CATHERINE BEST-POPESCU

Department of Bioengineering

Affiliate faculty, Department of Psychology, College of Medicine, and Neuroscience Program
University of Illinois at Urbana-Champaign
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The basis for my work stems from a multidisciplinary background and skills developed in the fields of pathology, bioengineering, and neuroscience. **My research is focused on applying advanced quantitative optical microscopy methods (SLIM- Spatial Light Interference Microscopy, and QPI- quantitative phase imaging) to study animal models of neurological disease**, such as Alzheimer's disease and Traumatic Brain Injury. On the teaching front, I have been awarded **several distinguished teaching awards** throughout my **18 years of teaching with extensive curriculum development experience** in the fields of **medicine, bioengineering, and neural engineering**. **My management activities** span from running my **Cellular Neuroscience Imaging Laboratory** (4 graduate students, 10 undergraduate students) to **Basic Science College of Medicine (COM) Administration** in the UIUC COM Academic Affairs office (UIUC 4 site COM LCME curriculum alignment and active learning implementation), and through to being the **Coordinator for the CLIA certified SHIELD Saliva COVID-19 Molecular Diagnostic Laboratory** (oversaw large scale SARS-CoV-2 testing/reporting operation; over 40 employees, 24/7,10,000-20,000 saliva samples processed per day).

EDUCATION AND TRAINING

Northeastern University, Boston, MA
Ph.D. in Biomedical Science, 2005

University of Massachusetts, Boston, MA
B.S. in Biology and Psychology

PROFESSIONAL EXPERIENCE

Research Professor, Carle Illinois MED, Department of Biomedical & Translational Sciences
Carle Illinois College of Medicine, Champaign Illinois, 2024-current

Research Affiliate Faculty, Beckman Institute for Advanced Science and Technology
University of Illinois at Urbana-Champaign, 2023-current

Research Assistant Professor, Department of Bioengineering
University of Illinois at Urbana-Champaign, 2014-current

Lab Coordinator for SHIELD Saliva COVID-19 Molecular Diagnostic Laboratory,
University of Illinois at Urbana-Champaign, 2020

Research Associate, Clinical Traumatic Brain Injury Trial Primary Investigator
Lovell Federal Health Care Center, Chicago, 2018

Interim Director of Assessment, Med UIUC Basic Sciences Administration
University of Illinois at Urbana-Champaign, 2011- 2013

Director of Curricular Alignment and Active Learning Curricular Development, Med UIC Basic Sciences Administration, University of Illinois Chicago, 2011-2013

Course Director, Medical Biochemistry
University of Illinois at Urbana-Champaign, 2010-2011

Research Assistant Professor, Medical Cell & Structural Biol
University of Illinois at Urbana-Champaign, 2011-2015

Course Director, Medical Neuroscience
University of Illinois at Urbana-Champaign, 2007-2014

Visiting Research Scientist in Cellular Biophysics, School of Engineering and Applied Sciences Harvard University, Cambridge, MA, 2005-2007

Postdoctoral Research Fellow
Brigham and Women's Hospital, Boston, MA, 2005-2007

Research Associate, Department of Pathology
Massachusetts General Hospital**,** Boston, MA, 2002-2005

Medical Technician, Clinical Chemistry, and Toxicology
Massachusetts General Hospital, Boston, MA, 2001-2002

JOURNAL ARTICLES

4624 citations, h=28, Google Scholar https://orcid.org/0000-0003-3857-5953.

40. Boppart SA, Best-Popescu CA, Bartels RA, Eliceiri K. (2024) Introducing the Special Issue on Label-Free Quantitative Phase Imaging Honoring Prof. Gabriel Popescu, a Pioneer in Biomedical Optics a Pioneer in Biomedical Optics. **J Biomed Opt**. 29 (Suppl 2), S22701.

39. Caetano-Silva ME, González-Ricón RJ, Chalen I, Best-Popescu CA, Antonson AM, Kelley KW. (2022) Creating psychoneuroimmunology research networks in Ibero-America. **Brain Behav Immun Health**. 26:100532.

38. Chalen I, Wang S, Jung J, Best-Popescu C., A. Antonson**.** (2022) Measuring fetal neuroarchitecture in germ-free mice in response to maternal IL-17a administration. **Brain, Behavior, and Immunity**. 106, 20.

37. Ranoa, D. R. E., Holland, R. L., Alnaji, F. G., Green, K. J., Wang, L., Fredrickson, R. L., Wang, T., Wong, G. N., Uelmen, J., Maslov, S., Weiner, Z. J., Tkachenko, A. V., Zhang, H., Liu, Z., Ibrahim, A., Patel, S. J., Paul, J. M., Vance, N. P., Gulick, J. G., Satheesan, S. P., … Burke, M. D. (2022) Mitigation of SARS-CoV-2 transmission at a large public university. **Nature communications**, 13(1); 3207.

36. Goswami, N., He, Y.R., Deng, Y.H., Oh C., Sobh N., Valera E., Rashid B., Nahed I., Kong H., Nguyen T.H., Best-Popescu C.A., Popescu G. (2021) Label-free SARS-CoV-2 detection and classification using phase imaging with computational specificity. **Light Sci Appl**. 10; 176.

35. Ma Y., Lee Y., Best-Popescu C., Gao, L. (2021) High-speed compressed-sensing fluorescence lifetime imaging microscopy of live cells. **Proc Natl Acad Sci** USA, 118(3).

34. King W.P., Amos J., Azer M., Baker D., Bashir R., Best C., Bethke E., Boppart S.A., Bralts E., Corey R.M., Dietkus R., Durack G., Elbel S., Elliott G., Fava J., Goldenfeld N., Goldstein M.H., Hayes C., Herndon N., Jamison S., ... (2020) Emergency ventilator for COVID-19. **PLoS One**. 15(12).

33. Goswami N, He YR, Deng Y-H, Oh C, Sobh N, Valera E, Bashir R, Ismail N, Kong HJ, Nguyen TH, Best-Popescu C, Popescu G. (2020) Rapid SARS-CoV-2 Detection and Classification Using Phase Imaging with Computational Specificity. (**bioRxiv). Cold Spring Harbor Laboratory Press.**

32. Fanous M., Caputo M.P., Lee YJ., Rund L.A., Best-Popescu C., Kandel M.E., Johnson R.W., Das T., Kuchan M.J., Popescu G. (2020) Quantifying myelin content in brain tissue using color Spatial Light Interference Microscopy (cSLIM). **PLoS One**. 15(11).

31. Kandel M.E., Hu C., Naseri Kouzehgarani G., Min E., Sulliva K.M., Kong H., Li J.M., Robson D.N., Gillette M.U., Best-Popescu C, Popescu G. (2019) Epi-illumination gradient light interference microscopy for imaging opaque structures. **Nature Communications** 10(1); 4691.

30. Motl R.W., Niemiro G.M., Lisio M.D., Sommer S., Riskin B.J. Best-Popescu C.A. (2019) Ultraviolet B Phototherapy Intervention in Patients with Multiple Sclerosis: A Prospective, Randomized Pilot Trial. **Journal of Neurological Research and Therapy**. 3 (1); 12-25.

29. Barakat R., Lin P.C., Park C.J., Best-Popescu C., Bakry, H. H., Abosalem, M. E., Abdelaleem, N. M., Flaws, J. A., Ko, C. (2018) Prenatal Exposure to DEHP Induces Neuronal Degeneration and Neurobehavioral Abnormalities in Adult Male Mice. **Toxicological sciences**: an official journal of the Society of Toxicology, 164(2); 439–452.

28. Majeed H., Ma L., Lee Y.J., Kandel M.E., Min E., Jung W., Best-Popescu C.A., Popescu G. (2018) Magnified Image Spatial Spectrum (MISS) microscopy for nanometer and millisecond scale label-free imaging. **Optics Express**. 26 (5); 5423-5440.

27. Kandel M. E., Fanous M., Best-Popescu C.A., Popescu G. (2018) Real-time halo correction in phase contrast imaging. **Biomed. Opt. Express.** 9(2); 623-635.

26. Lee Y.J., Cintora P., Arikkath J., Olaoluwa A., Kandel M., Popescu G., Best-Popescu C.A. (2017) Quantitative assessment of neural outgrowth using spatial light interference microscopy. **J. Biomed. Opt.** 22 (6); 66015.

25. Cintora P., Lee Y.J., Popescu G., Best-Popescu C.A. (2017) Cell density modulates intracellular mass transport in neural networks. **Cytometry: Part A.** 91(5); 503-509.

24. Kandel M., Shakir H., Best-Popescu C.A., G. Popescu. (2017) Three-dimensional intracellular transport in neuron bodies and neurites investigated by label-free dispersion-relation phase spectroscopy., **Cytometry: Part A**. 91(5); 519-526 (PMID: 28295966)

23. Nguyen T. H., Kandel M., Shakir H., Best-Popescu C.A, Do M. N., Popescu G. (2017) Halo-free Phase Contrast Microscopy. **Scientific Reports.** 7; 44034.

22. Min E., Ban S., Wang Y., Bae S.C., Popescu G., Best-Popescu C.A., Jung W. (2017) Measurement of multispectral scattering properties in mouse brain tissue. **Biomed. Opt. Express.** 8 (3); 1763-1770.

21. Min E., Kandel M.E., Ko C., Popescu G., Jung W., Best-Popescu C.A. (2016) Label-free, multi-scale imaging of ex-vivo mouse brain using spatial light interference microscopy., **Scientific Reports**. 6; 39667.

20. Lee S., Park H., Best-Popescu C.A., Jang S., Park Y. (2015) The Effects of Ethanol on the Morphological and Biochemical Properties of Individual Human Red Blood Cells. **PLoS ONE.** 10 (12): e0145327

19. Wang H., Wang B., Kieran, P.N., Jackson K., Spitler K., Sharrock M.F., Miller C., Best C., Llano D. Du R. (2014) Brain temperature and its fundamental properties: a review for clinical neuroscientists. **Frontiers in Neuroscience**. 2014; 8:307

18. Pham H.V., Bhaduri B., Tangella K., Best-Popescu C.A., Popescu G. (2013) Real time blood testing using quantitative phase imaging, **PloS ONE**. 8(2): e55676.

17. Park Y.K., Best-Popescu C.A., Kuriabova T., Henle M.L., Feld M.S., Levine A.J., Popescu G., (2011) Measurement of the nonlinear elasticity of red blood cell membranes. **Phys. Rev.** 83 051925.

16. Park Y. K., Best-Popescu C. A., Dasari R. R., Popescu G. (2011) Light scattering of human red blood cells during metabolic remodeling of the membrane., **Biomed Opt**. 16 (1), 011013.

15. Park Y. K., Best-Popescu C. A., Badizadegan K., Dasari R. R., Feld M. S., Kuriabova T., Henle M. L., Levine A. J., Popescu G. (2010) Measurement of red blood cell mechanics during morphological changes., **Proc. Nat. Acad. Sci**. 107(15): 6731–6736.

14. Park, Y., Best, C. A., Auth, T., Gov, N. S., Safran, S. A., Popescu, G., Suresh, S., & Feld, M. S. (2010). Metabolic remodeling of the human red blood cell membrane. **Proc. Nat. Acad. Sci**. 107(4): 1289–1294**.**

13. Abkarian M., Faivre M., Horton R., Smistrup K., Best-Popescu CA, Stone H.A., (2008) Cellular-scale hydrodynamics. **Biomed Mater**. 3; 034011.

12. Mischoulon D., Best-Popescu C. A., Laposata M, Merens W., Murakami, J.L. Wu S.L., Papakostas G.I., Dording C.M., Sonawalla S.B., Nierenberg A.A., Alpert J.E., Fava M. (2008) A double-blind dose-finding pilot study of docosahexaenoic acid (DHA) for major depressive disorder. **Eur Neuropsychopharmacol**. 9; 639-45.

11. Popescu, G., Park, Y., Lue, N., Best-Popescu, C., Deflores, L., Dasari, R. R., Feld, M. S., & Badizadegan, K. (2008). Optical imaging of cell mass and growth dynamics. **Am J Phys cell physiol**. 295(2); C538–C544.

10. Wozniak J., Biederman J., Mick E., Waxmonsky J., Hantsoo L., Best C.A, Cluette-Brown J.E., Laposata M. (2007) Omega-3 fatty acid monotherapy for pediatric bipolar disorder: a prospective open-label trial. **European Neuropsychopharmacology**. 17 (6-7); 440-7.

9. Popescu G., Ikeda T., Goda K., Best-Popescu C. A., Laposata M., Manley S., Dasari R. R., Badizadeganb K., Feld M. S. (2006) Optical measurement of cell membrane tension., **Phys. Rev. Lett**. 97; 218101.

8. Best C.A., Sarkola T., Eriksson C.J.P., Cluette-Brown J.E., Laposata M. (2006) Increased plasma fatty acid ethyl ester levels following inhibition of oxidative metabolism of ethanol by 4-methylpyrazole treatment in human subjects. **Alcoholism-Clinical and Experimental Research**. 30(7); 1126-1131.

7. Best C.A., Laposata M., Proios V.G. Szczepiorkowski Z.M. (2006) Method to assess fatty acid ethyl ester binding to albumin. **Alcohol and Alcoholism**. 41(3); 240-246.

6. Yoerger D.M., Best C.A., McQuillan B.M., Supple G.E., Guererro J.L., Cluette-Brown J.E., Hasaba A., Picard M.H., Stone J.R. Laposata M. (2006) Rapid fatty acid ethyl ester synthesis by porcine myocardium upon ethanol infusion into the left anterior descending coronary artery. **American Journal of Pathology**, 168(5):1435-1442.

5. Popescu G., Ikeda T., Best C. A., Badizadegan K., Dasari R. R. Feld M. S. (2005) Erythrocyte structure and dynamics quantified by Hilbert phase microscopy., **J. Biomed. Opt. Lett.**, 10, 060503.

4. Soderberg B.L., Salem R.O., Best C.A., Cluette-Brown J.E., Laposata M. (2003) Fatty acid ethyl esters. Ethanol metabolites that reflect ethanol intake. **Am J Clin Pathol** 119 Suppl: s94-9.

3. Best C.A., Cluette-Brown J.E., Teruya M., Teruya A. Laposata M. (2003) Red blood cell fatty acid ethyl esters: a significant component of fatty acid ethyl esters in the blood. **J Lipid Res** 44(3); 612-20.

2. Best C.A. and Laposata M. (2003) Fatty acid ethyl esters: toxic non-oxidative metabolites of ethanol and markers of ethanol intake **Front Biosci.** 8; e202-173.

1. Laposata M, Hasaba A, Best CA, Yoerger DM, McQuillan BM, Salem RO, Refaai MA, Soderberg BL. (2002) Fatty acid ethyl esters: recent observations. **Prostaglandins Leukotrienes and Essent Fatty Acids.** 67(2-3); 193-6.

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/catherine.best-popescu.1/bibliography/public/

BOOK CHAPTERS

1. "Erythrocyte Nanoscale Flickering: A Marker for Disease", CA. Best-Popescu, in "Nanobiophotonics", Edited by G. Popescu (McGraw Hill, 2010).

2. "Optical Sensing of Red Blood Cell Dynamics" by YK Park, C. A. Best-Popescu, and G. Popescu, in "Mechanobiology of cell-cell and cell-matrix interactions," Edited by Amy Wagoner Johnson (Springer, 2011)

3. "Psychoneurological alterations of development related to viral infections" by E M Caetano-Silva, R J Gonzalez Ricon, I Chalan Paredes, C Best-Popescu and A Antonson, in "Neuroinflammation: from biology to therapy"

RESEARCH GRANTS

Advancing Cancer Treatment: Development and Enhancement of Tumor-Treating Field Devices for In Vitro and In Vivo Applications. Y. Zhao (PI), C. Best-Popescu. **Cancer Center at Illinois (CCIL) Seed Funding Program** $25,000, 2024-2025.

Use of preclinical models for the implementation of more precise radiotherapeutic approaches in glioblastoma. Sara Pedron-Haba (PI), Kim Selting and Catherine Best-Popescu. **Elsa U. Pardee Research Grant** $ 173,665, 2023-2025

Leverage of Biomaterial-based Platforms in Cancer Neuroscience: Models for Multimodal Study of Radiotherapeutic Response in Brain Tumors. Sara Pedron-Haba (PI), Kim Selting and Catherine Best-Popescu. **Cancer Center at Illinois (CCIL) Seed Funding Program**. $25,000, 2023-2024

Label-Free Cell Viability Assays using Phase Imaging with Computational Specificity. Catherine Best-Popescu (PI). **NIH SBIR** 5R44GM145168-02 Subaward $440,000, 2022-2024

Label-free Cell Cycle Classification using Phase Imaging with Computational Specificity. Catherine Best-Popescu (PI). **Phi Optics Inc**. $50,000, 2022-2024

Label-free COVID Breath Testing. Gabriel Popescu (PI), Helen Nguyen, Catherine Best-Popescu, George Liu. **NIH R01** CA2338191 $1,176,701, 2021-2024

University of **Illinois Foundation Donation.** C Best-Popescu Research Support, $200,000. 2021-2022

AWARDS AND HONORS

- UIUC **COVID-19 Wall of Recognition in Engineering**, Grainger College of Engineering 2021

- COM-University of Illinois Urbana Champaign **Designated Commencement Basic Science Hooder.** Selected by the graduating class 2014, 2015, and 2016

- COM **Alpha Omega Alpha Robert Glaser Distinguished Teacher Nominee** 2015

- Raymond B. Allen Award - The **Golden Apple, For Excellence in Teaching**, -University of Illinois Urbana Champaign, M2 (second year medical students) 2012, and M1 (first year medical students) 2014. Featured cover story. ***Illinois Medicine*** summer 2014

- **Teachers Ranked as Excellent** by their Students 2012, 2013 and2014,

- University of Illinois Chicago COM Urban Health Program **Team Member Servant Leadership Award** 2014

- Individual **Ruth L. Kirschstein National Research Service Award** recipient 2005, 2006

TEACHING

- The Center for Label-free Imaging and Multiscale Biophotonics (CLIMB) **Summer School**, **Spatial Light Interference Microscopy,** Lecture and Lab 2023-current

- **Neuroscience for Engineers** (NE 330) Developed *new* course, 2023-current

- **Introduction to Neural Engineering** (NE 100) Developed *new* course, 2022-current

- Granger Worldwide Youth in Science and Engineering Program (WYSE) **Exploring Your Options Residential Summer Camp**, 2020-current

- The Granger Worldwide Youth in Science and Engineering Program (WYSE) **3D Day Camp Power of BIOE,** 2020-current

- **ME Seminar Series** (BIOE 570) in person Developed *new* course, 2020-2023
- **ME Seminar Series** (BIOE 570) online, Developed *new* course, 2020-2023
- **ME Capstone Project online** (BIOE 575), Developed *new* course, 2020-2021

- **Bio Measurement** (BIOE 572)**: Basic Microscopy** Dev *new* Module, 2018-2021
- **Bio Measurement** (BIOE 572)**: Advanced Microscopy** Dev *new* Module, 2018-2021
- **Biol Measurement** (BIOE 572): **Sensors** Module, 2017
- **Capstone Project** (BIOE 575), 2018- 2021

- **Introduction to Bioengineering** (BIOE 120), 2017-2023

- **Human Anatomy Cadaver Dissection Lab** for high school students. Medical Society of Illinois county. Leroy IL. Led by Dr. Tom Pliura. 2015-2020

- Neuroscience I, (NEUR 598), guest lecture (3 lectures) "**Brain Machine Interface**", "**Neuroimaging Techniques**" and "**Optogenetics**", 2015
- **Autism Neuroanatomy**, (GLC 199), Speech, Hearing guest lecture, 2014-2016
- "**Catapult Step 1 Preparation**" Developed ***new short course*** M2 Course, 2012-2015
- "**Excellence in Path and Pathophysiology**" Developed ***new short course*** M2, 2012, 2013

- **Medical Neuroscience M2** Course Director, 2011-2014
- **Medical Neuroscience M1** Course Director, 2009-2014

- **Illinois Summer Neuroscience Institute**, **Brain Exploration Laboratory Coordinator**, 2010, 2011
- "**Microsurgical Anatomy, Cadaveric Dissections and Technical Considerations with Dr. Baskaya**", Madison Wisconsin, developed *new short course,* 2010 - 2014
- **NanoBiophotonics Summer School**, ECE, Beckman Institute, UIUC, "**The Visual System Seen through Illusions and Lesions**", 2008, 2010, 2011

STUDENT SUPERVISION

- **PhD students**
  Jingfang Zhang 2021-Current

  Izan Chalen Paredes 2021-Current

  Jorge Maldonado, graduation August 2025

  Young Jae Lee, graduated June 2024

  Patty Cintora, graduated 2022 (2015-2018)

- **MSc students**

  Han Xueer, graduated June 2025

  Shubham Jayraj Thakar graduated May 2024

  Sumin Kim graduated May 2015

- **Visiting Scholars**

  Tanishka Trivedi 2023

  Eunjung Min (Summer 2015)

  Suhaani Nigam (Summer 2023)

- **Medical** Students**: 20 from 2014-current**

- **Undergraduate** Students: **46 from 2017-current**

PROFESSIONAL MEMBERSHIP

- Society for **Neuroscience**
- **Biomedical Engineering** Society
- **Psychoneuroimmunology** Research Society
- Society for **Investigative Pathology**
- Society of **Nephrology**
- **Rho Chi Honor Society**, 2005
- **Psi Chi Honor Society**, 1994

PROFESSIONAL SERVICE

- UIUC **Neural Engineering Working Group Chair,** 2023-current
- UIUC Bioengineering **Undergraduate Curriculum Committee,** 2023-current
- UIUC **Senator for Bioengineering** Department 2022-current
- UIUC Bioengineering **Summer Camp Coordinator** 2020-current
- UIUC **Bioengineering Diversity Committee** 2020-current
- UIUC **Granger Engineering Diversity Committee** 2019-current
- COM-UIUC **Chief Proctor National Board of Medica Examiners (NMBE)** 2012-2014
- COM-UIUC **Executive Committee** member 2012-2014
- COM-UIUC **Basic Science Subcommittee** member 2012-2014
- COM-UIUC Americans with Disabilities (ADA) **Accommodations Proctor** 2012-2014
- COM -UIUC Associate Program Director for the Internal Medicine Residency Program **Search Committee member** 2012
- MSB 2 and 3 **Floor Remodeling Committee member**. (From instructional labs to an **Active Learning Space** and **M2 Clinical learning patient rooms)** 2012
- **Secretary for the Faculty** 2011-2014
- COM-UIUC **Committee on Student Progress and Promotions** 2011-2014
- **Team Based Learning Collaborative** member COM University of Illinois Chicago 2011-current
- COM University of Illinois Chicago Liaison Committee on Medical Education (LCME) **4-campus site objective alignment, linked objectives, learning sessions** and **assessment** items (**Pathology, Biochemistry, Nutrition, Anatomy & Neuroscience**) 2011

INVITED TALKS

- Spatial Light Interference Microscopy Historical Perspectives, Today and in the Future, **Center for Label-free Imaging and Multiscale Biophotonics (CLIMB)** Summer School University of Illinois at Urbana Champaign, 2025

- Power of BIOE: COVID-19 a Case Study. **Biomedical Engineering Society's Outreach Lecture**: Bioengineer Your Impact, University of Illinois at Urbana Champaign, 2025

- Quantitative Phase Imaging Spatial Histocytometric Morpholomics in Mouse Models of Neurological Trauma and Disease. NIH/NIBIB. **Center for Label-free Imaging and Multiscale Biophotonics (CLIMB) Annual Symposium,** UIUC, 2025

- Advances in Multiscale Biomedical Imaging with Quantitative Phase Imaging, Unconventional Optical Imaging **SPIE Photonics Europe**, Strasbourg France 2024,

- Biomedical Imaging with Quantitative Phase Imaging. **Center for Label-free Imaging and Multiscale Biophotonics (CLIMB) Summer School,** UIUC, 2023, 2024

- Remembering Gabi. **Memorial Symposium** and Annual **Center for Label-free Imaging and Multiscale Biophotonics (CLIMB)** Meeting, UIUC, 2023

- Investigating TBI: Light Emitting Diode Phototherapy in a Human Pilot Study. **Industry Affiliates Program Symposium**, UIUC, 2016

- Studying cells at the nanoscale using light, **Bioimaging REU Program**, UIUC, 2016

- Changes in Neurite Growth in a Cell Trauma Model Quantified by Spatial Light Interference Microscopy. **Neuro Seminar**. University of Nebraska Medical Center, 2016

- Mechanisms and Markers of Traumatic Brain Injury. **CNST-MNTL VetMed joint Mini-Symposium**. University of Illinois at Urbana Champaign, 2016

- Cellular Neuroscience Imaging (CNI) Lab Research. Brainstorming/collaboration meeting with Applied Health Sciences for US Army Medical Research and Materiel Command BAA DOD grant, University of Illinois at Urbana Champaign, 2014

- Measurement of Red Blood Cell Deformability during Morphological Changes. **6th World Congress on Biomechanics (WCB 2010) Singapore,** 2010

- The Visual System Seen Through Illusions and Lesions. **NanoBiophotonics Summer School**, Beckman Institute, University of Illinois at Urbana Champaign, 2008, 2010, 2011

CONFERENCE PRESENTATIONS

26. J. M. De Jesus, Y. Kohut, D. Liang, S. Alashqar, I. Baker, C. Fornal, S. R. Challa, K. K. Veeravalli, B. Wang, and **C.A. Best-Popescu** (2025). Quantitative Phase Imaging Cartography: A New Lens into Traumatic Brain Injury. **Neurotrauma,** Philadelphia, PA, USA

25. D. Liang, J. M DeJesus, S. Alashqar, **C.A. Best-Popescu**, I. Baker, C. Fornal, S. R. Challa, K. K. Veeravalli, and B. Wang. (2025) Characterization of regional matrix metalloproteinase-12 expression in traumatic brain injury through immunofluorescence and spatial light interference microscopy. **Neurotrauma,** Philadelphia, PA, USA

24. J. Maldonado and **C.A. Best-Popescu**. (2024). Advances in label-free optical quantification of Alzheimer's Disease associated cellular and tissue level pathology. **SPIE Photonics-Europe**. Strasberg France

23. P. Bairwa J. Maldonado, B. Wang, **C.A. Best -Popescu** (2024) Undergraduate **Research in Scientific Advancement Poster Symposium**, UIUC (Best Poster Presentation Award)

22. M.A.S. Lamba, J.A.M. DeJesus, **C.A. Best-Popescu**, L. Myers, D Ionascu. (2024) Real-Time, Dose-Fractionated Irradiation of Cell Cultures Synchronously Imaged Using Quantitative, Label-Free Microscopy: A Glimpse into Time-Resolved Radiobiology. **American Association of Physicists in Medicine** (AAPM) 66th Annual Meeting Los Angeles, CA, USA.

21. J. Zhang and **C. A. Best-Popescu**. (2024). Quantitative histopathology of breast and bladder cancer using color spatial light interference microscopy (CSLIM) with computational specificity (PICS). **SPIE Photonics Europe**. Strasbourg, France.

20. J. Mueller, R. Yao, K. Selting, **C.A. Best-Popescu**, B. Harley, and Sara Pedron-Haba (2023). Engineered systems for tumor modeling facilitate the assessment of therapeutic interventions. In: Proceedings of the **AACR Special Conference on Brain Cancer**; Oct 19-22; Minneapolis, Minnesota. Philadelphia (PA): AACR; Cancer Res;84(5 Suppl_1): Abstract nr A045.

19. Quantification of Biophysical Markers of Inflammation using Spatial Light Interference Microscopy (SLIM) in a Repeated Social Stress Disorder Murine Model. PS3-50. **PsychoNeuroImmunology Research Society** (PNIRS) Annual Meeting, Boulder, CO, USA

18. S. Nigam, Y. Khan, J. Maldonado, K. Terpstra, L. Mirica, **C. Best-Popescu** (2023) Spatial Light Interference Microscopy (SLIM) for Label-Free Quantification of Neuroinflammation in Alzheimer's Disease. PS2-54. **PsychoNeuroImmunology Research Society** (PNIRS) Annual Meeting, Boulder, CO. USA

17. J. Maldonado DeJesus and **C. Best.** (2023) Quantifying Neuroinflammation Across Multiple Scales: A Novel Approach Employing Quantitative Phase Imaging in Models of

Neuroinflammation and Neurodegeneration. PS1-1. **PsychoNeuroImmunology Research Society** (PNIRS) Annual Meeting, Boulder, CO. USA

16. M. Nelson, J. Maldonado and **C. Best-Popescu**. (2021) Scarred Stars: Investigating the Role of Astrocytes in Alzheimer's Disease. **Basic Science University of Illinois Chicago Health Sciences Campus-Rockford Research Day**. IL, USA.

15. J. Maldonado, L. Best, L, I. Chalen. and **C. Best-Popesc**u (2022) Quantifying neuroanatomical variations across multiple mouse models of multiple sclerosis. **PsychoNeuroImmunology. Research Society** (PNIRS) Annual Meeting, ETH, Zurich, Switzerland.

14. J. Maldonado, L. Best, K. Murphy, G. Popescu, and **C. Best-Popescu** (2019) Spatial Light Interference Microscopy Revealed Myelin Differences Quantified in De and Dys/myelination Mouse Models. **NSF-Miniature Brain Machinery Retreat**, Beckman Institute, University of Illinois at Urbana Champaign, USA

13. J Maldonado, Y. Khan, K. Trepstra, L. Best, L. Mirica, **C. Best-Popescu** (2023). Identifying Optical Biomarkers of Neuroinflammation and Neurodegeneration Across Multiple Scales: A Novel Approach Using Quantitative Phase Imaging. **Center for Label-free Imaging and Multiscale Biophotonics** (CLIMB) UIUC, USA

12. J. Maldonado, J. Allen, P. Brewster and **C. Best-Popescu.** (2023) Spatial Light Interference Microscopy for Quantification of Brain and Gut Changes in a Repeated Social Defeat Model. **Gastronauts Global Symposia**, Galapagos Islands, Ecuador

11. I.P. Chalen, S. Wang, C. Best-Popescu, and A.M. Antonson A.M. (2023) Measuring fetal neuroarchitecture in germ-free mice in response to maternal IL-17A administration. **Gastronauts Global Symposia, Galapagos Islands, Ecuador**

10. I.C. Paredes I., S.S. Wang, A.M Otero, R Gonzalez-Ricon., **C. Best-Popescu**, and A.M. Antonson (2023) Evaluating fetal corticogenesis in germ-free mice in response to maternal IL-17a administration. **Microbial Multiverse Symposium**, Illinois Microbial Systems Initiative, University of Illinois at Urbana Champaign, IL, USA

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