TX , August 3, 2016.

11. Hasan Md. T., B. Senger, P. Mulford, **A. V. Naumov**, Theoretical and Experimental Study of Optical Properties of Graphene Oxide Under Oxidative and Thermal Treatment, APS Texas Chapter Meeting, Beaumont, TX , March 31, 2016.

12. Pho C. T., G. R. Akkaraju, and **A. V. Naumov**, Development of Carbon Nanotube-Based Anticancer Drug Delivery System for Cellular Internalization, 2016 Annual TCU Student Research Symposium, Fort Worth, TX, April 1, 2016.

13. Senger B., P. Mulford, **A. V. Naumov**, Analysis and Controlled Modification of the Physical Properties of Reduced Graphene Oxide, 2016 Annual TCU Student Research Symposium, Fort Worth, TX, April 1, 2016.

14. Hasan Md. T., B. Senger, P. Mulford, **A. V. Naumov**, Theoretical and Experimental Study of Optical Properties of Graphene Oxide Under Oxidative and Thermal Treatment , 2016 Annual TCU Student Research Symposium, Fort Worth, TX, April 1, 2016.

15. Lombardo N. , **A. V. Naumov**, The Study of the Origins of Photoluminescence in Graphene Oxide, 2015 Joint Fall Meeting of the APS and AAPT New England Sections; Hanover, NH, November 6, 2015.

16. Lombardo N., C. Maloney, K. Hesse, **A. V. Naumov**, Altering the Optical Properties of Reduced Graphene Oxide by Ozone Treatment, Spring 2015 Meeting of the APS New England Section, Boston, MA**,** April 25, 2015.

GRANTS

Source	Title	Period	Amount Role
Current			
Ensysce Biosciences Inc.	Carbon nanotube-assisted delivery of siRNA	2017-2018	$50,000 PI
Initiative For Oncology Research (INFOR)	Development of multifunctional targeted cancer therapeutic/diagnostic platform based on Biotin-Ferrocene-Graphene Oxide hybrids	06/2017 – 06/2018	$10,000 PI
TCU Invests in Scholarship	Development of Carbon Nanotube Vehicles for Anticancer Multidrug Delivery and Imaging	06/2017-08/2018	$23,000 PI
DAAD Research Internship in Science and Engineering Grant	Development of graphene derivatives with controllable optical and electronic properties for applications in microelectronics and biotechnology	11/01/2016-10/30/2017	$4,000 PI
TCU Research and Creative Activity Initiative/Junior Faculty Summer Research Program	Graphene oxide for red flag cancer detection, imaging and treatment	06/01/2016-05/01/2016	$10,418 PI
TCU Andrews Institute Research Grant	Development of new nanostructures for applications in biological imaging and composite materials	10/01/2017-05/01/2018	$2,382 PI

Pending			
NIH R15 AREA Grant	A multifunctional nanoformulation for targeted cancer-selective therapy, imaging, and sensing	2018-2021	$413,888 PI
NSF Macromolecular, Supramolecular and Nanochemistry (MSN) Program grant	Modification of photophysical properties and chirality sorting of carbon nanotube samples using ionic liquids	2018-2021	$468,874 Co-PI
Completed			
DAAD Research Internship in Science and Engineering Grant	Development of graphene derivatives with controllable optical and electronic properties for applications in microelectronics	05/01/2016 -10/30/2016	$3,728 PI
Andrews Institute of Mathematics & Science Education Research Grant	Carbon Nanotube-Based Drug Delivery Vehicles	01/10/2016-01/05/2017	$2,292 PI
TCU Research and Creative Activity Initiative/Junior Faculty Summer Research Program	Development of carbon nanotube-based anticancer multi-drug delivery system	06/01/2016/-05/01/2017	$9,922 PI
CCSU American Association of University Professors University Research Grant	Controllable fabrication of graphene derivatives with pre-designed physical properties and study of their optical response for optoelectronic device applications	03/01/2015-08/01/2015	$4,710