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PROFESSIONAL EXPERIENCE / EDUCATION:

7/2016 – Present: Rutgers, The State University of New Jersey, Department of Physics, Camden, NJ, Associate Professor

2015 – Present: Rutgers, The State University of New Jersey, Center for Computational and Integrative Biology (CCIB), Full Member

2009 – 2016: Rutgers, The State University of New Jersey, Department of Physics, Camden, NJ, Assistant Professor

EDUCATION:

2003 – 2009: New Jersey Institute of Technology and Rutgers, The State University of New Jersey-Newark, NJ, Ph.D. Applied Physics, Advisor: Dr. Andrei Sirenko

Thesis title: *"Synchrotron radiation-based characterization of GaN-based MQW structures and strongly correlated materials"*

1998 – 2003: Seton Hall University, South Orange, NJ

B.S. Physics, *cum laude*

GRANTS:

- Co-PI, National Science Foundation (NSF) Division of Chemistry (CHE) – Macromolecular, Supramolecular and Nanochemistry (MSM) program, *Mechanisms of Polymersome Encapsulant Release Driven by Plasmonic Nanoparticle Excitation*, Julianne Griepenburg (PI), $ 326,776 (under review)
- Co-PI, Air Force Office of Scientific Research: Defense University Research Instrumentation Program (DURIP), *Fluorescence Correlation Microscopy for Characterizing the Structural Dynamics of Biochemical Nanosystems*, Jinglin Fu (PI), $200,585 (2016).
- PI, National Science Foundation (NSF) IUSE program, *Best Practices on a Budget: Revamping Undergraduate Laboratory Sections to Stimulate Empirically-based Learning and Foster Modern Research Skills*, $244,698 (2015-2017)
- PI, National Science Foundation (NSF), *MRI: Acquisition of a Femtosecond Laser System to Enable Multiphoton Polymerization, Photoporation, and Laser Ablation in Liquids Research*, $523,827 (2015-2017)
- Joint-PI, Rutgers University Busch Biomedical Grant, *Laser-Ablation Synthesis of Nanoparticles: Innovations for Antibiotic Development*, $40,000 (2015-2017)
- PI, Rutgers University Institute for Advanced Materials, Devices and Nanotechnology (IAMDN) Small Instrumentation Grant, *Acquisition of a differential centrifugal sedimentation (DCS) unit*, $15,000 (2015)

- PI, New Jersey Space Grant Consortium (NJSGC), award for a development of a *new introductory course on 3D printing*, $8000 (2015)
- Co-PI, National Science Foundation (NSF), *Collaborative Research/RUI: Mechanisms of Nanoparticle Generation by Laser Ablation of Thin Films in Liquids*, Daniel Bubb (PI), $387,735 (2013-2016)
- PI, New Jersey Space Grant Consortium (NJSGC), award for a development of a new course based on materials characterization, $8000 (2011)
- PI, American Physical Society (APS), award for an urban outreach program on laser technology, $8000 (2010)

PROFESSIONAL PRESENTATIONS:

- April 2016 The 11th International High Power Laser Ablation & Directed Energy Symposium (HPLA/DE), *Polarization and effective fluence trends in pulsed laser ablation in liquids*, Santa Fe, New Mexico, (**Invited talk, given by D. Bubb**)
- May 2015 European Materials Research Society (E-MRS SPRING), *Synthesis and Characterization of Plasmonic Photocatalysts by Pulsed Laser Irradiation of Colloidal Admixtures*, Lille, France **(talk)**
- May 2014: Advanced Nanoparticle Generation and Excitation by Laser in Liquids (ANGEL), *Nanoparticle Synthesis by Picosecond Laser Ablation of Thin-Films in Liquids*, Matsuyama, Japan **(Invited talk, chaired session)**
- March 2014: Computer Science Seminar Rutgers University, *Nanoparticle Synthesis by Laser Ablation in Liquids*, Camden, NJ (**Invited talk**)
- Oct. 2013: The 12th International Conference on Laser Ablation *(*COLA*)*, *Synthesis of Organic Nanoparticles by Laser Ablation of Thin Films in a Liquid Environment*, Ischia, Italy **(talk)**
- Oct. 2013: The 12th International Conference on Laser Ablation *(*COLA*)*, *Size control of gold nanoparticles produced by laser ablation in liquids*, Ischia, Italy **(poster)**
- May 2013: European Materials Research Society (E-MRS SPRING), *Synthesis of Organic Nanoparticles by Laser Ablation of Thin Films in a Liquid Environment*, Strasbourg, France **(talk)**
- March 2010: American Physical Society (APS) March Meeting, Portland OR **(talk, chaired session**)
- June 2009: Cornell High Energy Synchrotron Source (CHESS) Users' Meeting, *Self-Assembled Nano-Structured Thin Films Studied by Reciprocal Space Mapping* (**Invited talk**)
- June 2008: Cornell High Energy Synchrotron Source (CHESS) User Meeting, *Jahn and Teller play with nano-chessboards at CHESS,* Ithaca NY **(poster)**
- May 2008: GK-12 Teacher Professional Development Workshops, *The Scientific Method with Microsoft Excel: Instilling Data Analysis Techniques* (**Invited talk**)

- April 2008: Fourth Annual NJIT Provost's Student Research Showcase, Newark NJ **(poster)**
- Feb. 2008: Cornell High Energy Synchrotron Source (CHESS) Graduate Student Symposium, *Growth kinetics and structural properties of InGaN/GaN MWQ studied by synchrotron based x-ray diffraction* (**Invited talk**)
- Feb. 2008: Eighth Annual NSF GK-12 Conference, *C^2PRISM - Computation and Communication: Promoting Research Integration in Science and Mathematics,* Washington DC **(poster)**
- Sept. 2007: Seventh Annual International Conference of Nitride Semiconductors (ICNS), *Inter-facet migration in selective area grown multi-facet ridges with InGaN/GaN multiple quantum wells studied by microbeam x-ray diffraction*, Las Vegas, NV **(poster)**

PROFESSIONAL SERVICE:

- Rutgers University, *CCIB executive committee member* (2016 - present)
- Rutgers University, *Internship taskforce member* (2017 - present)
- Rutgers University, *CCIB undergraduate curriculum committee member* (2015 - present)
- Rutgers University, *CCIB best graduate student paper award committee member* (2016 - present)
- New Jersey Space Grant Consortium (NJSGC), Campus Liaison (2009 - present)
- Rutgers University, *CCIB master's committee member*, student: Liam Shape (2016)
- NSF review panelist on two occasions for two different programs and also served as an ad-hoc reviewer
- Cornell High Energy Synchrotron Source (CHESS), reviewer for user beamtime proposals
- Reviewer for several scientific journals e.g. *Accounts of Chemical Research, Scientific Reports (Nature), Chemical Physics Letters, Applied Physics A, Applied Surface Science, Journal of Materials Science, Materials Science and Engineering B, Materials Chemistry and Physics, Thin Solid Films*
- Rutgers University academic policy committee (APC) committee member (served 3-year term)
- Rutgers University Senator At-large for the Camden campus (2012 - 2013)
- Served on three new faculty search committees, two tenure review committees, and two reappointment committees.

AWARDS:

- 2017 College of Science and Liberal Arts Rising Star Alumni Award, New Jersey Institute of Technology
- 2016 Presidential Fellowship for Teaching Excellence, Rutgers University

- 2008 Best Scientific Achievement, Poster Award Cornell High Energy Synchrotron Source (CHESS) User Meeting
- 2008 Outstanding Graduate Student, New Jersey Institute of Technology
- 2002 Citation in Physics, Seton Hall University
- Member of the National Physics Honor Society (Sigma Pi Sigma)

SYNERGY ACTIVITIES:

- Keynote speaker, Absegami High School Science Symposium, Galloway, NJ (May 2014)
- CURCA certificate of Appreciation for mentoring Undergraduate Research, Faculty of Arts and Sciences, Rutgers University (2011, 2012, 2013, 2014, 2015 and 2016)
- Mentored students from LEAP Academy Charter School on science fair projects
- American Association of Physics Teacher (AAPT), New Faculty Workshop, Greenbelt, MD (attended 2011)
- LaserFest participant, link to article (2010)
- Society of Physics Students (SPS), Chapter Advisor
- National Physics Honor Society (*Sigma Pi Sigma*), Chapter Advisor
- NSF GK-12 Teaching Fellowship (NJIT), NSF #0638423 (2007-2008)

COURSES TAUGHT:

- Introductory Physics Laboratory I & II (Fall 2016, Spring 2017) (**revamped**)
- General Physics I & II *algebra-based* (Fall 2009, Spring 2010; Fall 2010, Spring 2011; Fall 2011, Spring 2012; Fall 2012, Spring 2013)
- Elements of Physics I & II *calculus-based* (Fall 2013, Spring 2014; Fall 2014, Spring 2015, Spring 2016)
- Thermal Physics (Fall 2010, Fall 2012, Fall 2014)
- Condensed Matter and Material Physics (Spring 2011, Spring 2012, Spring 2015)
- Electronics (Spring 2010, Fall 2011, Fall 2013) **(revamped)**
- Methods of Material Characterization (Spring 2012, Spring 2014, Spring 2016) **(developed)**

PUBLICATIONS:

30 J. C. Griepenburg, A. Robinson, G. DiSalvo, S. M. O'Malley, and D. M. Bubb, *Nanoparticle-mediated polymersome poration by Utrafast laser irradiation,* Nanolett. (to be submitted)

29 J. Tomko, R. Jimenez, D. M. Bubb, and S. M. O'Malley, *Effects of laser polarization and linear surface features on nanoparticles synthesized by laser ablation in liquids*, Appl. Phys. Lett. (to be submitted).

28 J. A. Tomko, A. Giri, B. F. Donovan, D. M. Bubb, S. M. O'Malley, and P. E. Hopkins, *Energy confinement and thermal boundary conductance effects on short-pulsed thermal ablation thresholds in thin films*, Phys. Rev. B – Rap. Comm. (revisions submitted)

27 J. Tomko, S. M. O'Malley, J. J. Naddeo, R. Jimenez, J. Griepenburg, W. Soliman, and D. M. Bubb, *Cavitation bubble dynamics and nanoparticle size distributions in laser ablation in liquids*, J. Coll. Inter. Sci. (accepted)

26 J. Tomko, S. M. O'Malley, J. J. Naddeo, Richard Jimenez, Julianne Griepenburg, Wafaa Soliman, and Daniel M. Bubb, *Production of metal nanoparticles by pulsed laser-ablation in liquids: a tool for studying the antibacterial properties of nanoparticles*, JOVE (accepted)

25 J. J. Naddeo, M. Ratti, J. Tomko, J. C. Griepenburg, S. M. O'Malley, D. M. Bubb, and E. A. Klein, *Light induced toxicity of silver nanoparticles*, Appl. Phys. A **122**, 1 (2016).

24 J. J. Naddeo, M. Ratti, J. C. Griepenburg, S. M. O'Malley, D. M. Bubb, and E. A. Klein, *Antibacterial properties of nanoparticles: A comparative review of chemically synthesized and laser-generated particles*, Adv. Sci. Eng. Med. **7**, 1-14 (2015).

23 J. Tomko, J. J. Naddeo, R. Jimenez, Y. Tan, M. Steiner, J. M. Fitz-Gerald, D. M. Bubb, and S. M. O'Malley, *Size and polydispersity trends found in gold nanoparticles synthesized by laser ablation in liquids*, Phys. Chem. Chem. Phys. **17**, 16327 (2015).

22 M. Amin, J. Tomko, J. J. Naddeo, R. Jimenez, D. M. Bubb, M. Steiner, J. M. Fitz-Gerald, and S. M. O'Malley, *Laser-assisted synthesis of ultra-small anatase TiO_2 nanoparticles*, Appl. Surf. Sci. **348**, 30 (2015).

21 S. M. O'Malley, J. Tomko, A. Pérez del Pino, C. Logofatu, and E. György, *Resonant infrared and ultraviolet matrix assisted pulsed laser evaporation of titanium oxide/graphene oxide composites: a comparative study*, J. Phys. Chem. C. **118**, 27911 (2014).

20 S. M. O'Malley, B. Zinderman, J. Schoeffing, R. Jimenez, J. J. Naddeo, and D. M. Bubb, *Nanosecond laser-Induced shock propagation in and above organic liquid and solid targets*, Chem Phys. Lett. **615**, 30 (2014).

19 S. M. O'Malley, J. Schoeffling, R. Jimenez, B. Zinderman, S.-Y. Yi, and D. M. Bubb, *The influence of wavelength, temporal sequencing, and pulse duration on resonant infrared matrix-assisted laser processing of polymer films*, Appl. Phys. A, **117**, 1343 (2014)

18 S. M. O'Malley, M. Amin, J. Borchert, R. Jimenez, M. Steiner, J. Fitz-Gerald, and D. M. Bubb, *Formation of rubrene nanocrystals by laser ablation in liquids utilizing MAPLE-deposited thin films,* Chem. Phys. Lett. **595**, 171 (2014).

17 D. M. Bubb, S. M. O'Malley, J. Schoeffling, R. Jimenez, B. Zinderman, and

SunYong Yi, *Size control of gold nanoparticles produced by laser ablation of thin films in an aqueous environment*, Chem. Phys. Lett. **565**, 65 (2013).

16 S. M. O'Malley, Sun Yong Yi, Richard Jimenez, Jeffrey Corgan, James Borchert, John Kuchmek; M. R. Papantonaki, R. A. McGill, and D. M. Bubb, *Matrix-assisted pulsed laser deposition of croconic acid, a diprotic organic ferroelectric*, Appl. Phys. A **105**, 635 (2011).

15 S. M. O'Malley, P. Revesz, A. Kazimirov, and A. A. Sirenko, *Time-resolved x-ray excited optical luminescence in InGaN/GaN multiple quantum well structures*, J. Appl. Phys. **109**, 124906 (2011).

14 Z. Qin, C. Zhang, S. M. O'Malley, K. Lo, T. Zhou, and S-W. Cheong, *Crystal field excitations in Raman spectra of* $FeSe_{1-x}$, Solid State Communications **150**, 768 (2010).

13 S. M. O'Malley, P. Bonanno, K. H. Ahn, A. A. Sirenko, A. Kazimirov, S. Park, Y. Horibe, and S.-W. Cheong, *Self-Assembled Nano-Checkerboard Thin Films Studied by Reciprocal Space Mapping at CHESS*, CHESS News Magazine, (2009).

12 S. M. O'Malley, P. L. Bonanno, K. H. Ahn, and A. A. Sirenko, A. Kazimirov, S. Park and S-W. Cheong, *Epitaxial checkerboard arrangement of nanorods in* $ZnMnGaO_4$ *films studied by x-ray diffraction*, Phys. Rev. B **78**, 165424 (2008).

11. S. M. O'Malley, P. L. Bonanno, T. Wunderer, P. Brückner, B. Neubert, F. Scholz, A. Kazimirov, and A. A. Sirenko, *X-ray diffraction studies of selective area grown InGaN/GaN multiple quantum wells on multi-facet GaN ridges*, phys. stat. sol. (c) **5**, 1655 (2008).

10 A. A. Sirenko, S. M. O'Malley, K. H. Ahn, S. Park, G. L. Carr, and S-W. Cheong, *Infrared-active excitations related to* Ho^{3+} *ligand-field splitting at the commensurate-incommensurate magnetic phase transition in* $HoMn_2O_5$, Phys. Rev. B **78**, 174405 (2008).

9 S. Gautier, T. Aggerstam, A. Pinos, S. Marcinkevicius, K. Liu, M. Shur, S. M. O'Malley, A. A. Sirenko, Z. Djebbour, A. Migan-Dubois, T. Moudakir, and A. Ougazzaden, *AlGaN/AlN multiple quantum wells grown by MOVPE on AlN templates using nitrogen as a carrier gas*, Journal of Crystal Growth **310**, 4927 (2008).

8 P. L. Bonanno, S. M. O'Malley, A. A. Sirenko, A. Kazimirov, Z.-H. Cai, T. Wunderer, P. Brückner, and F. Scholz, *Intra-facet migration effects in InGaN/GaN MQW structures grown on triangular GaN ridges studied by submicron beam X-ray diffraction*, Appl. Phys. Lett. **92**, 123106 (2008).

7. S. Park, Y. Horiba, T. Asada, L. S. Wielunski, N. lee, P. L. Bananno, S. M. O'Malley, A. A. Sirenko, A. Kazimirov, M. Tanimura, T. Gustafsson, and S.-W. Cheong, *Highly aligned epitaxial nanorods with a checkerboard pattern in oxide films*, Nano Lett. **8**, 720 (2008).

6. A. A. Sirenko, A. Kazimirov, A. Ougazzaden, S. M. O'Malley, D. H. Bilderback, Z.-H. Cai, B. Lai, R. Huang, V. Gupta, M. Chien, S.N.G. Chu, *Strain relaxation and surface migration effects in InGaAlAs and InGaAsP selective-area-grown ridge waveguides*, Appl. Phys. Lett. **88**, 081111 (2006).

5. A. A. Sirenko, A. Kazimirov, R. Huang, D. H. Bilderback, S. M. O'Malley, V. Gupta, K. Bacher, L.J.P. Ketelsen, and A. Ougazzaden, *Micro-beam high-resolution x-ray diffraction in strained InGaAlAs-based multiple quantum well laser structures grown selectively on masked InP substrates*, J. Appl. Phys. **97**, 063512 (2005).

4. A. Ougazzaden, S. M. O'Malley, A. A. Sirenko, A. Kazimirov, R. Huang, D. H. Bilderback, V. Gupta, K. Bacher, and L.J.P. Ketelsen, *Deep analysis of Selective area growth InGaAlAs SAG MQWs structures using micro beam high resolution X-ray diffraction and micro photoluminescence*, Proceedings of the 11th European Workshop on MOVPE, Lausanne June 5th-8th B03, 127 (2005).

3. D. M. Bubb, S. M. O'Malley, C. Antonacci, R. Belmont, R. A. McGill, and C. Crimi, *Observation of persistent photoconductivity in conducting polyaniline thin films*, Appl. Phys. A **81**, 119-25 (2005).

2. B. Toftmann, M. R. Papantonakis, R. C. Y. Auyeung, W. Kim, S. M. O'Malley, D. M. Bubb, J. S. Horwitz, J. Schou, P. M. Johansen, and R. F. Haglund, *UV and RIR matrix assisted pulsed laser deposition of organic MEH-PPV films,* Thin Solid Films **453**, 177 (2004).

1. D. M. Bubb, S. M. O'Malley, C. Antonacci, D. Simonson, and R. A. McGill, *Matrix-Assisted laser deposition of a sorbent chemoselective oligimer using an infrared laser*, J. Appl. Phys. **95**, 2175 (2004).