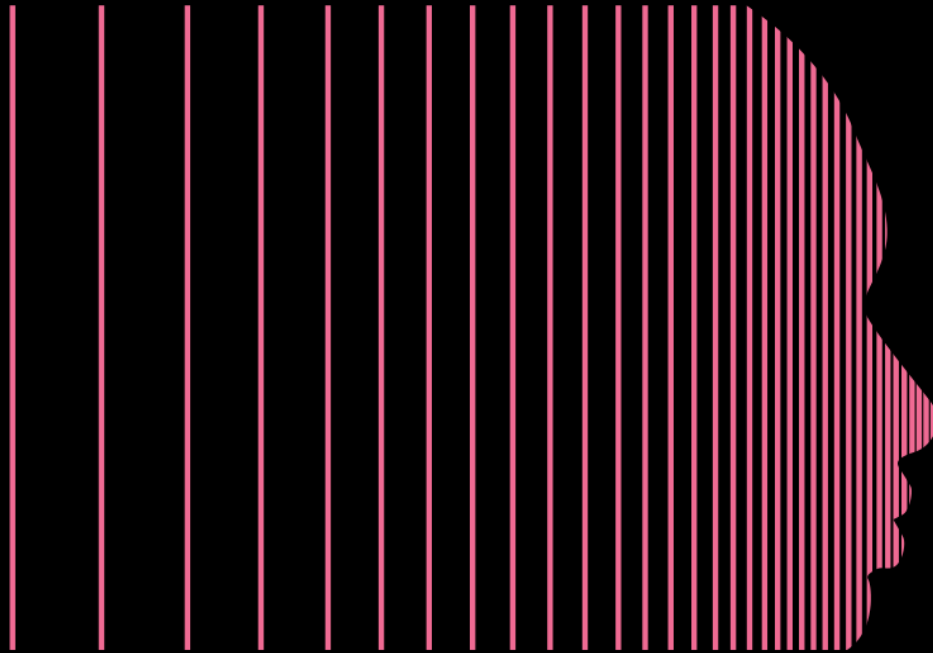


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OSA



AMPLIFY
OPTICS IMMERSION
PROGRAM

15-18 October 2022
Rochester, NY USA

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Amplify Black Voices in Science

There are scientists and engineers who exemplify Black achievement in science from all over the world. However, inequalities in access and opportunities as well as a disparity in recognition and visibility has resulted in a persistent underrepresentation of Black scientists. At Optica, we have committed ourselves to work to change this, particularly for our optics and photonics community.

The *Amplify Optics Immersion Program* is one example of this commitment. This program is designed to highlight the research, technology and careers opportunities for Black undergraduate and master's students. Co-located with Optica's annual meeting *Frontiers in Optics (FiO)*, participating students attend a dedicated program and participate in FiO technical and professional development sessions and student activities.

Learn more about the Amplify Black Voices programs as well as other funding and engagement opportunities at optica.org/diversity.

Optica Code of Conduct & Anti-Harassment Policy

In order to preserve a climate that encourages both civil and fruitful dialogue, we reserve the right to suspend or terminate participation for anyone who violates the Optica Code of Conduct. It is Optica policy that all forms of bullying, discrimination, and harassment, sexual or otherwise, are prohibited in any Optica events or activities, including digital forums. Harassment consists of unwanted, unwelcomed and uninvited comments or behavior that demeans, threatens or offends another. For complete policy information visit optica.org/codeofconduct. If you wish to report bullying, discrimination, or harassment you have witnessed or experienced, you may do so through the following methods:

- use the online portal optica.org/IncidentReport
- email CodeOfConduct@optica.org

Amplify Optics Immersion Program Agenda

Saturday 15 October 2022

Afternoon Arrivals

17:30 – 19:00 Welcome Reception, *Eggleston Ballroom, Hilton Garden Inn*

Sunday 16 October 2022

07:00 – 08:30 Breakfast, *Lilac Ballroom South, Rochester Convention Center*

08:30 – 08:45 Welcome
Elizabeth Rogan, Optica CEO, USA

08:45 – 09:15 Introductions & Kick-off with Master of Ceremonies
Anthony Johnson, University of Maryland, Baltimore County, USA

09:15 – 10:00 All About Optics
Kimani Toussaint, Brown University, USA

10:00 – 10:30 Break

10:30 – 12:00 Opportunities in Optics
Kenneth Barber, Edmund Optics, USA
Josh Cobb, Meta, USA
Ivy Krystal Jones, Hampton University, USA
Owusu Nyarko-Boateng, The University of Energy & Natural Resources, Ghana
Michael Williams, Boston Electronics, USA
Willie Rockward, Morgan State University, USA

12:00 – 13:30 Networking Lunch with Optica Board of Meetings & Technical Group Leaders

13:30 – 15:00 Enabled By Optics
Biomedical Optics – Caroline Boudoux, Polytechnique Montreal, Canada
Fabrication, Design & Instrumentation – Jessica DeGroote Nelson, Edmund Optics, USA
Information Acquisition, Processing & Display – Abbie Watnik, NRL, USA
Optical Interaction Science – Steve Cundiff, University of Michigan, USA
Photonics & Opto-Electronics – Jaime Cardenas, University of Rochester, USA
Vision & Color – Danuta Sampson, University College London, UK

15:00 – 15:30 Break

15:30 – 16:30 Journey of an Engineer
Erica J. Thompson, Intel, USA

16:30 – 17:30 Being Black in STEM
George Okyere Dwapanyin, University of St Andrews, UK

Sunday 16 October 2022, continued

- 17:30 – 18:00 Q&A and Closing
Anthony Johnson, University of Maryland, Baltimore County, USA
- 18:00 – 19:00 Break
- 19:00 – 22:00 Student Party with Student Leadership Experience, [Bar Bantam, One S. Clinton Ave.](#)

Monday 17 October 2022

- 07:30 – 08:30 Breakfast, [Eggleston Ballroom, Hilton Garden Inn](#)
- 08:00 – 8:30 Breakfast Talk: A Word About Frontiers in Optics from the Chair
Turan Erdogan, Plymouth Grating Laboratory, Inc., USA
- 09:15 – 10:00 FiO Visionary Talk: Learning with Optica Machines, [Highland A/K Room Convention Center](#)
Demetri Psaltis, Ecole Polytechnique Federale de Lausanne, Switzerland
- 10:00 – 12:00 Open time for FiO talks and visiting the Optica Lounge & Foundation Pop-Up
- 12:00 – 13:00 Joint Lunch Symposium on Undergraduate Research, [Lilac Ballroom, Convention Center](#)
- 13:00 – 18:00 DLS Program Poster Sessions & Talks (see program details)
- 18:30 – 19:30 Joint Dinner DLS Symposium, [Christopher's, 28 E. Main St.](#)

Tuesday 18 October 2022

- 07:30 – 08:30 Breakfast, [Eggleston Ballroom, Hilton Garden Inn](#)
- 08:00 – 8:30 Breakfast talk: FiO's Science + Industry Showcase: What to Expect
Jose Pozo, Optica Chief Technology Officer, Netherlands
- 9:15 – 10:00 FiO Visionary Talk: Augmented Reality & Virtual Reality, [Highland A/K Room Convention Center](#)
Martin Banks, University of California Berkeley, USA
- 10:30 – 11:30 Plenary Talk: Peddling a Telescope: Reflections on Aligning the Webb Telescope, and
Cycling the World - [Showcase Theater, Convention Center](#)
Scott Acton, Ball Aerospace & Technologies, USA
- 11:45 Science & Industry Showcase Tour - [Optica Foundation NextGen Lounge, Convention Center](#)
Guided Tour with Speakers, Ambassadors, & Optica Staff
- Afternoon Departures

Master of Ceremonies

Anthony M. Johnson



After receiving a B.S. in Physics from Polytechnic Institute of New York, U.S. in 1975 and a Ph.D. in Physics in 1981 from the City College of New York, Johnson spent 14 years conducting research at AT&T Bell Laboratories. His research has been in the general area of ultrafast optics and optoelectronics. He has published nearly 60 refereed papers, two book chapters and holds four U.S. patents. He has provided unceasing service to the optics community as an active member of several professional organizations and scientific commissions.

His roles have included: Editor-in-Chief of Optics Letters and Editor; member of OSA's Board of Directors and Board of Editors; member of the National Research Council's Committee on Atomic, Molecular, and Optical Science and the Board on Assessment of NIST Programs; member of the governing boards of the American Institute of Physics and IEEE LEOS and the Executive Board of American Physical Society and a member of the U.S. Department of Energy's Basic Energy Sciences Advisory Committee. He has also served on the program committees for CLEO and the LEOS Annual Meeting and co-chaired CLEO in 1996.

Johnson is the recipient of APS's 1996 Edward A. Bouchet Award. He is a fellow of OSA, APS, IEEE, AAAS, and the National Society of Black Physicists. In 2021, he received the Stephen D. Fantone Distinguished Service Award "for decades of principled leadership and steadfast service to The Optical Society and to the optics community, and especially for serving as a tireless ambassador for OSA." Johnson served as a Director-at-Large on OSA's Board from 1993-1996. He has also served as chair of the Women & Minorities Committee (1994-1995), chair of Awards Council in 2000, and chair of Optics Letters Editors from 1995-2001. In 2000, he was elected Vice President of OSA and served consecutively as President-Elect, President in 2002, and Past President the following year. He remains active with the Society and sits on the Presidential Advisory Committee and the Diversity, Equity and Inclusion Rapid Action Committee.

Amplify Optics Immersion Program Speakers

Kenneth Barber



Kenneth has over 23 years of experience in the photonics industry specializing in Project Management and Product Development. During his career he founded and help develop Edmund Optics' Project Management department and New Product Introduction process. As Director of Engineering and Project Management, he leads a global team of Designers and Project Managers in the US, China and Germany in the development of new product. Kenneth holds a graduate certification in Project Management from the New Jersey Institute of Technology and received his BS in Optics from the University of Rochester in Rochester, NY. • Founder and Co-chair of Edmund Optics' US Diversity, Equity and Inclusion Committee • Certified Lean Six Sigma Green Belt Published Articles contributed to: • Optics that focus on manufacturing www.machinedesign.com/archive/article/21815751/optics-that-focus-on-manufacturing • Hemispherical Display Uses Single Lens and Digital Projector

Caroline Boudoux



Caroline Boudoux, Eng., PhD, is a full professor in the Department of Engineering Physics at Polytechnique Montréal, a member of Institut de génie biomédical, and a researcher at Centre de recherche du CHU Ste-Justine and Centre d'Optique, Photonique et Laser (COPL). After earning a bachelor's degree in engineering physics from Université Laval, she obtained a PhD in biomedical optics at the Harvard-MIT Division of Health Sciences and Technology, followed by a postdoctorate in nonlinear microscopy at École Polytechnique de Paris. Since then, she has been directing the Laboratory of Optical Diagnoses and Imagery, which specializes in optical coherence tomography and microscopy.

Jaime Cardenas



Dr. Jaime Cardenas earned his PhD from the University of Alabama in Huntsville in Optical Science and Engineering. His research was in single air interface bends and waveguide microcantilevers. After two years as a process engineer, and three years as a postdoctoral researcher in the Cornell Nanophotonics group, Jaime continued with the Lipson Nanophotonics Group as a research scientist at Columbia University in June 2015.

Josh Cobb



Josh Cobb has been designing, building, and testing optical systems for over 30 years. He worked at IBM in Poughkeepsie, NY where he trained in Lens Design apprenticing under Fred Herring. At IBM he designed and built optical systems for the semiconductor manufacturing lines and was the co-founder of IBM Optical Development Services. He next went to the Eastman Kodak Research Labs where he designed and built systems for many different Kodak businesses. These included laser thermal printers, scanners, digital projections systems and was the co-inventor and developer of the Monocentric Optical technology in all of Kodak's stereoscopic displays. He next worked at Corning Tropol in Fairport, NY where he designed systems that include photovoltaic concentrators, maskless lithography systems, augmented reality systems, and lithographic illuminators. Josh is currently an Optical Scientist at Meta working for Reality Labs. Josh has also been an adjunct Associate Professor of Optics at Monroe Community College since 2008, and he teaches a Graduate course in Illumination at the University of Rochester. He holds a BS and MS in Optics from the University of Rochester and is the inventor of 72 issued US patents. He is also the co-author of *Light Action! Amazing Experiments with Optics* a classic children's book which has been in print for 29 years.

Steve Cundiff



Steven Cundiff is the Harrison M. Randall Collegiate Professor of Physics and Professor of Electrical and Computer Engineering at the University of Michigan. In 1995 he joined Bell Laboratories in Holmdel, NJ as a postdoctoral member of the technical staff. In 1997, he moved to JILA, a joint institute between the National Institute of Standards and Technology (NIST) and the University of Colorado, Boulder. At JILA, he was both a physicist with NIST and adjoint faculty at the university. From 2004-2009 he was chief of the NIST Quantum Physics Division. He moved to the University of Michigan in 2015. Cundiff received his B.A. in physics from Rutgers University in 1985 and his Ph.D. in applied physics from the University of Michigan in 1992. In 1993-1994 he was an Alexander von Humboldt postdoctoral scientist at the University of Marburg, Germany. Cundiff is a fellow of the American Physical Society (APS), Optica, the Institute of Electrical and Electronic Engineers and the American Association for the Advancement of Science. Cundiff received the Humboldt Research Award in 2010 and the OSA Meggers award in 2011. He chaired the 2014 APS Division of Laser Science. He works in the field of ultrafast optics, including the development and application of multidimensional coherent spectroscopy and of frequency combs, recently demonstrating the combination of these two fields

Jessica DeGroot Nelson



Jessica DeGroot Nelson is the Senior Director of Strategic Optical Innovations at Edmund Optics (EO). At EO she is responsible for corporate strategy related to optical components and associated coating technologies. Prior to joining EO, Jessica was the Director of Technology and Strategy at Optimax from 2007 to 2022. She joined Optimax after graduating from the Institute of Optics at the University of Rochester with a BS, MS, and PhD in Optics. She furthered her education with an

Executive MBA from the Simon School of Business at the University of Rochester in 2013. Jessica is active in the technical community as a fellow member of SPIE and a senior member of Optica (formally OSA) as well as a member of the Optics and Electro-Optics Standards Council (OEOSC). Optics education is a strong passion for Jessica, and she currently leads the educational outreach activities for Optica-Rochester Section Optics Suitcase program and chairs the SPIE Education and Outreach committee. In addition to The Institute of Optics, Jessica also teaches a course on Managing Technology, Innovation, and Research at the Saunders School of Business at Rochester Institute of Technology (RIT) as part of their Executive MBA program.

George Okyere Dwapanyin



George O. Dwapanyin is a Ghanaian early career researcher. He received his Bachelor of Science in Physics in 2009 from the University of Cape Coast, Ghana. He worked with the Radiation Protection Institute of the Ghana Atomic Energy Commission where he was part of the pioneering team for non-ionising radiation protection. He was then awarded the Erasmus Mundus scholarship which saw him complete his master's degree in Optics and Photonics from the Karlsruhe Institute of Technology,

Germany as well as the European masters in Photonics Engineering, Nanophotonics and Biophotonics from the Polytechnic University of Catalunya, Spain. His PhD in Physics was awarded by Stellenbosch University, South Africa in 2020 where his research led to the development of multimodal nonlinear imaging systems for biophotonics applications. This research also led to the first real world application of time domain ptychography in imaging. George has served as a reviewer and mentor for several committees within Optica and beyond. He is currently a research fellow with the Optical Manipulation Group at the University of St Andrews in the UK where his research currently dwells around advanced imaging techniques and Raman spectroscopy.

Turan Erdogan



Turan Erdogan received his S.B. in electrical Engineering from MIT in 1987. He went on to receive his Ph.D. from the University of Rochester in 1992. He completed postdoctoral work at AT&T Bell Labs. Following his education, Erdogan became a professor at the Institute of Optics at the University of Rochester, where he worked from 1994 to 2000. In 2000, he co-founded Semrock, Inc., in Rochester, New York. The company was acquired in 2008 by IDEX Corp. In the following years, Erdogan became the CTO and

VP of Business Development for IDEX Optics & Photonics and IDEX Health & Science. He remained in that position until 2016. For two years, he worked at the site leader for Melles Griot, and most recently, he became the President of Plymouth Grating Laboratory, Inc. He has authored or co-authored over 50 peer-reviewed scientific publications and over 50 major conference talks, and he holds more than 30 issued patents, with about half of these covering optical devices in mass production today. He is a Fellow of OSA, and received the 1995 Adolph Lomb Medal “for application of electron-beam lithography to fabrication of circular diffraction gratings and demonstration of a surface-emitting semiconductor laser based on these gratings.”

Ivy Krystal Jones



Dr. Jones completed a Postdoctoral Research Associate position at Marquette University in the Department of Mechanical Engineering working in the Shock Physics Laboratory working on dynamic behavior material analysis from 2018-2019 becoming an Optica Ambassador in 2018. She was an adjunct faculty professor, instructor, and lecturer at Wilbur Wright College, Olive-Harvey College, Harry S. Truman College, Blitstein Institute for Women, and Chicago State University teaching general chemistry, physical

science, and engineering physics from 2017- 2018. She has recently obtained a Physics Postdoctoral Fellowship position at the Medical College of Wisconsin, where she will be researching computational code for radiotherapy oncological imaging modeling applications for cancer diagnostic and treatment techniques. In addition, Dr. Jones completed Postdoctoral Research Staff position(s) in the Materials Science & Physics Division, Sensor Materials and Measurement group at Lawrence Livermore National Laboratory, 2016-2017; where her postdoctoral research involved working on synthetic procedures and processing methods to yield high-performance transparent ceramics for current scintillator application projects directly related to medical imaging where she received a US Patent. She completed her MS (2009) and PhD (2015) degrees in Physics from Hampton University in the Department of Physics at the Crystal Physics Laboratory, specializing in optical physics. Her dissertation research focused on solid-state eye safe laser material development, she has also worked on various multi-disciplinary research projects from bioengineering molecular ligation methods to characterization and evaluation of hybrid space-survivable nanocomposites. She also received two MS degrees in Mechanical Engineering and Biotechnology & Chemical Sciences from Tuskegee University and Roosevelt University in 2009 and 2003. She obtained her BS and BA in Chemistry and Psychology from Tuskegee University in 2001.

Owusu Nyarko-Boateng



Owusu Nyarko-Boateng (PhD) holds HND in Electrical & Electronic Engineering, BSc Computer Science, PGDE, MSc Information Technology, and PhD Computer Science from the University of Energy and Natural Resources (UENR), Sunyani-Ghana. He is a former employee of MTN Ghana and Huawei Technology (SA) Ghana. He is currently a lecturer at the University of Energy and Natural Resources, Sunyani-Ghana. His research interest is in Optical Technology, Submarine and Underground fiber optics cable transmission, Access Networks, MIMO, WiMAX, Spread Spectrum Technologies, 5G, data communication, intelligent transmission systems, Machine learning and IT Policy formulations and deployment. He is the founder and a former president of Optica chapter of UENR (OSU).

Jose Pozo



Originally from Spain, Jose Pozo has spent more than 25 years working in photonics. He earned a PhD in quantum physics from the University of Bristol, UK, and an M.Sc. and B.Eng. in telecom engineering from UPNA, Spain / VUB, Belgium. Prior to joining EPIC in 2015 as CTO, Jose was a Senior Photonics Technology Consultant with PNO Consultants, with some of the main accounts such as CERN, Thales or TE Connectivity. He has worked at TNO, The Netherlands Organization for Applied Scientific Research, and as a post-doctoral researcher at the Eindhoven University of Technology in the Netherlands, where he contributed to the early development of EFFECT Photonics.

Willie S. Rockward



Dr. Rockward has a unique combination of leadership from academic, professional, and community experiences. As a tenured professor at Morehouse College, he served the past 7 years as the Chair of the Department of Physics & Dual Degree Engineering Program (DDEP) and the past 20 years as the Research Director of the Materials and Optics Research & Engineering Laboratory. Among his professional leadership experiences, he is the President of the National Society of Black Physicists and the immediate Past President of Sigma Pi Sigma Physics Honor Society. He has served a combination of 23 years as Pastor of the Divine Unity Missionary Baptist Church and Associate Minister of Antioch Baptist Church North in East Point and Atlanta, Georgia. As Chair of Physics & DDEP at Morehouse, his vision and leadership resulted in the department being the US #1 producer for underrepresented minorities with Bachelor of Science degrees in Physics according to the American Institute of Physics and boasting the Nation's most productive Dual Degree Engineering Program. He is a proponent of STEM mentorship using methodologies of faculty-to-student, peer-to-peer, professional shadowing, life-skills coaching, and research apprenticeship. His current research interests include micro/nano optics lithography, extreme ultraviolet interferometry, metamaterials, terahertz imaging, nanostructure characterization, and crossed phase optics.

Danuta Sampson



Dr Danuta Sampson is a senior research fellow at the University College London and 2017 Optica Ambassador. She is a translational biomedical researcher, with expertise in optics, optical microscopy, vision science, ophthalmology, and image processing. Beyond research, she is passionate about science communication, mentoring students of all stages, and developing a more inclusive society. She completed her PhD in 2014, at the Nicolaus Copernicus University in Torun, Poland, in the Optical Biomedical Imaging

Group, a leading group in the field of biomedical imaging. In 2009, she has established the Nicolaus Copernicus University student chapter of the Optical Society and became a chapter president. Since then, she has been involved in many outreach programs aimed at raising general public interest in physics. In 2014, she was asked to join the Western Australian local outreach committee of the UNESCO International Year of Light. In the same year, she initiated the University of Western Australia student chapter of Optica and became the Chapter's outreach advisor. She is also a 2022 recipient of the Optica Diversity & Inclusion Advocacy Recognition.

Erica J Thompson



Erica received her BS in Physics at Fisk University and PhD in Physics at Hampton University where she was a NASA Graduate Student Researchers Project Fellow. She was a Post-Doctoral Fellow at Caltech Chemical Engineering and Merck Post-Doctoral Fellow. At Intel, Erica delivers technology expertise across all wet etch cleaning platforms; corrosion chemistry expert; and able to remove a variety of dry etch by-product with high selectivity to surrounding films. Erica has a total of 26 US Patents and was awarded a High Five

Patent (5 patents in 1 year). Some of Erica's professional aspirations are to continue to manage programs to complete the task mentioned above, but with a larger team and to broaden scope and acquire more challenging technical problems.

Kimani C. Toussaint



Kimani C. Toussaint, Jr., Ph.D. is a Professor in the School of Engineering at Brown University with appointments in Electrical and Computer Engineering, Biomedical Engineering, and Mechanical Engineering. He is also Senior Associate Dean in the Brown University School of Engineering beginning August 1st, 2020. Prior to joining Brown, Dr. Toussaint was on faculty at the University of Illinois at Urbana-Champaign for 12 years, where he rose to the rank of Professor in the Department of Mechanical

Science and Engineering. Dr. Toussaint directs the laboratory for Photonics Research of Bio/nano Environments, an interdisciplinary research group which focuses on both developing nonlinear optical imaging techniques for quantitative assessment of biological tissues, and novel methods for harnessing plasmonic nanostructures for light-driven control of matter. He is a recipient of a 2010 NSF CAREER Award, the 2014-2015 Dr. Martin Luther King, Jr. Visiting Associate Professor at MIT, the 2015 Illinois

Dean's Award for Excellence in Research, the 2017 Illinois Everitt Award for Teaching Excellence, and the 2019 Distinguished Promotion Award. Dr. Toussaint is a Fellow of Optica and SPIE, and Senior Member of IEEE. He served as the PI and inaugural Director of the US National Science Foundation (NSF) Nanomanufacturing Node at the University of Illinois at Urbana-Champaign from 2017-2019. Dr. Toussaint is also part of CELL-MET, a multi-institutional National Science Foundation Engineering Research Center in Cellular Metamaterials (EEC-1647837). CELL-MET aims to grow functional and clinically significant heart tissue while simultaneously developing a talented and diverse workforce to tackle future challenges in synthetic tissues engineering.

Abbie Watnik



Dr. Abbie T. Watnik is Head of the Optical Physics Branch in the Optical Sciences Division at the Naval Research Laboratory. Dr. Watnik manages personnel and programs within a diverse research portfolio of basic and applied optical physics, with topics in optical nanomaterials, laser-based imaging and sensing, quantum optics and semiconductor optoelectronics. Dr. Watnik is currently the Chair of the Optica Board of Meetings and has served in various volunteer roles at Optica including former

Congress Chair of the Imaging and Applied Optics Congress.

Michael J. Williams



Michael J. Williams is from Philadelphia, PA, USA. He received a BS in Physics in 2009 from Morehouse College and a MS in Materials Science in 2012 from Fisk University. He received a PhD in Optics from Delaware State University in 2018. His research was the investigation of the linear, nonlinear, and fluorescent characterization of various nanodiamond suspensions using well-established characterization methods and techniques. The purpose was to determine a deeper understanding on how to engineer

nanodiamonds to enhance their optical properties for lasers, biophotonics, and quantum optical applications. He has served on several committees promoting new leadership in optics and photonics and racial diversity and inclusion. He has also presented ground-breaking science policy to the US Congress. Currently, he is an Applications Specialist for Boston Electronics and a 2022 Optica Ambassador.

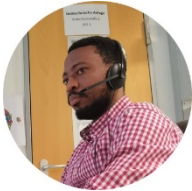
Amplify Optics Immersion Program Attendees



John Adeniran
Aston University and
Scoula Superiore Sant'Anna Pisa
United Kingdom



Jennifer Bragg
University of Arizona
USA



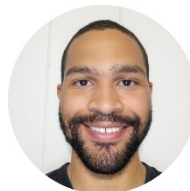
Michael Adewoye
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Germany



Shayla Breedlove
University of Florida
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Hannah Afolayan
Friedrich Schiller Universitat
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Juan Campbell Naranjo
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Arielle Joasil
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USA



Bethel Habtegiorg
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USA



Ngei Katumo
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Alexis Kumwembe
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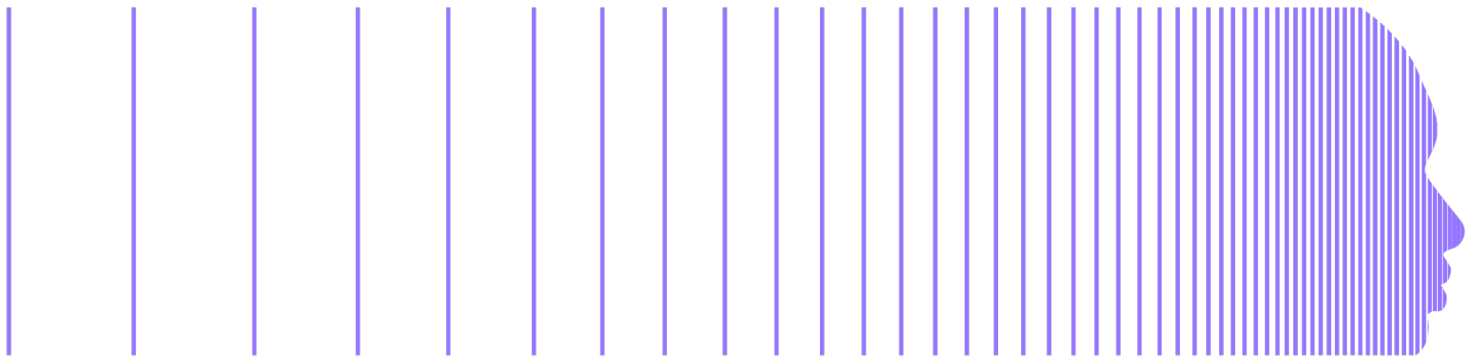


First Row: Adewale Akinyimika, Hebei University of Technology, China; Akosua Boampong, Wellesley College, USA; Arielle Joasil, Columbia University, USA; Ayomikun Esan, University of Auckland, New Zealand; Chenui Eugene Aban, University of Buea, Cameroon

Second Row: Hamidu M. Mbonde, McMaster University, Canada; Ibrahim Issah, Tampere University, Finland; Ikechi Ndamati, McGill University, Canada; Jennifer Bragg, University of Arizona, USA; Karabo Ndebele, Botswana International University of Science and Technology, Botswana

Third Row: Ngei Katumo, Karlsruhe Institute of Technology, Germany; Rutendo Jakachira, Brown University, USA; Shayla Breedlove, University of Florida, USA; Sheila Njoka, Multimedia University of Kenya, Kenya; Sylvester Munyao, Multimedia University of Kenya, Kenya

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