

Curriculum Vitae

SARAH J. ERICKSON

Optical Imaging Laboratory <http://web.eng.fiu.edu/oil/>
Department of Biomedical Engineering
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EDUCATION

Ph.D. Student, Biomedical Engineering, 2005-present (*GPA 3.65 /4.00*) Florida International University, Miami, FL (Expected Graduation: December 2010)

Bachelor of Science, Physics, 2002-2005 (*Magna cum Laude*) University of South Florida, Tampa, FL

RESEARCH EXPERIENCE

Graduate Research – Optical Imaging Laboratory, Dr. Godavarty, Florida International University, May 2007–present

Research involves the clinical translation of a hand-held probe based optical imaging system with real-time 3-D coregistration for fluorescence tomography of breast cancer; experimental studies involve *in vitro* phantom experiments and preliminary *in vivo* studies with human subjects.

Graduate Research – Nuclear Imaging Laboratory, Dr. McGoron, Florida International University, January 2006 – April 2007

Research involved simulation studies comparing a novel amplitude gating method to time gating method for PET imaging of lung cancer and designing a motion phantom to mimic respiratory movement for experimental studies.

Undergraduate Research – Novel Materials Laboratory, Dr. Nolas, University of South Florida, May 2004 – April 2005

Research involved the synthesis and characterization of Type I Clathrate thermoelectric materials and building a thermocouple welder. Skills: x-ray diffraction measurements, room-temperature resistivity and Seebeck measurements, cold- and hot-press samples, torch-sealing glass tubes, grain size calculation, mixing and furnace-reacting samples

TEACHING EXPERIENCE

Teaching Assistant and Guest Lecturer – BME 4401 Medical Imaging, Florida International University, Spring 2009

Lecture course on physics and principles of medical imaging instrumentation such as x-ray, CT, nuclear, MRI, ultrasound, and optical. Responsibilities included teaching five of the class lectures, holding office hours for students, and grading homework assignments.

Laboratory Instructor, Beer-Lambert Law – BME 4050L Undergraduate Lab, Florida International University, Fall 2008 – Summer 2009

Laboratory exercise to demonstrate the Beer-Lambert Law using a spectrophotometer. Responsibilities included teaching the lab protocol, assisting students with write-up, and grading lab reports.

Laboratory Instructor, Blood Rheology – BME 4050L Undergraduate Lab, Florida International University, Fall 2008 – Spring 2008

Laboratory exercise to measure the viscosity of varying hematocrits of sheep's blood using a viscometer. Responsibilities included teaching the lab protocol, assisting students with write-up, and grading lab reports.

AWARDS

Pre-doctoral Fellowship, Department of Defense Breast Cancer Research Program, 2008-2011 {*Total award amount: \$90,000*}

Lydia I. Pickup Scholarship, Society of Women Engineers, 2009 {*Total award amount: \$4,000*}

1st Place Doctoral Student Award, SBEC 2009 Paper Competition, 25th Southern Biomedical Engineering Conference {*Total award amount: \$250*}

3rd Place Engineering Award, 2009 Paper Competition, Scholarly Forum, Florida International University {*Total award amount: \$300*}

Presidential Fellowship, Florida International University Graduate School, 2005-2008 {*Total award amount: \$70,000*}

Derek Jacobs Memorial Scholarship, College of Engineering and Computing, Florida International University, 2008 {*Total award amount: \$1,000*}

Travel Award, Graduate Student Association, Florida International University, 2008, {*Total award amount: \$300*}

Aboly Foundation Scholarship, Physics Department, University of South Florida, 2005 {*Total award amount: \$750*}

Aboly Foundation Scholarship, Physics Department, University of South Florida, 2004 {*Total award amount: \$750*}

Florida Academic Scholarship, University of Central Florida, 1996-2000 {*Total award amount: \$20,000*}

Academic Excellence Scholarship, University of Central Florida, 1997-2000 {*Total award amount: \$3,000*}

HONORS

Member of Tau Beta Pi, Engineering Honor Society, Florida International University, initiated Spring 2009

AAAS/Science Program for Excellence in Science, 2008

President, Society of Physics Students, University of South Florida, 2004-2005

Honors Program, University of South Florida 2002-2005

College of Arts and Sciences Honor Society, University of South Florida, 2003-2005

Physics Undergraduate Representative for College of Arts and Sciences Dean Search (*selected by department chair*), University of South Florida 2004

Secretary, Society of Physics Students, University of South Florida, 2003-2004

SOCIETY MEMBERSHIP

SPIE (International Society for Optical Engineering) 2007-present

SWE (Society of Women Engineers) 2007-present

OSA (Optical Society of America) 2008-present

AAAS (American Association for the Advancement of Science) 2008-present

APS (American Physical Society) 2003-2006

MANUSCRIPT REVIEWER

Technology in Cancer Research and Treatment (TCRT)

JOURNAL
PUBLICATIONS
(Peer-Reviewed)

- [1] **S.J. Erickson**, J. Ge, A. Sanchez, and A. Godavarty. "Two-dimensional fast surface imaging using a hand-held optical device: *in-vitro* and *in-vivo* fluorescence studies," *Translational Oncology* (accepted for publication, 2009).
- [2] J. Ge, **S.J. Erickson**, and A. Godavarty. "Fluorescence tomographic imaging using a hand-held probe based optical imager: extensive phantom studies," *Applied Optics* (submitted, 2009).
- [3] S. Regalado, B. Zhu, J. Ge, **S. J. Erickson**, and A. Godavarty. "Automated coregistered imaging using a hand-held probe-based optical imager," *Review of Scientific Instruments* (submitted, 2009).
- [4] **S.J. Erickson** and A. Godavarty. "Hand-Held Based Near-Infrared Optical Imaging Systems: A Review" *Medical Engineering and Physics* **31**, 495-509 (2009).
- [5] J. Martin, **S. Erickson**, G.S. Nolas, P. Alboni, T.M. Tritt and J. Yang. "Structural and transport properties of Ba₈Ga₁₆Si_xGe_{30-x} clathrates" *Journal of Applied Physics*, **99**, 044903 (2006).

CONFERENCE
PROCEEDINGS

- [1] **S.J. Erickson**, S. Martinez, J. DeCerce, L. Caldera, A. Godavarty. "Fast coregistered imaging *in vivo* using a hand-held optical imager," *SPIE Photonics West*, San Francisco, CA, Jan. 23-28, 2010.
- [2] **S.J. Erickson**, J. Ge, and A. Godavarty. "Clinical Translation of a Novel Hand-Held Based Optical Imager: In Vitro and In Vivo Studies," IFMBE Proceedings 25th Southern Biomedical Engineering Conference 2009, 15 -- 17 May 2009, Miami, Florida, USA; 24: 3-4; A.J. McGoron, C.Z. Li, and W.C. Lin, eds. ISBN: 978-3-642-01696-7; 2009.
- [3] J. Ge, **S.J. Erickson**, and A. Godavarty. "Fluorescence Tomographic Imaging Using a Hand-Held Optical Imager: Extensive Phantom Studies," IFMBE Proceedings 25th Southern Biomedical Engineering Conference 2009, 15 -- 17 May 2009, Miami, Florida, USA; 24: 1-2; A.J. McGoron, C.Z. Li, and W.C. Lin, eds. ISBN: 978-3-642-01696-7; 2009.
- [4] **S.J. Erickson**, S. Regalado, J. Ge, B. Zhu, A. Godavarty. "Self-coregistration in a novel hand-held based optical imager towards early-stage breast cancer detection," *SPIE Photonics West*, San Jose, CA, Jan. 24-29, 2009.
- [5] J. Ge, **S.J. Erickson**, A. Godavarty, "Multi-projection based fluorescence optical tomography using a hand-held probe based optical imager," Proceedings of SPIE Photonic West, Advanced Biomedical and Clinical Diagnostic Systems V, *SPIE Photonics West*, San Jose, CA, Jan. 24-29, 2009.
- [6] A. McGoron, J. Wang, **S. Erickson**, M. Gorywala, "Quantitative comparison of two gating schemes in lung PET: simulation with computer phantom," Biomedical Engineering Recent Developments; Proceedings of the 24th Southern Biomedical Engineering Conference, H. Nazeran, M. Goldman, R. Schoepfoerster, eds. ISBN: 978-1-93063607-1: 2008.
- [7] J. Martin, **S. Erickson**, G.S. Nolas, P. Alboni and T.M. Tritt. "Thermoelectric properties of Ba-filled Si-Ge alloy type I semiconducting clathrates" Proceedings of the 24th International Conference on Thermoelectrics, Clemson, SC, 19-23 June 2005.
- [8] G.S. Nolas, M. Beekman, J. Martin, H.F. Rubin, **S. Erickson**, G.A. Lamberton, Jr and T.M. Tritt. "Research on "Open-Structured" Materials for Thermoelectric Power Generation" 23rd International Conference on Thermoelectrics, Adelaide, Australia 25-29 July 2004.

PAPER
PRESENTATIONS

National Meetings (* presenter)

- [1] **S.J. Erickson***, S. Martinez, J. DeCerce, L. Caldera, A. Godavarty. "Fast coregistered imaging *in vivo* using a hand-held optical imager," *SPIE Photonics West*, San Francisco, CA, Jan. 23-28, 2010.
- [2] B. Zhu, **S.J. Erickson***, I. Tsukanov, and A. Godavarty. Application of Multiresolution Approach towards Diffuse Optical Tomographic Imaging. (#158229) 10th US National Congress on Computational Mechanics; Columbus, OH July 16-19, 2009.
- [3] **S.J. Erickson***, J. Ge, and A. Godavarty. "Clinical Translation of a Novel Hand-Held Based Optical Imager: In Vitro and In Vivo Studies," 25th Southern Biomedical Engineering Conference 2009, 15 -- 17 May 2009, Miami, Florida, USA; 2009.
- [4] J. Ge, **S.J. Erickson***, and A. Godavarty. "Fluorescence Tomographic Imaging Using a Hand-Held Optical Imager: Extensive Phantom Studies," 25th Southern Biomedical Engineering Conference 2009, 15 -- 17 May 2009, Miami, Florida, USA; 2009.
- [5] **S.J. Erickson***, S. Regalado, J. Ge, B. Zhu, A. Godavarty. "Self-coregistration in a novel hand-held based optical imager towards early-stage breast cancer detection," SPIE Photonics West, San Jose, CA, Jan. 24-29, 2009.
- [6] J. Ge*, **S.J. Erickson**, A. Godavarty, "Multi-projection based fluorescence optical tomography using a hand-held probe based optical imager," SPIE Photonics West, San Jose, CA, Jan. 24-29, 2009.
- [7] A. Godavarty*, **S.J. Erickson**, S. Regalado, J. Ge, B. Zhu. "Real-time coregistered imaging using a novel hand-held based optical imager," RSNA (Radiological Society of North America) 94th Annual Meeting, Chicago, IL, Nov. 30 – Dec. 5, 2008.

Internal Meetings

- [8] **S.J. Erickson***, S. Regalado, J. Ge, B. Zhu, A. Godavarty. "Real-time coregistered imaging using a novel hand-held based optical imager" *2009 Scholarly Forum*, Florida International University, Miami, FL, April 1, 2009.
- [9] **S.J. Erickson*** and A. Godavarty. "Breast Cancer Detection using a novel Hand-held Based Optical Imager: *In-vitro* and *In-vivo* Tumor Depth Studies" Breast Cancer Research Symposium, Florida International University, Sept. 2, 2008.
- [10] **S.J. Erickson***. "Tumor Depth Analysis using a Novel Hand-Held Based Optical Imager: *In-vitro* Studies Towards Breast Cancer Detection" 2008 Scholarly Forum, Florida International University, Miami, FL, April 9, 2008.

POSTER
PRESENTATIONS

- [1] **S.J. Erickson***, S. Martinez, J. DeCerce, and A. Godavarty. "Hand-held probe based optical imager towards *in-vivo* imaging of breast tissues," NIH Inter-Institute Workshop on Optical Diagnostic and Biophotonic Methods from Bench to Bedside, Bethesda, MD, 1-2 Oct. 2009.
- [2] S. Regalado*, J. Ge, **S.J. Erickson**, B. Zhu, and A. Godavarty. "The Feasibility of 3D Target Localization Using a Novel Hand-held Based Optical Imager with Self-Co-registration" FLCured 2008 Summit, FIU Biscayne Bay Campus, June 27, 2008.
- [3] S. Regalado*, J. Ge, **S.J. Erickson**, B. Zhu, and A. Godavarty. "The Feasibility of 3D Target Localization Using a Novel Hand-held Based Optical Imager with Self-Co-registration," *EDC's 7th Annual Life Science Conference: BioTech 2008*, Apr. 24.

THESIS

- [1] **S. Erickson**. "Synthesis and Characterization of the Type I Clathrates Ba₈Ga₁₆Si₃₀ and Ba₈Ga₁₆Ge₃₀" Honors Undergraduate Thesis, Novel Materials Laboratory, Dr. Nolas, USF, Fall 2004–Spring 2005