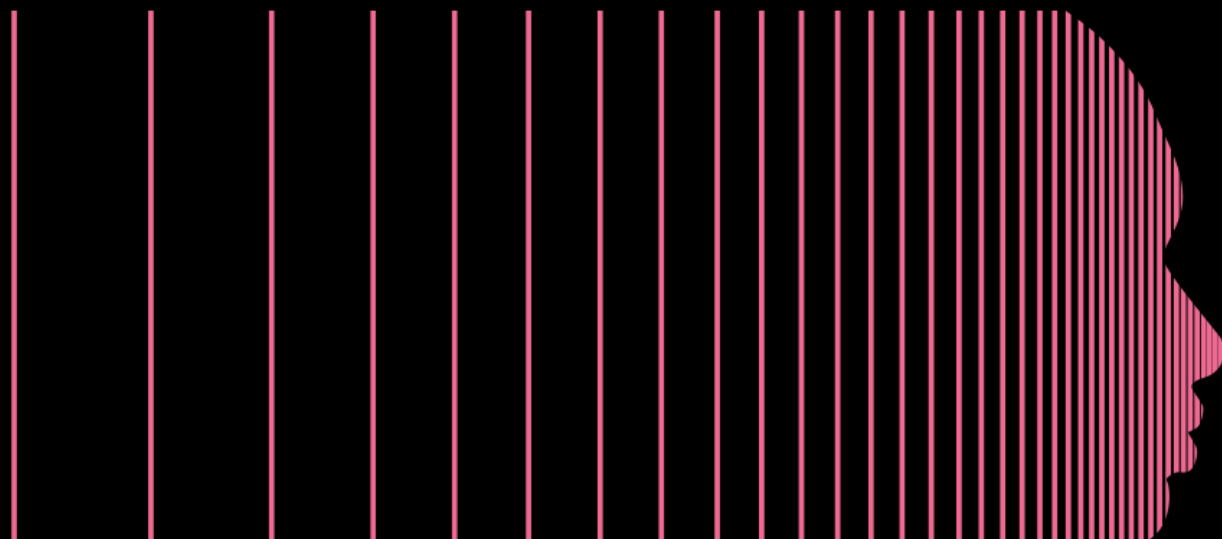


OPTICA  
FOUNDATION



AMPLIFY  
**OPTICS IMMERSION**  
PROGRAM

21 – 24 September 2024  
Denver, Colorado, USA

[optica.org/AmplifyImmersion](https://optica.org/AmplifyImmersion)

Founding Donor



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## Amplify Black Voices in Science

There are scientists and engineers worldwide who exemplify Black achievement in science. However, inequalities in access and opportunities, as well as disparities in recognition and visibility, have resulted in a persistent underrepresentation of Black scientists. At Optica, we have committed ourselves to working to change this, particularly for our optics and photonics community.

The *Amplify Optics Immersion Program* is one example of this commitment. With generous support from Edmund Optics, this program is designed to highlight the research, technology, and career 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 and other funding and engagement opportunities at [optica.org/diversity](https://optica.org/diversity).

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## 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](https://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](https://optica.org/IncidentReport)
- email [CodeOfConduct@optica.org](mailto:CodeOfConduct@optica.org)

# Amplify Optics Immersion Program Agenda

## 21-24 September 2024 ♦ Denver, Colorado USA

### Saturday 21 September 2024

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Afternoon                      **Arrivals & Hotel Check-In**  
Sonesta Denver Downtown

17:30 – 19:00                **Welcome Reception**  
Lockwood, Sonesta Denver Downtown

### Sunday 22 September 2024

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07:30 – 08:30                **Breakfast**  
Bluebird Prefunction  
Colorado Convention Center

08:45 – 09:00                **Welcome**  
Room 3G-H                      Elizabeth Nolan, *Interim CEO, Optica, USA*  
   Marcia Lesky, *Sr. Director Diversity & Foundation Programs, Optica, USA*

09:00 – 09:30                **Introductions & Kick-off with Master of Ceremonies**  
Kenneth Barber, *Edmund Optics, USA*

09:30 – 10:30                **Enabled By Optics Panel**  
*Bio-Medical Optics Division Chair: Caroline Boudoux*  
*Fabrication Design & Instr. Div Chair: Jannick Rolland*  
*Info Acquisition Processing and Display Division Chair: Hong Hua*  
*Optical Interaction Science Division Guest: Balázs Major*  
*Photonics & Opto-electronics Division Guest: Alexey Turukhin*  
*Vision & Color Chair: Brian Vohnsen*  
*Sensing Division Chair: Adam Fleisher*

10:30 – 11:00                **Break**

11:00 – 12:00                **Navigating Quantum/Nano Spaces: Driving advanced technologies in NexGen Electronics & Photonics**  
William Wilson, *Harvard University, USA*

12:00 – 13:00                **Winning in Physics: How to Use Your Story as Your Superpower**  
Julianne M. Pollard-Larkin, *University of Texas, M.D. Anderson Cancer Center, USA*

13:00 – 14:00                **Networking Lunch**

## Sunday 22 September 2024, continued

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- 14:00 – 15:00  
Room 3G-H
- Opportunities in Optics Panel**  
Anoopoma Bhowmik, *Edmund Optics, USA*  
Mamadou Dio, *Lawson Health Research Institute, Canada*  
Marla L. Dowell, *NIST Boulder, USA*  
Jhonattan Cordoba Ramirez, *Universidade Federal de Minas Gerais, Brazil*  
Erin Walter, *Corning, Inc. USA*  
Getasew Admasu Wubetu, *Oregon State University, USA*
- 15:00 – 16:00
- Illuminating the Path: From Ghana to Global Impact in Optics & Photonics**  
Herbert Winful, *University of Michigan, USA*
- 16:00 – 16:30
- Break**
- 16:30 – 17:30
- Being Black in STEM (small group discussions)**  
George Okyere Dwapanyin, *University of St Andrews, UK*  
Timothy Oshiobughie Imogore, *Friedrich-Schiller-Universität Jena, Germany*  
Joshua Burrow, *Brown University, USA*  
Ivy Krystal Jones, *Hampton University, USA*  
Jhonattan Cordoba Ramirez, *Universidade Federal de Minas Gerais, Brazil*
- 17:30 – 18:00
- Small Group Project Overview & Assignments**  
George Okyere Dwapanyin, *University of St Andrews, UK*
- 18:00 – 18:30
- What's Next?**  
Kenneth Barber, *Edmund Optics, USA*
- 18:30  
Bluebird Prefunction & Terrace
- Joint Student Leadership Dinner**

## Monday 23 September 2024

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- 07:30 – 08:30  
Bluebird Prefunction
- Breakfast**
- 08:00 – 8:30
- Breakfast Talk: A Word About Frontiers in Optics from the Chair**  
Andrew Forbes, *University of the Witwatersrand, South Africa*  
Alexey Turukhin, *Cisco Systems, USA*
- 08:30 – 12:00
- Small Group Project Work Time – see the project page for details
- 12:00 – 13:00  
Room 2G-H
- DLS Symposium on Undergraduate Research Joint Lunch & Programming**
- 13:00 – 16:30
- Small Group Project Work Time – see the project page for details

## Monday 23 September 2024, continued

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16:30-18:00            **Small Group Project Report Out**  
Room 3G-H

18:30 – 19:30            **Joint Dinner DLS Symposium**  
Ace, Pong Pong Room, 501 East 17th F Street

## Tuesday 24 September 2024

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07:30 – 08:30            **Breakfast**  
Bluebird Prefunction

08:00 – 8:30            **Breakfast talk:**  
National Society of Black Physicists (NSBP)

8:30                      **Conclusion of the Amplify Optics Immersion Program**  
Hotel check-out is at 11:00

09:15 - 10:00            **FiO Virtual Reality & Augmented Vision Visionary Session**  
Room 3A                      Matthew Colburn, *Meta Tech - Reality Labs Research*

10:00 – 11:30            **FiO Plenary Talk: Using Light Absorption & Laser Speckle Dynamics to Measure Human Brain Function**  
Plenary Stage                David Boas, *Boston University, USA*  
Exhibit Floor

11:30 – 13:00            **FiO Poster Session 1**  
Exhibit Floor                Fluorescence spectroscopy of a targeted photosensitizer for photodynamic therapy of breast cancer  
Ernestina Domey, *University of Rochester, USA*

14:00 – 15:30            **FiO Poster Session 2**  
Exhibit Floor                An Experimental Study of the Polarization-dependent Optical Response of Single Layer Graphene to Polarized Light.  
Christabel Isagi, *Multimedia University of Kenya, Kenya*

Raman Spectroscopy, Laser Induced Breakdown Spectroscopy (LIBS) And Principal Component Analysis (PCA) Combined For Identification Of Polystyrene Microplastics In Plastic Bottled Drinking water.  
Brian Osoro, *Maasai Mara University, Kenya*

Unraveling the Use of Methylene Blue Efficacy on Treating Bacterial Pneumonia Using an In Vitro Alveolar Model  
Ana Júlia Barbosa Tomé, *University of São Paulo, Brazil*

Afternoon                **Departures**

# Amplify Small Group Project

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This project will help you get the most out of the rest of the program. You can practice your networking skills and learn more about the depth and breadth of optics, opportunities in the field, and the community.

## THE RULES

**Objective:** Attend talks, poster sessions, networking sessions, or other activities throughout Monday and talk with Optica members or FiO attendees. At the end of the day, your team will prepare and deliver a **3-minute** presentation highlighting your team's experiences and what you learned.

**Teams:** See the team assignments to find your team. You can choose a team name that reflects your shared objectives.

**Tips:** Consider what you want to share during your presentation for this “choose your own adventure” activity. For example, you could:

1. Summarize the most exciting or surprising concepts you learned from a technical session you attended.
2. Identify real-world applications of optics you learned about from a conversation with someone from a company.
3. Identify what you believe is the "next big thing" in optics and why it holds such potential.
4. Explain a new career opportunity in optics you weren't aware of.
5. Other – GET CREATIVE!

**Presentation and Evaluation:** Each team will prepare a 3-minute presentation summarizing their findings and discoveries. Your team must complete at least 3 different activities/conversations, you will be judged on:

- Creativity and innovation in completing the activities
- Teamwork and collaboration
- Presentation skills (clarity, organization, visual aids)
  - Slides, Props, Pictures, Guest stars, Demo, etc. (be creative!)

## THE PRIZE

The Amplify speakers and mentors will be the judges, and the team with the best presentation will win a surprise prize.

## Frontiers in Optics Recommended Programming

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Below are events and activities you might use to accomplish your three required activities. You can see what else is happening around Frontiers in Optics Conference at [frontiersinoptics.com](http://frontiersinoptics.com). Note: the activities with a (\*) are required and cannot be used as one of your three activities.

\* 07:30 – 08:30      **Breakfast Talk: A Word About Frontiers in Optics from the Chairs**  
**Bluebird Prefunction**      *Andrew Forbes, University of the Witwatersrand, South Africa*  
   *Alexey Turukhin, Cisco Systems, USA*

08:30 – 16:30      Small Group Project Work Time

08:00 – 18:00      Technical Sessions  
**Various**                         View: [www.frontiersinoptics.com/home/schedule](http://www.frontiersinoptics.com/home/schedule)

08:00 – 18:00      Optica Lounge  
**Bluebird Prefunction**

10:00 – 11:00      Optica Publishing Group Meet the Journal Editors Networking Event  
**Bluebird Nook**

10:30 – 12:00      Optica Foundation Challenge Symposia: Information  
**Room 3G-H**

\* 12:00 – 13:00      **DLS Symposium on Undergraduate Research Joint Lunch**  
**Room 2G-H**

12:30 – 13:30      Optica Technical Group Lightning Laser Science Talks  
**Room 3G-H**

12:45 – 13:45      Non-Imaging Optical Design Technical Group Special Talks  
**Optica Theater**

13:00 – 16:00      DLS Undergraduate Symposium Talks & Poster Session  
**Room 2G-H**

14:00 – 15:00      Optica Foundation Challenge Symposia: Environment  
**Room 3G-H**

\* 16:30-18:00                              **Small Group Project Report Out**  
**Room 3G-H**

## Team Assignments

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### Group 1

Ana Júlia Tomé
Princess Ani
Christabel Isagi
Benjamin Agyekum
Ifeanyichukwu Okonkwo

### Group 2

Diana Ceita da Encarnação da Cruz
Frank Sam Jnr
Clive Simpson
Juan Sanchez
Jordan Simmons

### Group 3

Prosper Allo
Jude Chukwuemeka Agbedo
Emmanuel Maina
Stella Belony
Sitara Brent

### Group 4

Manuel Finda Evaristo
Andzani Mthenjane
Deborah Amos Adigun
Francis Macharia
Leslie Johnson
Gloria Awuku

### Group 5

Diego Franca de Oliveira
Olayinka Atobatele
Dorothy Mringie
Joel Benjamin Ruzindana Manzi
Kadiatou Sow

### Group 6

Oritse-Tsegbemi Eyito
Mohamed Elmaamli
Deborah Abayie
Oluwatoyin Atikekeresola
Alexandro Balarezo

### Group 7

Tchuda Bidenguilté
Fiona Zerai
Love Owoje John
Andrew Herndon
Marcus Polk

### Group 8

John Kwabena Arthur
Jessica Appiah
Ernestina Domey
Abdulsalam Odofin-Kamorudeen
Destin Maleka

### Group 9

Lordina Duodu
Brian Osoro
Kaleb Felefele
Jebril Thaxton
Faith Poutoa



## Master of Ceremonies

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### Kenneth Barber



Kenneth has more than 24 years of experience in the photonics industry specializing in Project Management and Product Development. During his career, he founded and helped 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 products. 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. Other accomplishments and activities include:

- 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

## Program Speakers

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### Anoopoma Bhowmik



Anoopoma Bhowmik is a senior project manager and engineering supervisor at Edmund Optics. She received her BS in Mechanical Engineering from the University of Michigan and her MS in Optical Sciences from the University of Arizona. Since joining Edmund Optics in 2010, she has worked in technical sales, on continuous improvement initiatives, and specializes in project management of new optical products. These products enable multiple technologies including laser material processing, biomedical instruments, and autonomous vehicles. For a decade, she has also directed the Engineering Leadership Program, an accelerator which attracts, trains, and retains early career scientists and engineers. ELP graduates leverage their skills, interests, and onboarding to support critical company initiatives such as expansion of manufacturing capabilities and advancement of product development. She is also the Founder and Chair of the US Women in Optics Steering Committee, Co-Founder and Co-Chair of the US Diversity, Equity, and Inclusion Steering Committee, and a Certified Lean Six Sigma Black Belt.

### 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.

### Joshua Burrow



Dr. Joshua A. Burrow is a Hibbitt Postdoctoral Fellow in the School of Engineering at Brown University. He earned his B.S. degrees in Physics and Mathematics with a concentration in Engineering from Morehouse College, a liberal arts HBCU located in Atlanta, GA. He then obtained his M.S. and Ph.D. degrees as a Ford Foundation Dissertation Fellow in the Electro-Optics and Photonics Department at the University of Dayton under the direction of Profs. Jay Mathews and Imad Agha, respectively. His graduate school work spanned a myriad of topics within light-matter interactions including plasmonic metasurfaces for biological sensing and 5G communications, as well as designing and developing high-speed tunable photonic materials such as

chalcogenide phase change materials to dynamically tune properties of light at the nanoscale. Since joining the PROBE Laboratory led by Prof. Kimani C. Toussaint Jr's, Joshua has expanded his research to bio-photonics where he noninvasively investigates a variety of inorganic and organic systems, at mesoscopic scales, through the development of advanced optical microscopy techniques. Joshua pursues several other research topics including optical tweezing, non-linear optics, and physiological monitoring using structured light and spatially varying polarized wavefronts. Concurrently, he is also working with 2022 Amplify Scholar, Ms. Rutendo Jakachira to develop an equitable and accurate pulse oximeter for black individuals in clinical settings. Additionally, he is and has been actively involved in student development and outreach for many years throughout his career. He was a two-term president of Optica chapters both at Morehouse College and the University of Dayton. Most notably, he co-organized with Purdue University the IONS Midwest-US 2019 international conference that hosted over 100 students. He has attended Congressional Visits, advocating for optics and photonics. Presently, he serves as co-advisor to the Brown University Optics Society (BRUNOS). Joshua is also a past student representative and executive board member of the National Society of Black Physicists (NSBP) and the co-founder of the Student Leadership Development Summit. In his free time, he enjoys playing basketball, traveling, and trying new cuisines.

### Mamadou Diop



Dr Mamadou Diop is an Associate Professor in the Departments of Medical Biophysics and Biomedical Engineering at Western University where he leads the Translational Biophotonics Lab. He is also a Principal Investigator in the Imaging Division of the Lawson Health Research Institute at St Joseph's Healthcare London. Dr Diop received a BSc in Physics and Chemistry from Dakar University (Senegal) and a PhD in Physics from Laval University. His current research focuses on the development of

tissue optical spectroscopy techniques for bedside neuromonitoring. His team has developed several advanced cerebral oximeters and a unique method for noninvasive neuromonitoring of the redox state of cytochrome-c-oxidase, a sensitive biomarker of brain injury.

### Marla Dowell



Marla Dowell is the Director of the CHIPS R&D Metrology Program and NIST Boulder Laboratory. She began her career at NIST as a researcher in the field of optical metrology for photolithography. Dowell has represented NIST on national and international standards committees as well as external advisory committees on research innovation, photonics, and communications. Her abilities to foster collaborations with both private and public sector partners and to lead high performing research

organizations have been recognized with numerous awards, including the Allen V. Astin Award and the Arthur S. Flemming Award from George Washington University. Dowell is a fellow of SPIE, senior member of IEEE, and a member of the Federal Innovation Council.

### 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.

### Adam J. Fleisher



Adam J. Fleisher (A.J.) is a Research Chemist in the Optical Measurements Group and a former National Research Council postdoctoral fellow. His research efforts include the development of optical methods for trace gas detection which bring the new SI to measurements of isotopic composition. In 2019, he was named an Ambassador of Optica.

### Andrew Forbes



Andrew has at various times in his career found himself as teacher, janitor, secretary, receptionist, web-master, systems engineer, sales rep, manager, director, and sometimes a scientist. Andrew is presently a Distinguished Professor within the School of Physics at the U. Witwatersrand (South Africa) where in 2015 he established a new laboratory for Structured Light. Andrew is active in promoting photonics in Africa, a founding member of the Photonics Initiative of South Africa and initiator of South Africa's Quantum Roadmap. He is a Fellow of SPIE, the OSA (now Optica), the SAIP, and an elected member of the Academy of Science of South Africa. He holds an A-rating by the South African NRF, 3 honorary professorships, is editor-in-chief of the UK's Journal of Optics and sits on the editorial board of three other international journals. Andrew has won several awards, including the NSTF national award for his contributions to photonics in South Africa, the Georg Forster prize from the Alexander von Humboldt Foundation for outstanding contributions to photonics, and the SAIP Gold Medal, the highest award for physics in South Africa, making him

the youngest winner to date. Most recently he was awarded the Vice-Chancellor's Research Award, the highest award for research from the university. Andrew spends his time having fun with the taxpayers' money, exploring structured light in lasers as well as classical and quantum optics.

### Hong Hua



Hong Hua is a Professor with the James C. Wyant College of Optical Sciences (OSC), The University of Arizona. She completed her BSE and PhD degrees in Optical Engineering in 1994 and 1999, respectively, at the Beijing Institute of Technology. She was a postdoctoral fellow in CREOL at the University of Central Florida (1999) and a Beckman Research Fellow (1999-2002) at the Beckman Institute, University of Illinois at Urbana-Champaign. Prior to joining the UA faculty, she was an Assistant Professor

with the University of Hawaii at Manoa until December 2003. Hua is well-recognized for her contributions in advancing wearable display technologies, imaging technologies, and virtual and augmented reality systems through her research, mentorship, entrepreneurship, and professional services. Together with her trainees and collaborators, Hua's laboratory has played a leading role in the introduction and advancement of key optical technologies addressing challenging problems in head-worn display technologies for virtual and augmented reality applications, and microscopic and endoscopic imaging technologies for medicine. Hua has co-authored over 130 peer-reviewed publications, more than 150 invited and contributed lectures and presentations, 1 book, and 3 book chapters. Her students received nine Best Paper or Distinguished Student Paper Awards at top scientific conferences. Hua holds more than 50 US and foreign patents. She was a co-founder of one startup, served as a consultant for several companies, and served on the scientific advisory board of another company. She mentored over 20 PhD students and post-docs and over 15 MS graduates, many of whom now play key roles in their academic and industrial positions. Hua has played service and leadership roles in several scientific societies. She was a member of the Optica Fellow Members Committee (2021-2022) and a member of the Joseph Fraunhofer Award/Robert M. Burley Prize Committee (2011-2012). She served as a chair of scientific conferences, workshops, and symposia for several professional societies. For example, she has been a founding general chair of the 3D Image Acquisition and Display Topical Meeting held annually since 2016, and was co-chair of the 2012 OSA 3D Display Technology Incubator Meeting. She served for several IEEE and ACM conferences, such as IEEE & ACM ISMAR conferences, IEEE Virtual Reality, ACM Virtual Reality Software and Technology, IEEE ICCV, and IEEE CVPR conferences. Hua served as an associate editor for the Journal of Science Advances, guest editor for IEEE/OSA Journal of Display Technology and for Optics Express feature issues, and consulting editor for the McGraw-Hill Encyclopedia of Science and Technology. Finally, she has been a referee for 20+ scientific journals and technical conferences, and a Program Committee Member for several conferences. Hua is the recipient of many awards and honors. Recent examples include Fellow of National Academy of Inventors (NAI), SPIE, OPTICA, IEEE VGTC Academy (2023), Inaugural Class of Women of Impact at The University of Arizona (2022), Finalist for the Innovator of the Year (Academia Category) in the Governor's Celebration of

Innovation Awards (2020, 2021, 2022), and Finalist for the Tucson Women of Influence 2020 in the category of Technology Champion.

### Timothy Imogore



Timothy Imogore obtained a bachelor's degree in Physics/Electronics from the Federal University of Technology Minna, Nigeria in 2014. Afterwards, he proceeded to the Abbe School of Photonics Jena, where he obtained a master's degree in Photonics in 2018. He carried out his PhD research at the Ultrafast Optics group of the Institute of Applied Physics, Jena and partly at the Centre For Optics, Photonics and Lasers (COPL) Quebec, Canada. He concluded his PhD research in 2023 and he currently works with ASML Netherlands as a Design Engineer. Timothy Imogore also co-founded Research Awake Africa Initiative (an NGO that aims to facilitate research cooperations between Research Institutes in Africa and their counterparts in the Global North).

### 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.

## Balázs Major



Balázs Major is senior research fellow at the Extreme Light Infrastructure Attosecond Light Pulse Source (ELI ALPS), leading the high repetition-rate attosources group, and is assistant professor at University of Szeged. He obtained his PhD at the same university in 2017. In parallel, he got involved in activities of Katalin Varjú's research group focusing on optimization of high-harmonic generation (HHG) in gases. After PhD, he joined the team of ELI ALPS, and visited several attosecond physics research

groups as guest researcher, for example at Lund University, the Max Born Institute (Berlin) or Institut Lumière Matière (Lyon). Since early 2020, he has been leading the development, operation and research activity of two attosecond beamlines at ELI ALPS. In 2021, he was selected as one of the most promising early-career researchers within the atomic-, molecular- and optical physics communities, and he was invited by the Editorial Board to contribute to the Emerging Leaders 2021 special issue of IOP Journal of Physics B. He is a reviewer for several photonics journals, member of conference program committees, and from 2022 he chairs the Short Wavelength Sources and Attosecond/High Field Physics Technical Group of Optica for a three-year term. This year the Roland Eötvös Physical Society awarded him the Schmid Rezső Prize for his achievements, and he received the Bolyai János Research Scholarship of the Hungarian Academy of Sciences to support his research activity in the field of HHG and related disciplines.

## Elizabeth Nolan



Elizabeth Nolan is the Interim CEO for Optica. In this role, she is responsible for supporting 150+ staff, annual turnover of \$50M US, and a customer base of 572K individuals and companies from 184 countries. Prior to taking on this role, she was the Deputy Executive Director and Chief Publishing Officer for the Society where she oversaw all facets of Optica's strategic planning, branding, program development/market research, as well as its publishing program. As part of these responsibilities, she co-led

the Society's name change from OSA to Optica, championed the development and implementation of the organization's first and ongoing Society-wide strategic planning process, and spearheaded the launch of the publishing division's bespoke publishing and peer review platforms and 8 new journals to better meet the needs of the optics and photonics community. Before joining OSA, Elizabeth was Senior Vice President, Global Sales, Marketing and Strategy at SPi Global. While at SPi, she directed the efforts of a number of different teams and developed a host of new and innovative services for Scientific, Medical and Technical publishers. Prior to that, she held senior level positions at Thompson Publishing Group and The Worldwatch Institute and spent her early years working in the publishing industry at Wolters Kluwer (Lippincott Williams & Wilkins at the time). With 30 years of experience working with not-for-profit organizations, commercial publishers and an Asia-based business process outsourcing provider, Elizabeth has forged a career that is rich in executive management, global expansion, new product/service development, as well as journal publishing.

### Julianne Pollard-Larkin



Dr. Julianne Pollard-Larkin is an Associate Professor of Medical Physics at the University of Texas, MD Anderson Cancer Center in Houston, TX. She is the Service Chief medical physicist in MD Anderson's Thoracic Radiation Oncology Clinic. Dr. Pollard-Larkin also conducts clinical research and mentors and teaches Medical Physics residents and graduate students. Her primary research interests include Flash ultra-high dose radiotherapy, pacemaker radiotherapy dose measurements and improving the efficacy of motion management in thoracic treatments and radiobiology. Julianne is also the Chair of the American Association of Physicists in Medicine's (AAPM) Equity, Diversity and Inclusion committee. She received her PhD in Biomedical Physics at UCLA and her B.S. in Physics and Mathematics at the University of Miami in Coral Gables, Fl. After receiving her PhD at UCLA, Julianne was accepted into the Medical Physics Residency program at MD Anderson in Houston, Tx. Following her residency, Julianne was hired by MD Anderson as faculty. Beyond her role in the clinic and classroom, Julianne is a firm believer in outreach and increasing the pipeline of women and underrepresented populations in science. Ensuring that more underrepresented students and women follow in her footsteps is Julianne's passion.

### Jhonattan Cordoba Ramirez



Jhonattan Cordoba is a young Colombian scientist, born in Quibdó-Chocó, and currently holds an Assistant Professor position in the Department of Electronic Engineering at the Universidade Federal de Minas Gerais (UFMG - Brazil). Member of the Management Committee at the Nanomaterials Characterization and Processing Laboratory (Clean Room - LCPNano-UFMG), and Brazilian Photonics Society (SBFoton). Prior to current appointment, he served as a Postdoctoral Scholar at the University of California in Santa Barbara (UCSB) and Visiting Ph.D. Student at the Catalan Institute of Nanoscience and Nanotechnology (ICN2) in Barcelona, Spain. His research is based on applied and computational electromagnetism with a focus on optics and photonics, applied to bio-sensing, sensing, nonlinear optics, plasmonic, optoelectronics, sub-nanometric microscopy, and all-optical digital circuits and systems. He received his B.Sc. in Computer and Telecommunications Engineering from Universidad Católica de Pereira (UCP-2009), M.Sc. in Telecommunication Engineering from Universidad Pontificia Bolivariana (UPB Medellin-2012) both in Colombia, and P.hD. in Electrical Engineering from the University of Campinas (UNICAMP-2017) in Brazil.



## Jannick Rolland



Jannick Rolland is the Brian J. Thompson Professor in Optical Engineering at the University of Rochester with joint appointments in the Center for Visual Science and the Department of Biomedical Engineering. She is the director of the Center for Freeform Optics (CeFO) supported by the National Science Foundation in the U.S. and corporations worldwide. She is the CTO and co-founder of LighTopTech, a biotech company that commercializes sub-cellular resolution Gabor-domain

optical coherence 3D microscopy, which she invented. She earned an optical engineering diploma from the Institut D'Optique Théorique et Appliquée, France, and MS and PhD in optical science from the University of Arizona. Rolland thrives in developing novel optical engineering solutions across a wide range of fields: she designed the optics for SPOT4, a satellite in orbit from 2008-2013 to monitor the Earth. In medical imaging, she developed mathematics to describe the “lumpy background” noise that plagues medical images, which gave rise to a widely-adopted method to assess image quality in diagnostic instruments. She invented Gabor-domain optical coherence microscopy for high-definition 3D imaging. She has been recognized as one of eight Influential women pioneers in augmented and virtual reality. In the last ten years, she inspired the broad adoption of freeform optics in imaging systems and addressed a key challenge in AR/VR with a novel type of optical component, the metaform. Freeform and metaform optics are disruptive technologies poised to penetrate a variety of markets. Rolland is a Fellow of the Society. She has received numerous awards for her work, including the 2014 David Richardson Medal and the 2020 Joseph Fraunhofer Award/Robert M. Burley Prize.

## Alex Turukhin



Alexey Turukhin, currently serving as a Senior Manager of Hardware Engineering at Cisco, is a seasoned expert in optical communication with over 25 years of experience in the field. His expertise spans across various aspects of fiber optics components and transmission systems, with a special focus on transmission performance testing. Alexey's passion lies in the development of power-efficient and high-speed optical communication modules. His professional journey has seen him

in various research and development roles at prestigious institutions such as the MIT Research Laboratory of Electronics, JDS Uniphase, Finisar, and Tyco Telecommunications. His contributions to academia and industry are well-recognized, with dozens of published papers and patents to his name. Alexey holds a PhD in Physics from The City University of New York. Outside of his professional life, Alexey is an avid woodworker and enjoys traveling with his family.

## William L. Wilson



William L. Wilson serves as the Executive Director of the Center for Nanoscale Systems at Harvard University. He graduated from Saint Joseph's University in 1982 with a BSc. degree in Chemistry and went on to study Physical Chemistry at Stanford University as a AT&T Bell Laboratories Cooperative Research Fellow (CRFP), and as an NSF Graduate Fellow, receiving his Ph.D. degree in 1988. Dr. Wilson became a member of technical staff in the Physical Chemistry Research Department at AT&T Bell Laboratories, Murray Hill, NJ in 1987, and was part of the team that elucidated the fundamental properties of Quantum Dots. (This work awarded the Nobel Prize in Chemistry in 2023.) Dr. Wilson was promoted to Distinguished Member of Technical Staff in 1998 as a member of the Optical Materials Research Department. In 2001, Dr. Wilson became a founder and Chief Science Officer of InPhase Technologies, Longmont, Colorado, A spinoff company from Bell Laboratories developing High-performance data storage materials and systems, and served in that role until 2009. In 2009, He moved to academia, serving as Associate Research Professor in Material Science and Engineering and the Associate Director of the Integrated Imaging Center at John's Hopkins University. In 2011, Bill moved to the Faculty of the Materials Science and Engineering Department and the Directorship of the Central Research Facilities of the Frederick Seitz Materials Research Laboratory (MRL) at the University of Illinois at Urbana-Champaign. In 2015, Dr. Wilson accepted the Executive Directorship at the Center for Nanoscale Systems at Harvard University and a lectureship appointment in the Department of Chemistry and Chemical Biology. At Harvard, Dr. Wilson's research has focused on Nanoscale Spectroscopy and Microscopy on a wide array of Quantum Materials. Dr. Wilson has published more than 150 papers, co-authored a book on Holographic Data Storage, and has been granted more than 35 US and International Patents.

## Herbert Winful



Herbert Winful is the Joseph E. and Anne P. Rowe Professor of Electrical Engineering, Arthur F. Thurnau Professor of Electrical Engineering and Computer Science, University Diversity and Social Transformation Professor, and Professor of Physics at the University of Michigan. He earned his BS in electrical engineering from MIT in 1975 and his PhD from the University of Southern California in 1981. From 1980 to 1986 he was a Principal Member of Technical Staff at GTE Laboratories in Waltham, MA before joining the EECS faculty at the University of Michigan in 1987. He has made fundamental contributions to nonlinear fiber optics, nonlinear optics in periodic structures, the nonlinear dynamics of laser arrays, the propagation of single-cycle pulses, and the physics of quantum tunneling. He is a Fellow of Optica (formerly the Optical Society), the American Physical Society, the Institute of Electrical and Electronic Engineers, the Ghana Academy of Arts and Sciences, and the National Society of Black Physicists. His many awards include the 2020 IEEE Photonics Society Quantum Electronics Award, the State of Michigan Teaching Award, the Amoco/University Teaching Award, the College of Engineering Teaching Excellence and Service Excellence Awards, the EECS Professor of the Year Award (twice), and the Tau Beta Pi Distinguished Professor award.

## Brian Vohnsen



Brian Vohnsen is a man of many interests, and he considered a wide range of careers before deciding on physics. As a child, he thought about becoming a baker or a cartographer, and later in life, he considered becoming a pilot. But when it came time to make decisions about college, he encountered many questions and unknowns. He had always been interested in science, so he decided that should be his field, but doing what? Where should he study? He remembers, “I was so undecided that I [chose] to take a year off and went traveling.” This time away allowed him to learn about himself and what he wanted out of life. His adventures led him to decide on studying engineering at Aalborg University in Denmark, north of his hometown Aarhus. He settled on Aalborg, not for the subject matter but the teaching style. The engineering department taught the students in groups, and he comments, “you learn through the group work [how] to solve practical problems.” Even though engineering turned out not to be his chosen career, he still found the experience valuable. Soon, he was able to transition into the field of optics, completing a PhD in Nanooptics at the same university and later serving as an Assistant Professor with his former lecturers as colleagues. After three years, he felt the need for a change, so he pursued the Marie-Curie Fellowship, which led him to Spain and the field of visual optics and retinal imaging. After seven years in Spain, he concluded that more opportunities might be available in other countries and moved to Ireland in 2008 and has remained at the University College Dublin ever since. Over the years, Brian has explored numerous research areas, always following new interests and his curiosity. Today, he is most excited about his work with the retina, an interest inspired by a brief exploration of the Stiles-Crawford Effect in 2004. What started as an interesting tangent has now turned into a fulfilling research area. He currently works to understand how the retina works and to educate others on its functionality. He shares, “what is really exciting in our research is that we are looking at the three-dimensionality of the retina and what role this plays for vision and retinal imaging.” This work has critical applications, especially in treating and understanding myopia, or shortsightedness, which is expected to affect half of the world’s population by 2050. Brian is not afraid to pursue his interests and follow what makes him happy. His advice for young scientists is: “Try to look deep inside of yourself more than at what other people are doing. Try to find yourself.” He practices his own advice by traveling and giving himself time and space to think. He shares that his favorite part of the research process is very early on when he’s just thinking about the project, commenting, “Suddenly, you have a bright idea on something. Then...I come home and start to develop it. It might be quick, or it might be something [that lasts a few years].” The society has been essential for Brian’s career. While at Aalborg University, he discovered the society's print journals and spent afternoons in the library reading through the issues. He then became involved with FiO and later as an editor of Optics Letters. Brian believes that the society shares his philosophy of doing science not only to solve problems but to learn and to make a difference. The camaraderie he feels among members, the opportunities, and the shared mentality all lead to Brian calling the society his professional home.

### Erin Walter



Erin Walter has dedicated 25 years to the telecommunications industry, building a distinguished career with extensive expertise in fiber optic networks. Currently, she serves as Director of Sales for Corning's Optical Communications Division where she leads a talented team of individuals based all across the country. In her role, Erin supports some of Corning's largest customers, focused on long haul fiber network and fiber-to-the-home (FTTH) builds. The surge in AI technologies presents tremendous growth potential for Corning, aligning perfectly with the company's expertise in creating cutting-edge communications solutions. Prior to her time at Corning, Erin spent 18 years with Tellabs/Coriant where she was instrumental in supporting large ROADM network builds for major clients like Lumen. Outside of work, Erin enjoys spending time with her husband as they juggle their two children's busy sports schedules. She also enjoys taking long walks with their family dog, an 8 year old Weimaraner.

### Getasew Admasu Wubetu



Getasew is currently a Fulbright Visiting Scholar and Courtesy Professor of Physics at Oregon State University in the United States, while also holding a permanent position as an Associate Professor of Laser Spectroscopy in the Physics Department at Bahir Dar University (BDU) in Ethiopia. From March 2019 to May 2021, he served as the head of the Physics Department at BDU. He received a joint Ph.D. in laser plasmas spectroscopy and optoelectronic engineering from Dublin City University in Ireland and the Military University of Technology in Poland, funded by the EXTATIC Erasmus Mundus European Union Fellowship. His academic background includes a Master's degree in Nanophysics from the University of Antwerp, Belgium, obtained in September 2009, another Master's in Nanomaterials from the University of Ulm, Germany, completed in November 2004, and a Bachelor's degree in Physics from Alemaya University, Ethiopia awarded in July 2000. His research primarily investigates various analytical techniques, particularly laser-induced breakdown spectroscopy (LIBS) for the classification and quantification of solid, liquid, or gas targets. Additionally, he explores laser interferometry of metallic nanoparticles, pump-probe absorption spectroscopy of both organic and inorganic wide band-gap semiconductors, and time-resolved photoluminescence spectroscopy of perovskite solar cells. Over the past six years since completing his Ph.D., he has published 13 peer-reviewed articles in reputable journals and presented 14 papers at international conferences and workshops. Getasew has also supervised 17 MSc students in these research domains and is currently overseeing two MSc students and one Ph.D. candidate, co-supervised with the primary advisor at the University of Cambridge, focusing on the "Performance and Stability Analysis of Halide Perovskite Photovoltaic Cells Applicable to Small Systems Irrigation in Ethiopia."

## Amplify Optics Immersion Program Attendees



**Deborah Abayie**  
Kwame Nkrumah University of  
Science and Technology  
Ghana



**Deborah Amos Adigun**  
Jean Monnet University, Saint  
Etienne  
France



**Jude Chukwuemeka Agbedo**  
University of Eastern Finland  
Finland



**Benjamin Agyekum**  
Colorado State University  
United States



**Prosper Allo**  
Queen's University  
Canada



**Princess Ani**  
New Mexico State University  
United States



**Jessica Appiah**  
University of Ghana  
Ghana



**John Kwabena Arthur**  
University of Eastern Finland  
Finland



**Oluwatoyin Atikekeresola**  
North Carolina Central University  
United States



**Olayinka Atobatele**  
University of Eastern Finland  
Finland



**Gloria Awuku**  
University of Ghana  
Ghana



**Alexandro Balarezo**  
University of Albany  
United States



**Stella Belony**  
University of Colorado Boulder  
United States



**Tchuda Bidenguilté**  
University of International  
Integration of Afro-Brazilian  
Lusofonia (UNILAB)  
Brazil



**Sitara Brent**  
Appalachian State University  
United States



**Diana Ceita da Encarnação da Cruz**  
University of International  
Integration of Afro-Brazilian  
Lusofonia (UNILAB)  
Brazil



**Ernestina Domey**  
University of Rochester  
United States



**Lordina Duodu**  
University of Cape Coast  
Ghana



**Mohamed Elmaamli**  
University of Eastern Finland  
Finland



**Manuel Evaristo**  
University of International  
Integration of Afro-Brazilian  
Lusofonia (UNILAB)  
Brazil



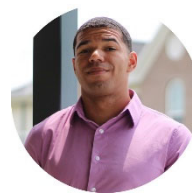
**Oritse-Tsegbemi Eyito**  
Carleton University - Algonquin  
College  
Canada



**Kaleb Felefele**  
University of Waterloo  
Canada



**Diego França de Oliveira**  
University of São Paulo  
Brazil



**Andrew Herndon**  
Florida Atlantic University  
United States



**Christabel Isagi**  
Multimedia University of Kenya  
Kenya



**Love Owoje John**  
University of Eastern Finland  
Finland



**Leslie Johnson**  
Morgan State University  
United States



**Francis Macharia**  
Jomo Kenyatta University of  
Agriculture and Technology  
Kenya



**Emmanuel Maina**  
Multimedia University of Kenya  
Kenya



**Destin Maleka**  
Texas Tech University  
United States



**Dorothy Mringie**  
Multimedia University of Kenya  
Kenya



**Andzani Mthenjane**  
Drew University  
United States



**Abdulsalam Odofin-Kamorudeen**  
Southern Illinois University  
Edwardsville  
United States



**Ifeanyichukwu Okonkwo**  
Vrije Universiteit Brussel  
Belgium



**Brian Osoro**  
Maasai Mara University  
Kenya



**Marcus Polk**  
University of Oregon  
United States



**Faith Poutoa**  
San Diego State University  
United States



**Joel Benjamin Ruzindana Manzi**  
University of Arkansas at Pine Bluff  
United States



**Frank Sam Jnr**  
University of Eastern Finland  
Finland



**Juan Sanchez**  
University of Colorado Boulder  
United States



**Jordan Simmons**  
Norfolk State University  
United States



**Clive Simpson**  
University of Technology Jamaica  
Jamaica



**Kadiatou Sow**  
University of Rochester  
United States



**Jebriil (Gregory) Thaxton Jr.**  
University of Michigan  
United States



**Ana Júlia Barbosa Tomé**  
University of São Paulo  
Brazil



**Fiona Zerai**  
Toronto Metropolitan University  
Canada



## 2024 Amplify Optics Immersion Program Participants

First name	Last name	University	Country	Level	Gender
Deborah	Abayie	Kwame Nkrumah University of Science and Technology	Ghana	Bachelors	Woman
Deborah Amos	Adigun	Jean Monnet University, Saint Etienne	France	Master's	Woman
Jude Chukwuemeka	Agbedo	University of Eastern Finland	Finland	Master's	Man
Benjamin	Agyekum	Colorado State University	United States	Master's	Man
Prosper	Allo	Queen's University	Canada	Master's	Man
Princess	Ani	New Mexico State University	United States	Master's	Woman
Jessica	Appiah	University of Ghana	Ghana	Bachelors	Woman
John Kwabena	Arthur	University of Eastern Finland	Finland	Master's	Man
<b>Oluwatoyin</b>	<b>Atikekeresola</b>	North Carolina Central University	United States	Master's	Woman
Olayinka	Atobatele	University of Eastern Finland	Finland	Master's	Man
Gloria	Awuku	University of Ghana	Ghana	Bachelors	Woman
Alexandro	Balarezo	University of Albany	United States	Bachelors	Man
Stella	Belony	University of Colorado Boulder	United States	Bachelors	Woman
Tchuda	Bidenguilté	University of International Integration of Afro-Brazilian Lu	Brazil	Bachelors	Man
Sitara	Brent	Appalachian State University	United States	Bachelors	Woman
Diana	Ceita da Encarnação da C	University of International Integration of Afro-Brazilian Lu	Brazil	Bachelors	Woman
<b>Ernestina</b>	<b>Domey</b>	University of Rochester	United States	Master's	Woman
Lordina	Duodu	University of Cape Coast	Ghana	Bachelors	Woman
Mohamed	Elmaamli	University of Eastern Finland	Finland	Master's	Man
Manuel Finda	Evaristo	University of International Integration of Afro-Brazilian Lu	Brazil	Bachelors	Man
Oritse-Tsegbemi	Eyito	Carleton University - Algonquin College	Canada	Bachelors	Man
<b>Kaleb</b>	<b>Felefele</b>	University of Waterloo	Canada	Bachelors	Man
<b>Diego</b>	<b>Franca de Oliveira</b>	University of São Paulo	Brazil	Master's	Man
Andrew	Herndon	Florida Atlantic University	United States	Bachelors	Man
Christabel	Isagi	Multimedia University of Kenya	Kenya	Master's	Woman
Love Owoje	John	University of Eastern Finland	Finland	Master's	Woman
Leslie	Johnson	Morgan State University	United States	Bachelors	Woman
Francis	Macharia	Jomo Kenyatta University of Agriculture and Technology	Kenya	Master's	Man
Emmanuel	Maina	Multimedia University of Kenya	Kenya	Bachelors	Man
Destin	Maleka	Texas Tech University	United States	Bachelors	Man
Dorothy	Mringie	Multimedia University of Kenya	Kenya	Master's	Woman
Andzani	Mthenjane	Drew University	United States	Bachelors	Woman
Abdulsalam	Odofoin-Kamorudeen	Southern Illinois University Edwardsville	United States	Bachelors	Man
Ifeanyichukwu	Okonkwo	Vrije Universiteit Brussel	Belgium	Master's	Man
<b>Brian</b>	<b>Osoro</b>	Maasai Mara University	Kenya	Master's	Man

### 2024 Amplify Optics Immersion Program Participants

First name	Last name	University	Country	Level	Gender
Marcus	Polk	University of Oregon	United States	Bachelors	Man
Faith	Poutoa	San Diego State University	United States	Bachelors	Woman
Joel Benjamin	Ruzindana Manzi	University of Arkansas at Pine Bluff	United States	Bachelors	Man
Frank	Sam Jnr	University of Eastern Finland	Finland	Master's	Man
Juan	Sanchez	University of Colorado Boulder	United States	Master's	Man
<b>Jordan</b>	<b>Simmons</b>	Norfolk State University	United States	Bachelors	Man
Clive	Simpson	University of Technology Jamaica	Jamaica	Bachelors	Man
Kadiatou	Sow	University of Rochester	United States	Bachelors	Woman
Jebril	Thaxton	University of Michigan	United States	Bachelors	Man
<b>Ana Júlia Barbosa</b>	<b>Tomé</b>	University of São Paulo	Brazil	Bachelors	Woman
Fiona	Zerai	Toronto Metropolitan University	Canada	Master's	Woman

**Bold = Amplify Scholarship Recipients**

AMPLIFY SCHOLARSHIP FOR BLACK SCIENTISTS

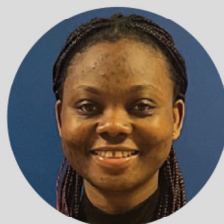
# Meet the 2024 Amplify Scholars.

The Optica Foundation awards scholarships to 10 Black undergraduate or master's students. Each scholar receives US\$7,500, access to a global network of mentors, and an invitation to the Amplify Optics Immersion Program.



**Oluwatoyin Atikekeresola**

*North Carolina Central University, USA*



**Ernestina Domey**

*University of Rochester, USA*



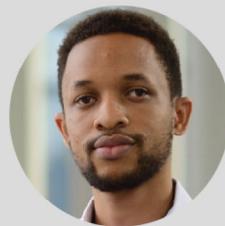
**Kaleb Felefele**

*University of Waterloo, Canada*



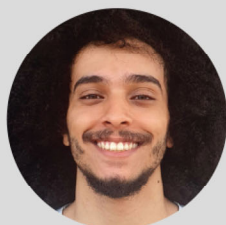
**Winny Kameni**

*Carleton University - Algonquin College, Canada*



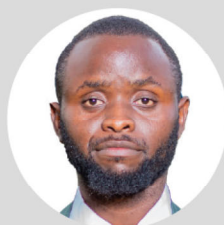
**Ifeanyichukwu Umeadi Okonkwo**

*Vrije Universiteit Brussel, Belgium*



**Diego França de Oliveira**

*University of São Paulo, Brazil*



**Brian Osoro**

*Maasai Mara University, Kenya*



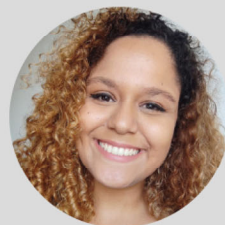
**Jordan Simmons**

*Norfolk State University, USA*



**Chandler Stevenson**

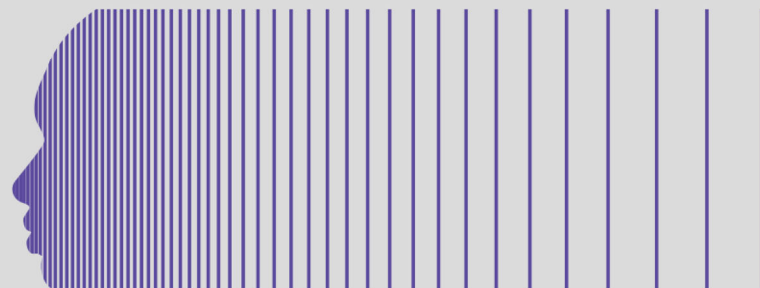
*Brown University, USA*



**Ana Júlia Barbosa Tomé**

*University of São Paulo, Brazil*

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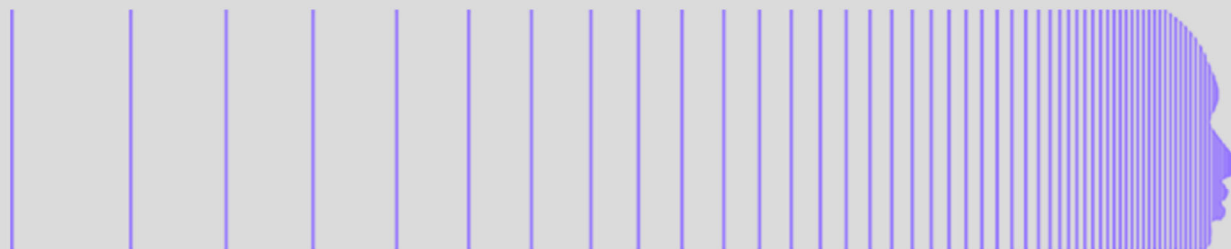


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