Anna Pyayt
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CURRENT POSITION

Associate Professor (with tenure) at the *University of South Florida,* Department of Chemical and Biomedical Engineering

PREVIOUS POSITION

Assistant Professor at the *University of South Florida,* Department of Chemical and Biomedical Engineering, 10/01/2011-08/07/2018
CIFellow and postdoctoral scholar at *Stanford University*, Department of Electrical Engineering, 10/01/2009-9/30/2011

EDUCATION

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	MM/YY	FIELD OF STUDY
ITMO University, Saint Petersburg, Russia	B.Sc.	06/2001	Computer Science/Applied Mathematics with honors
ITMO University, Saint Petersburg, Russia	M.Sc.	06/2002	Computer Science/Applied Mathematics with honors
University of Washington	M.Sc.	12/2005	Electrical Engineering
University of Washington	Dual Ph.D.	12/2009	Electrical Engineering and Nanotechnology

RESEARCH INTERESTS

Mobile health, wearables, mobile app development, Bioinformatics, software and hardware assistive technologies for blind and visually impaired, signal processing in EEG and wearable devices

RESEARCH INTERNSHIPS

Hewlett-Packard Labs	Summer 2007	Invented, designed, and fabricated two new sensors – an angle sensor and a Nano-photonic sensor that were patented and published.
Microsoft Research	Summer 2006	Invented, designed, and fabricated a new display technology - *Telescopic Pixel*, a competitor to LCD, which received significant international media coverage, patented and published in **Nature Photonics**.

FUNDING

- Teaching grant for development of on-line class content and for attendance a workshop at UF, $2500, 10/01/2018-09/30/2019, PI
- Equipment donation from Beckman Coulter Diagnostics, $100,000, PI

- Advanced Florida Network Women in STEM travel grant, $1500, 09/21/2018, PI
- Industrial support, “Opioid abuse detection using wearables”, $200,000, 08/01/2018-07/31/2021, co-PI
- National Science Foundation #1726875, $420,000, “MRI: Acquisition of a Multi-Material Additive Manufacturing Platform for Multi-Disciplinary Research and Education”, Senior personnel (PI Jing Wang)
- National Science Foundation, $196,732, “PFI: AIR-TT: mHealth technology for detection of pregnancy complications”, 07/01/2017-12/31/2018, PI
- Bull Ring Accelerator Grant Program, $25,000, “Development of working prototype at Hemolix LLC”, 6/01/2017-5/31/2018, PI
- NSF I-CORPS, $50,000, “I-CORPS Hemolix – Technology for detection of pregnancy complications”, 5/15/2016-5/30/2017, PI
- USF Site I-CORPS, $4,000, “Hemolix – Technology for detection of pregnancy complications”, 01/03/2016-06/01/2016, PI
- National Oceanic and Atmospheric Administration, $61,000, “Measurement of Oil Slick Thickness by Light Attenuation”, 10/01/2014-12/31/2015, PI
- New Researcher Grant (NRG) Award, $9,000, “Single cell endoscope”, 06/01/2013-5/31/2014, PI
- Global Center for Hearing & Speech Research Grant, “Pilot grant from Global Center for Hearing & Speech Research- GCHSR for study of controlled drug delivery”, $3,000, 10/25/2013 – 10/24/2014, PI
- National Science Foundation, Computing Innovation Fellow, $270,000, 10/01/2009-9/30/2011, PI

AWARDS AND HONORS

- Elsevier chose a paper about MELISA among thousands of papers for international news coverage (2018)
- Invited to exhibit Hemolix technology at Cade museum (2018)
- Award from the ADVANCE Florida Network Women in STEM Scholars (AFN-WISE) (2018)
- Research was featured on Science Updates (AAAS radio) (2017)
- **Invited Technology Showcase Participant in the US Congress (2017)**
- Invited Showcase Participant in the National Academy of Sciences Convocation on “Revitalizing the University-Industry-Government Partnership" (2017)
- Invited Participant in the APLU/AAU University Innovation and Entrepreneurship Showcase (2017)
- **University of South Florida Excellence in Innovation Award (2017)**
- Inducted to the National Academy of Inventors (2016)
- Best paper award at IEEE Sensors conference (2016)
- Young Investigator award from North American Society for the Study of Hypertension in Pregnancy (NASSHP) (2015)
- Finalist of the Vodafone Americas Foundation Annual Wireless Innovation Project (2015)
- Sweet 16 in Cade Museum Competition (2015)
- **Finalist of the XPRIZE Nokia Sensing Xchallenge (2014)**
- Semi-finalist of the SPIE Challenge (2014)
- **Research highlighted in Science:** http://www.sciencemag.org/content/343/6171/600.full (2014)
- Winners of the 2013 NSF/Science International Science & Engineering Visualization Challenge (2014)

- Microsoft Research Fellow (2007, 2008), US **$100,000 for two years**
- Society of Women Engineers' Outstanding Female Award (2007)
- Department of Electrical Engineering Chair's award (2006)
- SPIE Educational Scholarship in Optical Science and Engineering four times in a row (2006, 2005, 2004, 2003), US $12,000
- Nanotechnology UIF Graduate Research award for 2004-05 for the research titled "Novel wavelength selective switch based on new electro-optical materials and nano-fabrication technique", US **$50,000**
- Electrical Engineering Young Innovator Fellowship (2003), US **$50,000**
- Clarendon Fund Award to support graduate study (3 years) at Oxford, UK
- Student support of the attendance of CLEO/Europe-EQEC 2003 in Munich (2003)
- Travel Grant of Russian Foundation for Basic Research (2003, 2000)
- Scholarship of Holographic school of Denisyuk (2002)
- Student Travel Grant of SPIE (2002, 2000)
- Diploma for the best scientific student paper from the Ministry of Education of the Russian Federation (2001)
- **Stipend of the President of the Russian Federation (2001)**
- Winner of Saint-Petersburg grant competition for undergraduate and graduate students, young scientists and specialists (2000)

AWARDS AND HONORS OF MY STUDENTS

- August 2017 - Arsenii Zhdanov, Jordan Keefe, Luis Franco-Waite – BRIDG poster award/3rd place
- December 2015 - Arsenii Zhdanov, SPIE Travel Scholarship
- April 2015 – Surya Cheemalapati received USF Signature Research Fellowship
- August 2014 – Arsenii Zhdanov, 5 year Presidential Doctoral Fellowships
- August 2014 – Surya Cheemalapati, Justin Stewart and Karthik Raj Konnaiyan won travel grants to attend 2014 Surface Forces Apparatus Conference in Cancun, Mexico.
- August 2014 – Surya Cheemalapati, Justin Stewart and Edikan Archibong won "Best Poster Presentation" at the 2014 Surface Forces Apparatus Conference during the student poster session, Cancun, Mexico.
- June 2014 – Michael Del valle was accepted to a top 10 Medical School with 50% support
- May 2014 – Michael Del valle won best Honors thesis award
- May 2014 – Justin Stewart - Winner of the Outstanding Research Assistant departmental award
- May 2014 – Tyler Stewart - Winner of "Best Capstone Design Project"
- February 2014 – Mikhail Ladanov started his full time position at Intel
- October 2013 Edikan Archibong - Winifred Burks-Houck Women's leadership award
- June 2013 – Edikan Archibong – internship at Naval Research Laboratory
- May 2013 - John Winskas– internship at Draper Laboratory
- May 2013 – Justin Stewart - Winner of "Best Capstone Design Project" and "Best Poster Presentation" awards at the 2013 Advisory Board Meeting
- May 2013 Edikan – Carl Storm Underrepresented Minority (CSURM) Fellowship to support her participation in the 2013 Physics & Chemistry of Microfluidics Gordon Research Conference
- April 2013 - Michael Del valle won Excellence in Undergraduate Research Award for his presentation at the 2013 Undergraduate Research and Arts Colloquium
- March 2013 – Edikan Archibong - Alfred P. Sloan Minority Ph.D. Scholarship

- February 2013 - Drew Neihart was AICHE Expo Chair, and AICHE received Best Exhibit at USF Engineering Expo. The students did an excellent job of combing science lessons with explosions that made the Chemistry Fun Zone one of the most talked about exhibits.
- October 2012 - Harry Tuazon won travel grant for presenting his research at NOBCChE 37th Annual Conference - Washington, DC
- July 2012 - Drew Neihart, Paul Riche and Justin Stewart won travel grants for presenting their talks at XXI International Materials Research Congress (IMRC) 2012, Cancun, Mexico, August 12 - 17, 2012
- May 2012 - Tyler Hickerson won the first place at Outstanding Posters competition at 36th Annual AIChE Clearwater Conference Student Poster Session
- May 2012 - Justin Stewart and Harry Tuazon won second place at Outstanding Posters competition at 36th Annual AIChE Clearwater Conference Student Poster Session
- March 2012 - Edikan Archibong won the best oral presentation award at 2012 Emerging Researchers National (ERN) Conference(03/01/12)

INTERVIEWS/COVERAGE OF MY STUDENTS

Howard Kaplan's PhD research was highlighted in Tampa Bay news:
http://www.tampabay.com/news/aging/Unique-tactile-map-made-on-3-D-printer-could-have-widespread-use_171592795
Edikan Archibong Receives NOBCChE Award:
http://www.eng.usf.edu/about/news/9-26-13%20Archibong%20Receives%20NOCChE%20Award.pdf
Tyler Hickerson gave an interview to USF news about his project "Artificial Cells with Nano-engineered Surface":
http://news.usf.edu/article/templates/?a=5406&z=210
My PhD student Edikan Archibong gave interview to Chemical & Engineering News, American Chemical Society:
http://cen.acs.org/articles/90/i45/Joining-NOBCChE-Family.html
Three of my undergraduate students gave interview to USF News:
http://news.usf.edu/article/templates/?z=0&a=4882

MEDIA COVERAGE /HEMOLIX

- Business Observer: http://www.businessobserverfl.com/press/detail/usf-team-selected-as-finalist-in-the-2.25-million-nokia-sensing-xchallenge/
- ABC Action News:
- Bay News 9:
- Florida Research Consortium

MEDIA COVERAGE / INTERVIEWS OF VISUALIZATION CHALLENGE

Featured in Science - http://www.sciencemag.org/content/343/6171/600.full
Featured on site of NSF - http://www.nsf.gov/news/special_reports/scivis/winners_2013.jsp
Featured in National Geographic
Featured in Yahoo! News
Featured on Youtube
Featured in NBC News
Featured in Fox News

MEDIA COVERAGE / INTERVIEWS OF TELESCOPIC PIXEL

1. Nature, mentioned in News
2. Nature Photonics, back cover interview
3. MIT's Technology Review, interview
4. New Scientist magazine, interview
5. Optics & Photonics News, interview
6. Science et vie, French science magazine, interview
7. “c't”, German computer magazine (www.heise.de/ct, www.heise.de/english) , interview

INVITED TALKS

1. Anna Pyayt, “How to turn a mobile phone into a smart portable biomedical testing system: challenges and lessons learned”, Florida State University, 2018.
2. Anna Pyayt, “How to turn a mobile phone into a smart portable biomedical testing system: challenges and lessons learned”, Florida International University, 2018.
3. Anna Pyayt, “Optical sensing on multiple scales”, Texas A&M, 2018.
4. Anna Pyayt, “Photonic single cell instruments”, Invited Speaker at the International NanoBio Collaborative conference, January 19-20, 2018.
5. Anna Pyayt, Arsenii Zhdanov, Hao Want, Michael Gubanov, “Hemolix: Saving Mothers and Babies using Big Data Analytics on Mobile Health Platform”. Invited Technology Showcase Participant in the US Congress, 2017.
6. Anna Pyayt, Arsenii Zhdanov, Hao Want, Michael Gubanov, “Hemolix: Saving Mothers and Babies using Big Data Analytics on Mobile Health Platform”. Invited Showcase Participant in the National Academy of Sciences Convocation on “Revitalizing the University-Industry-Government Partnership", 2017.
7. Anna Pyayt, Arsenii Zhdanov, Hao Want, Michael Gubanov, “Hemolix: Saving Mothers and Babies using Big Data Analytics on Mobile Health Platform”. Invited Participant in the APLU/AAU University Innovation and Entrepreneurship Showcase, 2017.
8. Anna Pyayt, “Optical sensing on multiple scales”, University of Rochester, 2017.
9. Anna Pyayt, “Instruments for single cell analysis”, USF Department of Molecular and Cell Biology, April 1st, 2016.
10. Anna Pyayt, Michael Gubanov, "Mobile Phone Platform for Detection of Early Signs of HELLP Syndrome in Developing Countries", NASSHP annual meeting, Chicago, October 16-18th, 2015, award winning talk.
11. Anna Pyayt, “Single cell endoscope”, 2014 EMN Fall Meeting, Orlando, Florida, USA, November 22-25, 2014, Invited talk.
12. Anna Pyayt, “Blood coagulation on chip”, IAJC/ISAM conference in Orlando, FL, USA, September 25-27, 2014, Invited talk.
13. Anna Pyayt, “Sensor for blood coagulation”, Laser Optics 2014, Saint-Petersburg, Russia, June 30-August 4th, Invited talk.
14. Anna Pyayt, “Single cell endoscopy”, University of Southern California, April 2013
15. Anna Pyayt, “Single cell endoscopy”, Plenary talk at Nano-bio collaborative international conference, March 2012
16. Anna Pyayt, “Photonic crystal based biomedical sensors”, Massachusetts Institute of Technology, February 2011
17. Anna Pyayt, “Photonic crystal based biomedical sensors”, University of Maryland, February 2011
18. Anna Pyayt, “Photonic crystal based biomedical sensors”, University of South Florida, February 2011
19. Anna Pyayt, “Photonic crystal based biomedical sensors”, University of California, Santa Barbara, March 2011

20. Anna Pyayt, “Photonic crystal based biomedical sensors”, University of California, Riverside, March 2011
21. Anna Pyayt, “Photonic crystal based biomedical sensors”, Boston University, March 2011
22. Anna Pyayt, “Photonic crystal based biomedical sensors”, John Hopkins University, February 2010
23. Anna Pyayt, “Photonic crystal based biomedical sensors”, University of Miami, April 2010

BOOK

- **Anna L. Pyayt**, Optical nano- and micro-electro mechanical systems: from plasmonic interconnects to ultra-efficient displays, 2011, ISBN-10: 1243706066.

PATENTS

1. **Anna Pyayt**, Edikan Archibong, Harry Tuazon, “Systems and Methods for Analyzing Liquids”, US Patent 20,170,082,602, 2017.
2. **Anna Pyayt**, “Mobile hemolysis detection in whole blood samples”, US Patent 9,547,899, 2017.
3. **Anna Pyayt**, “Devices and methods for measuring blood coagulation”, US Patent 9,297,816, 2016.
4. **Anna Pyayt**, “Hemolysis detection and measurement”, PCT Patent Application # PCT/US15/31366.
5. **Anna Pyayt,** “Heating Elements Having Plasmonic Nanoparticles for Localized Heating”, US Patent 20,160,151,493, 2016.
6. **Anna Pyayt**, Gary K. Starkweather, Michael J. Sinclair, “Display device and pixel therefore”, USPTO Patent Application 20090128589.
7. David Fattal, **Anna Pyayt**, Raymond Beausoleil, Wei Wu, “Angle sensor, system and method employing guided-mode resonance”, International Application No.: PCT/US2008/055833.

REFEREED PUBLICATIONS

Bioinformatics

1. Arsenii Zhdanov, Jordan Keefe, Luis Franco-Waite, Karthik Raj Konnaiyan, **Anna Pyayt**, "Mobile phone-based ELISA", *Biosensors and Bioelectronics 103,* pp 138-142 (2018).
2. Karthik raj Konnaiyan, Surya Cheemalapati, Michael Gubanov and **Anna Pyayt**, “mHealth Dipstick Analyzer For Monitoring of Pregnancy Complications”, IEEE Sensors Journal 17 (22), pp 7311 – 7316 (2017).
3. Archibong, E., Konnaiyan, K. R., Kaplan, H., & **Pyayt, A.** “A mobile phone-based approach to detection of hemolysis”, **Biosensors and Bioelectronics, 88,** pp 204-209 (2016).
4. Surya Cheemalapati, Prashanth Chetlur Adithya, Michael Del Valle, Mikhail Gubanov, and **Anna Pyayt**. "Real Time Fear Detection Using Wearable Single Channel Electroencephalogram", Sensor. Netw. Data Commun., 5:2 (2016).
5. Howard Kaplan, **Anna Pyayt**, “Tactile Visualization and 3D Printing for Education”, Encyclopedia of Computer Graphics and Gaming, Springer, pp. 49-60 (2016).
6. Karthik raj Konnaiyan, Surya Cheemalapati, Michael Gubanov, Anna Pyayt, “mHealth Dipstick Analyzer For Monitoring of Pregnancy Complications”, IEEE Sensors, Orlando, November 2016.
7. Michael N. Gubanov, **Anna Pyayt**, “READFAST: high-relevance search-engine for big text”, ACM CIKM 2013: 2465-2468 (2013).
8. Michael Gubanov, **Anna Pyayt**, “ReadFast: Optimizing Structural Search Relevance for Big Medical Text”, IEEE International Conference on Information Reuse and Integration (IRI), (2013).

9. Surya Cheemalapati, Michael Del Valle, Michael Gubanov, **Anna Pyayt**, “Using online stream-processing for portable electroencephalography system for stress and fear detection”, IEEE International Conference on Information Reuse and Integration (IRI), (2013).
10. Michael Gubanov, Linda Shapiro, **Anna Pyayt**, “ReadFast: Structural Information Retrieval from Biomedical Big Text by Natural Language Processing”. Invited book chapter in "Information Reuse And Integration In Academia And Industry", Springer, pp. 187-200 (2013).
11. Michael Gubanov, **Anna L. Pyayt**, “MEDREADFAST: A structural information retrieval engine for big clinical text”, IEEE International Conference on Information Reuse and Integration (IRI), pp. 371-376 (2012).
12. Michael Gubanov, **Anna Pyayt**, Linda Shapiro, “READFAST: Browsing large documents through unified famous objects (UFO)”, IEEE International Conference on Information Reuse and Integration (IRI), pp. 321 - 326 g(2011).
13. Michael Gubanov, Linda Shapiro, **Anna Pyayt**, “Learning Unified Famous Objects (UFO) to bootstrap information integration”, IEEE International Conference on Information Reuse and Integration (IRI), pp. 177 - 180 (2011).

Biomedical Engineering

14. Mikhail Ladanov, Surya Cheemalapati, Hao Wang, Yuan Yuan, Piyush Koria and **Anna Pyayt**, “Plasmono-magnetic Material for Precise Photothermal Heating”, RSC Advances 8 (5), pp 2660-2666 (2018).
15. Surya Cheemalapati, Heather Forth, Hao Wang, Karthik Raj Konnaiyan, Jeff Morris, and **Anna Pyayt**, “Measurement of Thickness of Highly Inhomogeneous Crude Oil Slicks”, *Applied Optics* 56 (11), E72-E76 (2017).
16. Surya Venkatasekhar Cheemalapati, John Winskas, Hao Wang, Karthik Konnaiyan, Arseny, Zhdanov, Alison Roth, Swamy Rakesh Adapa, Andrew Deonarine, Mark Noble, Tuhin Das, Robert Gatenby, Sandy D. Westerheide, Rays H.Y. Jiang, and **Anna Pyayt**, “Subcellular and *in-vivo* Nano-Endoscopy”, **Nature Scientific Reports** 6, p 34400 (2016).
17. Cheemalapati, Surya, Mikhail Ladanov, Bo Pang, Yuan Yuan, Piyush Koria, Younan Xia, and **Anna Pyayt**, "Dynamic Visualization of Photothermal Properties of Gold Nanocages Assemblies Using Thermoresponsive Elastin like Poly-Peptides,” **Nanoscale** 8, pp 18912-18920 (2016). **Chosen for cover**.
18. Surya Cheemalapati, Anna Pyayt “On-Chip Blood Coagulation Sensor”, chapter in *Advances in Sensors: Reviews*, Vol. 4, pp 147-156 (2016).
19. Archibong, E., H. Tuazon, H. Wang, J. Winskas, and **A. L. Pyayt**. "Modular Microfluidic Filters Based on Transparent Membranes." Journal of Electronic Packaging 138, no. 4, p 041002 (2016).
20. Justin Stewart, **Anna Pyayt**, "Statistical analysis of photonic crystal spectra for the independent determination of the size and refractive index of cells." Langmuir 31, pp 7173-7177 (2015).
21. Richardson, M., Cheemalapati, S., Everly, R., Sankaranarayanan, S. K., **Pyayt, A.**, & Bhethanabotla, V. R. “Design and fabrication of a SAW device with Ta filled microcavities inserted into its delay path for improved power transfer”, Journal of Vacuum Science & Technology B, 33(2), p 022001 (2015).
22. Edikan Archibong, Justin Stewart, **Anna Pyayt**, “Optofluidic spectroscopy integrated on optical fiber platform”, Sensing and BioSensing Research **1**, pp. 1-6 (2015).
23. Surya Cheemalapati, Mikhail Ladanov, John Winskas, and **Anna Pyayt**, “Optimization of dry etching parameters for fabrication of polysilicon waveguides with smooth sidewall using capacitively coupled plasma reactor”, Applied Optics 53 (25), pp. 5745-5749 (2014).

24. Justin Stewart, **Anna Pyayt**, “Photonic crystal based microscale flow cytometry”, Optics Express. 22(11), pp 12853-12860 (2014).
    The paper was also selected by the Editors for publication in the issue of the Virtual Journal for Biomedical Optics, which is a special feature of OSA's Optics InfoBase.
25. Mikhail Ladanov, Surya Cheemalapati, and **Anna Pyayt**, “Optimization of light delivery by a nanowire-based single cell optical endoscope”, Optics Express, Vol. 21, Issue 23, pp. 28001-28009 (2013).
    The paper was also selected by the Editors for publication in the issue of the Virtual Journal for Biomedical Optics, which is a special feature of OSA's Optics InfoBase.
26. **Anna L. Pyayt**, “Guiding Light in Electro-Optic Polymers”, *Polymers*, *3*(4), pp. 1591-1599 (2011).
27. **Anna L. Pyayt**, Gary K. Starkweather, and Mike Sinclair, "One Telescope per Pixel," in *Conference on Laser Electro-Optics: Applications*, OSA Technical Digest (CD) (Optical Society of America, 2010), paper AFB3.
28. **Anna L. Pyayt,** Jingdong Luo, Alex K.-Y. Jen, Antao Chen, Larry Dalton, “Field-induced guiding optical devices made from electro-optic polymers”, *Applied Optics*, Vol. 49, Issue 5, pp. 892-896 (2010).
29. **Anna L. Pyayt,** David A. Fattal, Zhiyong Li, and Raymond G. Beausoleil, “Nanoengineered optical resonance sensor for composite material refractive-index measurements”, *Applied Optics*, Vol. 48, Issue 14, pp. 2613-2618 (2009).
30. **Anna L. Pyayt**, Benjamin Wiley, Younan Xia, Antao Chen, Larry Dalton, “Integration of photonic and silver nanowire plasmonic waveguides”, ***Nature Nanotechnology***, **3**, 660-665 (2008).
31. **Anna L. Pyayt,** Gary K. Starkweather, Michael J. Sinclair, “A high-efficiency display based on a telescopic pixel design”, ***Nature Photonics***, **2**, no. 8, 492-495 (2008).
32. Antao Chen, Haishan Sun, **Anna L. Pyayt**, Jingdong Luo, and Alex K.-Y. Jen, “Micro-ring resonators made in poled and un-poled chromophore-containing polymers for optical communication and sensors (Invited),” *IEEE J. Sel. Top. Quant. Electronics*, **14**, 1281-1288 (2008).
33. Antao Chen, Haishan Sun, **Anna L. Pyayt**, and Xunqi Zhang, Jingdong Luo, Alex Jen, Philip A. Sullivan, Samy Elangovan, Larry R. Dalton, Raluca Dinu, Danliang Jin and Diyun Huang, “Chromophore-containing polymers for trace explosive sensors,”*Phys. Chem. C*, **112** (21), 8072–8078 (2008).
34. Zhengwei Shi, Steven Hau, Jingdong Luo, Tae-Dong Kim, Neil M. Tucker, Jae-Won Ka, Haishan Sun, **Anna L. Pyajt,** Larry Dalton, Antao Chen, and Alex K.-Y. Jen , "Highly Efficient Diels-Alder Crosslinkable Electro-Optic Dendrimers for Electric-Field Sensors", *Advanced Functional Materials*, **17**, 2557-2563 (2007).
35. Haishan Sun, **Anna L. Pyajt**, Jingdong Luo, Zhengwei Shi, Steven Hau, Alex Jen, Larry Dalton, and Antao Chen, “All-dielectric electro-optic sensor based on polymer micro-resonator coupled side-polished optical fiber,” *IEEE Sensors Journal*, **7** (4), 515-524 (2007).
36. J. Zhou, **A. L. Pyayt**, L. Dalton, J. Luo, A.K.Y. Jen, A. Chen, “Photobleaching Fabrication of Microring Resonator in a Chromophore-Containing Polymer, *IEEE Photon. Techn. Lett.,* **18**, 2221-2223 (2006).
37. A. Chen, H. Sun, **A.L. Pyayt**, A. C. Young, A. K-Y Jen, J. Takayesu, and L. R Dalton, “Micro resonators on side-polished fiber-a potential fiber optic sensor platform”, *Sensors, 2005 IEEE*, 735-738 (2005).
38. **A.L. Pyajt**, O.V. Andreeva and V.G. Bespalov, “Dynamic holograms recording in fullerene-containing solid-state matrices: Porous glass slides and PMMA films”, *Opt. Comm.*, **259** (2), 562-568 (2005).
39. O.V. Andreeva, V.G. Bespalov, **A.L. Pyajt**, V.N. Sizov, A.S. Cherkasov, “Dynamic hologram recording in solid-state fullerene-containing hosts”, *Optics and spectroscopy*, **96** (2), 149-156

(2003).

40. O.V. Andreeva, I.M. Belousova, V.G. Bespalov, Yu.N. Efimov, **A.L. Pyajt**, V.N. Sizov, A.S. Cherkasov, E.Yu. Yutanova, "Dynamic holograms recording in C60 fullerene toluene solutions". *Opt. J.*, **68** (3), 43-48, (2001).

CONFERENCE PRESENTATIONS

1. Edikan Archibong, Hao Wang, **Anna Pyayt**, "Design of an optofluidic sensor for rapid detection of hemolysis", 28th Anniversary World Congress on Biosensors, Miami, Florida, USA, 12-15 June 2018.
2. Hao Wang, Robert Brzozowski, Prahathees Eswara, **Anna Pyayt**, "TRAP – Thermo-plasmonic Rapid Analysis of Pathogens", Defense Innovation Summit, Tampa, October 2017.
3. A. Deonarine, M. Noble, J. Winskas, H. Wang, L. Bowie, **A. Pyayt**, S. Westerheide. "The heat shock response study using thermo-plasmonics", UCLA Worm Meeting, August 2017.
4. Karthik raj Konnaiyan, Surya Cheemalapati, Michael Gubanov, **Anna Pyayt**, "mHealth Dipstick Analyzer For Monitoring of Pregnancy Complications", IEEE Sensors, Orlando, November 2016.
5. Surya Cheemalapati, John Winskas, Karthik Konnaiyan, Hao Wang, Arseny Zhdanov, **Anna Pyayt**, "Nano-endoscope for Local Light Delivery and Collection from a Single Cell", BMES 2015 Annual Meeting, October 7-10, 2015, Tampa, Florida.
6. Edikan Archibong, Karthik Konnaiyan, **Anna Pyayt**, "Rapid Hemolysis Detection for Diagnosis of Pregnancy Complications", BMES 2015 Annual Meeting, October 7-10, 2015, Tampa, Florida.
7. Hao Wang, Mikhail Ladanov, Surya Cheemalapati, Bo Pang, Younan Xia, **Anna Pyayt**, "Photothermal therapeutic agents: Magnetically controllable optical nanoheaters", SPIE Photonic West 2015, Optical Fibers and Sensors for Medical Diagnostics and Treatment Applications XIV, SPIE BiOS; 2015 Feb 7-12; San Francisco, California, United States.
8. Surya Cheemalapati, **Anna Pyayt**, "Design of on-chip blood coagulation sensor," Surface Forces Apparatus Conference 2014 (SFA2014), Cancun, Mexico, August 2014.
9. Karthik raj Konnaiyan, Edikan Archibong, **Anna Pyayt**, "Automatic bacteria detection using laser diffraction images and shape classifiers," Surface Forces Apparatus Conference 2014 (SFA2014), Cancun, Mexico, August 2014.
10. Justin Stewart, **Anna Pyayt**, "Micro-Flow Cytometry using Photonic Crystals," Surface Forces Apparatus Conference 2014 (SFA2014), Cancun, Mexico, August 2014.
11. Edikan Archibong, Justin Stewart, Harry Tuazon, **Anna Pyayt**, "Design of optofluidic sensor for point-of-care hemolysis diagnostics," Surface Forces Apparatus Conference 2014 (SFA2014), Cancun, Mexico, August 2014.
12. Edikan Archibong, Justin Stewart, Harry Tuazon, **Anna Pyayt**, "Optofluidic spectroscopy integrated on optical fiber platform," Biosensor 2014- 24th World Congress of Biosensors, Melbourne Australia, May 2014.
13. Karthik raj Konnaiyan, **Anna Pyayt**, "Automatic bacteria detection using laser scattering," AIChE, Clearwater Beach, Florida, Poster presentation June 7 - 8, 2014.
14. Brent Terry, **Anna Pyayt**, "Tactile visualization for visually impaired", AIChE, Clearwater Beach, Florida, Poster presentation June 7 - 8, 2014.
15. Tyler D. Hickerson, Sasitorn Manning and **Anna Pyayt**, "Artificial Cells with Nano-Engineered Surface For Drug Delivery", 2013 AIChE Annual Meeting. Global Challenges for Engineering a Sustainable Future. November 3-8, 2013.
16. Edikan Archibong, **Anna Pyayt**, "Optical fiber probe for absorption spectroscopy", NOBCChE 40th Annual Conference, New Orleans, 2013.
17. Edikan Archibong, Mikhail Ladanov, Harry Tuazon and **Anna Pyayt**, "Microfluidic Membrane for Cell Separation", The Gordon Research Conference (GRC) on the Physics & Chemistry of

Microfluidics: Challenges, Advances and New Technologies for Diagnostics, June 9-14, Lucca (Barga), Italy, 2013.

18. Michael Del Valle, **Anna Pyayt**, "Alertness Assessment via Single Channel EEG", 29th Southern Biomedical Engineering Conference 2013 (SBEC2013), Miami, 2013.
19. Tyler Hickerson, Mikhail Ladanov, **Anna Pyayt**, "Artificial cells with nano-engineered surface for drug delivery", 29th Southern Biomedical Engineering Conference 2013 (SBEC2013), Miami, 2013.
20. Edikan Archibong, Harry Tuazon, Justin Stewart, **Anna Pyayt**, "Miniature spectroscopic device for biomedical applications", 29th Southern Biomedical Engineering Conference 2013 (SBEC2013), Miami, 2013.
21. Harry Tuazon, Justin Stewart, Edikan Archibong, **Anna Pyayt**, "Optimization of a microfluidic filtering membrane", 29th Southern Biomedical Engineering Conference 2013 (SBEC2013), Miami, 2013.
22. Mikhail Ladanov, Paul Riche, **Anna Pyayt**, "Optimization of the light manipulation with the single cell endoscopes", 29th Southern Biomedical Engineering Conference 2013 (SBEC2013), Miami, 2013.
23. Justin Stewart, **Anna Pyayt**, "Single cell detection using photonic crystals", 29th Southern Biomedical Engineering Conference 2013 (SBEC2013), Miami, 2013.
24. Surya Venkatasekhar Cheemalapati, Michael Del Valle, Michael Gubanov, **Anna Pyayt**, "Using online stream-processing for portable electroencephalography system for stress and fear detection", 29th Southern Biomedical Engineering Conference 2013 (SBEC2013), Miami, 2013.
25. Drew Neihart, Mikhail Ladanov, Michael Gubanov, **Anna Pyayt**, "Using stream-processing for on-chip measurement of speed of blood coagulation", 29th Southern Biomedical Engineering Conference 2013 (SBEC2013), Miami, 2013.
26. Chip Atkins, Andrea Lowe, Aryn Plas, Ben Gross, Wajeeh Saadi, **Anna Pyayt**, "Liver on a Chip", AIChE, Clearwater Beach, Florida, Poster presentation June 7 - 8, 2013.
27. Surya Venkatasekhar Cheemalapati, Michael Del Valle, Amber Dillon, Brandy Irons, **Anna Pyayt**, "Detection of emotional state using portable EEG", AIChE, Clearwater Beach, Florida, Poster presentation June 7 - 8, 2013.
28. Roha Afzal, Pritha Nanda, Newton King, Tunan Peng, Mahmoud Shahriari AnnaPyayt, "Performance evaluation of fiber optical oxygen sensor", AIChE, Clearwater Beach, Florida, Poster presentation June 7 - 8, 2013.
29. Ryan McMenamin, Mandek Richardson, Zhongxin Wu, Ivan Williams, Venkat Bhethanabotla, Anna Pyayt, "Studies of Phononic Waveguide used in Cancer Detection Biosensor", AIChE, Clearwater Beach, Florida, Poster presentation June 7 - 8, 2013.
30. Randy Tuazon, Michael Brandow, Anna Pyayt, "Medicrawl: A Web Text Extraction and Search Query Algorithm", AIChE, Clearwater Beach, Florida, Poster presentation June 7 - 8, 2013.
31. Harry Tuazon, Justin Stewart, **Anna L. Pyayt**, "Design of a microfluidic filtering membrane", NOBCChE 39th Annual Conference - Washington, DC, 25-29 October, 2012
32. Drew Neihart, Carla Perla, Michael Gubanov, **Anna Pyayt**, "Detecting blood coagulation on-chip", XXI International Materials Research Congress 2012, 12 – 17 August, Cancún, Mexico
33. Paul J. Riche, Rufan Chen, Luis Colon, Walter Foster, Mikhail Ladanov, **Anna Pyayt**, "Simulation of a single cell nano-scale endoscope", XXI International Materials Research Congress 2012, 12 – 17 August, Cancún, Mexico
34. Justin Stewart, Harry Tuazon, Anthony Zappa, Fei Mo, Edikan Archibong, Michael Gubanov, **Anna Pyayt**, "Hemolysis sensor", XXI International Materials Research Congress 2012, 12 – 17 August, Cancún, Mexico
35. Drew Neihart, Carla Perla, Michael Gubanov, **Anna Pyayt**, "Using Light to Detect Blood Coagulation", AIChE, Clearwater Beach, Florida, Poster presentation June 8 - 9, 2012

36. Justin W. Stewart, Harry Tuazon, Michael Gubanov, **Anna Pyayt**, "Detection of hemoglobin in plasma", AIChE, Clearwater Beach, Florida, Poster presentation June 8 - 9, 2012.
    Won second prize at the poster session.
37. Tyler Hickerson, **Anna Pyayt**, "Simulation of magnetic forces", AIChE, Clearwater Beach, Florida, Poster presentation June 8 - 9, 2012. **Won first prize at the poster session.**
38. Dan Fernandes, Steven Helak, Nick Regan, Alex Waterman, Anna Pyayt, "Low cost arm rehabilitation device", AIChE, Clearwater Beach, Florida, Poster presentation June 8 - 9, 2012
39. Michael Del Valle, Anna Pyayt, "Single channel EEG vs multichannel EEG", AIChE, Clearwater Beach, Florida, Poster presentation June 8 - 9, 2012.
40. D. Fattal, M. Sigalas, **Anna L. Pyajt**, Zh. Li, R. G. Beausoleil, "Guided-mode resonance sensor with extended spatial sensitivity", Proc. SPIE, V. 6640, P. 66400M 1-11 (2007).
41. **Anna L. Pyajt**, Xuangqi Zhang, Jingdong Luo, Alex Jen, Larry Dalton, Antao Chen, "Optical micro-resonator chemical sensor", Proc. SPIE, V. 6556, P. 65561D 1-6 (2007).
42. **Anna L. Pyajt**, J. Zhou, A. Chen, J. Luo, A. Jen, L. Dalton, "Electro-optic polymer microring resonators made by photobleaching", **Photonics West**, Proc. SPIE Vol. 6470**,** Organic Photonic Materials and Devices IX (2007).
43. H. Sun, **Anna L. Pyajt**, J. Luo, Z. Shi, S. Hau, A. Jen, L. Dalton, Antao Chen, "Broadband electric field sensor with electro-optic polymer micro-ring resonator on side-polished optical fiber", **Photonics West,** Proc. SPIE Vol. 6117**,** Second-Order NLO Materials and Applications II (2006).
44. L. R. Dalton, A. Scherer, A. Chen, A. Jen, P. Ried, B. Robinson, B. Eichinger, M. Hochberg, T. Baehr-Jones, **Anna L. Pyajt**, J. Takayesu, P. Sullivan, A. Akelaitis, R. Larson, D. Bale, M. Haller, J. Luo, S. Liu, Y. Liao, K. Firestone, S. Bhattacharjee, J. Sinness, S. Hammond, A. Sago, N. Buker, R. Snoeberger, M. Lingwood, and W. Steier, "Organic electro-optic glasses for WDM applications," 50th SPIE's Annual Meeting, 6014, 60140P-1-15 (2005).
45. **Anna L. Pyajt**, L. Dalton, A. Chen, "Novel wavelength selective switch based on electro-optic polymer microrings" // 50th SPIE's Annual Meeting, Proc. SPIE Vol. 5935, P. 224-237, (2005).
46. Nishant Prakash Bhatambrekar, **Anna L. Pyajt**, Jingdong Luo, Larry Dalton, Alex K-Y Jen, Antao Chen, "A biased push-pull technique to achieve fractional volt half-wave voltage of Mach-Zehnder modulators"// **Photonics West,** Proc. SPIE Vol. 5724, Nonlinear Optics II (2005).
47. Susan Soggs, Haishan Sun, Antao Chen, Kian Kaviani, Nishant Bhatambrekar, **Anna L. Pyajt**, Jingdong Liu, Larry Dalton, Alex Jen, Babak Parviz, "Feasibility study: integration of electro-optic polymer waveguide device with MOS circuitry on silicon"// Photonics West, Proc. SPIE Vol. 5730, Optoelectronic Integration on Silicon II, (2005).
48. **Anna L. Pyajt**, Kishore Sandara-Rajan, Gabriel Rowe, Matilda Enlund, "On-chip characterization of fluids using micro surface plasmon resonance sensors"// 49th SPIE's Annual Meeting, Proc. SPIE Vol. 5514, Optical Trapping and Optical Micromanipulation (2004).
49. **Anna L. Pyajt**, O.V. Andreeva, V.G. Bespalov, Yu.N. Efimov, A.S. Cherkasov, V.N. Sizov. "Dynamic holograms recording in fullerene-containing solid state media by 300 ps and 10 ns laser pulses"// **48th SPIE's Annual Meeting**, Proc. SPIE Vol. 5135, Optical Information, Data Processing and Storage, and Laser Communication Technologies (2003).
50. **Anna L. Pyajt**, V.G. Bespalov. "Amplitude-phase dynamic holograms recording in C60 fullerene solutions".// 19th Congress of the International Commission for Optics: **Optics for the Quality of Life**, Proc. SPIE Vol. 4829 (2003).
51. O.V. Andreeva, V.G. Bespalov , Yu.N. Efimov, **Anna L. Pyajt**, A.S. Cherkasov, V.N. Sizov. "Dynamic hologram recording in fullerene-containing nano-size porous glasses". International

Conference LAT, Proc. SPIE Vol. 5135, Optical Information, Data Processing and Storage, and Laser Communication Technologies (2003).

52. **Anna L. Pyajt,** O.V. Andreeva, V.G. Bespalov, "Dynamic holograms recording in fullerene-containing solid-state media: porous glasses and polymethylmetacrylate hosts"// II International Conference on Laser Optics for Young Scientists – LOYS 2003, St.Petersburg, Russia, June, 30 - July, 4, 2003.
53. O.V. Andreeva, V.G. Bespalov, **Anna L. Pyajt**, "Solid fullerene-containing hosts: spectral analysis and the dynamic holograms recording"// Fourth International ConferenceOptical Holography and its Applications", Kiev, Ukraine, 26-28 June 2003.
54. **Anna L. Pyajt**, O.V. Andreeva, V.G. Bespalov, Yu.N. Efimov, V.N. Sizov, A.S. Cherkasov. "Dynamic holograms recording in fullerene-containing solid state media by 300 ps laser pulse".// **CLEO/Europe-EQEC Conference**. Munich, Germany, 23-27 June, 2003.
55. O.V. Andreeva, V.G. Bespalov, **A.L. Pyajt**. "Holograms recording in fullerene-containing media by picosecond laser pulses". School for young scientists "Optics 2002", Saint-Petersburg, 14-17 October, 2002
56. O.V. Andreeva, V.G. Bespalov, Yu.N. Efimov, **Anna L. Pyajt**, V.N. Sizov, A.S. Cherkasov, E.Yu. Yutanova. "Dynamic hologram recording for extra-efficient optical limiting in C60 solutions". **Photonics West**, SPIE Proc. Vol. 4659, Practical Holography XVI and Holographic Materials VIII (2002).
57. O.V. Andreeva, V.G. Bespalov, **A.L. Pyajt**, A.S. Cherkasov. "Dynamic hologram recording in fullerene-containing nano-size porous glasses", Russian School "Nonlinear waves", March 2-9, 2002, Nizhniy Novgorod.
58. **Anna L. Pyajt**, "Recording and relaxation of thermal dynamic holograms in fullerene solutions". Seminar on physics and astronomy on results of Saint-Petersburg young scientists competition, 2001.
59. **Anna L. Pyajt**, V. G. Bespalov "Dynamic hologram recording and relaxation in C60 solutions", 45th SPIE's Annual Meeting, 2000. 45th SPIE's Annual Meeting, Proc. SPIE Vol. 4106, Linear, Nonlinear, and Power-Limiting Organics (2000).
60. **Anna L. Pyajt**, "Modeling of optical limiting during dynamic hologram recording in fullerene C_{60} solution", School for Young Scientists "Optics-2000", October 16-20, 2000**.**
61. V. G. Bespalov, **Anna L. Pyajt**, "Modeling of thermal grating relaxation that was recorded using laser pulse in fullerene C_{60} solution in toluene", Proceedings of Russian Scientific-Applied Conference "Optics and scientific instrumentation -2000", March 29-30, 2000, p. 42-43.
62. V. G. Bespalov , S.A. Lobanov , N. S. Makarov , **Anna L. Pyajt**, "Systems of nonlinear differential equations for the description of nonlinear optical phenomena", Proceedings of International Conference "Nonlinear sciences on the border of millenniums", June 22-24, 1999, p. 123.

MENTORING

Current students:

PhD: Hao Wang (defended PhD proposal), Arseny Zhdanov (defended PhD proposal), Howard Kaplan (defended PhD proposal)

MS: Akshay Dunakhe, Priyanka Shiveshwarkar, Yidong Tan

Undergraduate: Crystal Schmitt, Cassidy Chen, Tyler Tripp

Former Postdoctoral scholar:

- Mikhail Ladanov, 12/20/2011 – 12/20/2012, authored and coauthored 3 publications during the Postdoc, currently at Nikon Co.,USA

Graduated PhD:

- Edikan Archibong, 06/01/2012-12/01/2015, currently a postdoctoral scholar at The University of North Carolina at Chapel Hill, she just has coauthored a paper in Nature at her new lab.
- Surya Cheemalapati, 01/01/2013-06/01/2016, currently at Intel, USA

Graduated MS:

- Justin Stewart, currently at Evoqua Water Technologies.
- Karthik Raj Konnayan, currently manager at Kaligia Bioscience LLC.
- Sharad Ambardar, currently at USF PhD program
- Jordan Keefe, currently at Abbot
- Luis Franco-Waite, currently at COE X-Lab

Undergraduate Honors Thesis Director:

- Michael Del Valle. Michael won best Honor's thesis award, was admitted to WUSL medical school (#6 medical school in US) with 50% of support that is extremely competitive.

Medical student: Alvaro Frometa

RET teachers: Nigel Jagoo, Christina Rutledge, Jordan Lewis

SERVICE

Departmental committees

- Biomedical Engineering General Committee
- Biomedical Engineering PhD students' acceptance committee
- SCH increase committee
- Lecturer search committee
- Biomedical Engineering MS evaluation
- Faculty search committees (BME, CHE, EE)
- Seminar organizing committee
- Curriculum development committees

University

- Faculty adviser of the USF SPIE student chapter
- Presentation booth at the USF Engineering Expo
- Presentation booth at the USF high school student visitation days
- Reviewer of the USF New Researcher Grants
- Reviewer of the undergraduate engineering fellowship applications

Member of other student committees

MS: Roha Afzal,

PhD: Jun Liu, Dutta Debosruti, Mandek Richardson, Tanika Williams, Jhon Figueroa, Frank Alexander, Junyu Ren

Community

- Panelist for NSF and NIH
- Reviewer for Nano Letters
- Reviewer for Scientific Reports
- Reviewer for Optics Express
- Reviewer for Optical Engineering
- Reviewer for Applied Optics
- Reviewer for ACS Photonics

National

Technical committee of IEEE Sensors conference

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Member of SPIE (The International Society for Optical Engineering)
- Member of OSA (Optical Society of America)
- Member of IEEE (Institute of Electrical and Electronics Engineers)