

Isabella Aguilera Cuenca

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EDUCATION

Wyant College of Optical Sciences, University of Arizona

Tucson, USA | 2023 - Present

PHD IN OPTICAL SCIENCES

Universidad del Valle

Cali, CO | 2018 - 2023

B.S IN PHYSICS

Research Focus: Optics. Biomedical Optics. Biophotonics.

Advisor: Prof. Efraín Solarte Rodríguez Dr.rer.nat.

RESEARCH EXPERIENCE

QUANTUM OPTICS RESEARCH GROUP | U. DEL VALLE

Cali, CO | Feb 2022 – Jul 2023

- Design and carry out experiments employing optical spectroscopy techniques to study biological systems.
- Prepare, present and attend weekly seminars on various optics fields.
- **Research Projects:**
 - Spectroscopy characterization of white blood cells.
 - Optical characterization of insular and continental populations of the diurnal Lepidoptera *Heliconius sara* to examine the potential for evolutionary fractionation.

GLOBALINK RESEARCH INTERNSHIP | SFU

Burnaby, CAN | May 2023 - Jul 2023

Offered by the Canadian organization MITACS to work on the project *Seeing through Tissue Using Lasers and Micromachined Devices* under the supervision of Dr. Glenn Chapman at Simon Fraser University in Canada.

- Design and construct an optical set-up to measure scattering characteristics of test phantoms at various wavelengths using lasers and a DSLR camera.
- Collect, process and analyze data using the Matlab software to calculate scattering coefficients of the samples at each wavelength.

HONORS AND AWARDS

- Academic honors awarded by Universidad del Valle for being among the best 5 students of the Physics program in the 2018-II, 2020-II, 2021-II and 2022-I academic terms.
- Academic Excellence Scholarship awarded by Coopetrol Cooperative (2020-2022).
- **OPTICA WOMAN SCHOLAR 2023.** Recipient of the Optica Women Scholars scholarship awarded by the Optica Foundation. This program recognizes the work of 20 undergraduate and master's level students from all over the world who focus their careers on optics, providing a grant, a one-year optics student membership and access to mentorship platform and connection with a mentor.
- James C. Wyant Graduate Student Scholarship in Optical Sciences 2023-2024.
- John P. Schaefer Graduate Student Scholarship 2023-2024.

OUTREACH AND LEADERSHIP ACTIVITIES

WOMEN IN OPTICS | Event lead coordinator, U. ARIZONA

Tucson, USA | Sep 2023 - Present

- Coordinate large planned events and co-manage WiO's social media.

OPTICA AND SPIE STUDENT CHAPTER (CUVO) | President, U.DEL VALLE

2022

Cali, CO | Jan 2022 - Dec

- Organize events and projects that focus on science outreach in optics and photonics for science students and the community in general such as school visits, seminars, contests and workshops; as well as professional events along with other OPTICA and SPIE student chapters across the country

- Coordinate and host the 7th International Advanced School on “Frontiers in Optics & Photonics”, and the National OPTICA and SPIE Chapters Meeting 2022.
- Co-organize and host the ICTP 10th International Symposium “Optics & its Applications”, which held place in Cali on December 2022.
- Manage the CUVO social media accounts.

OPTICA AND SPIE STUDENT CHAPTER (CUVO) | Secretary, U.DEL VALLE Cali, CO | Jan 2020 – Dic 2021

- Participate in the organization of events and projects that focus on science outreach, as well as formal and informal meetings between young scientists interested in optics and professionals in the field.

PHYSICS STUDENTS GROUP (GEF) | President, U. DEL VALLE Cali, CO | Nov 2021 - Dec 2022

- Organize activities for the physics undergraduate students in order to promote different academic opportunities, offer mentorship and create a strong student support network to avoid academic drop out.
- Coordinate the GEF salon offered to students for them to have group study sessions, additional classes and general academic activities.

POSTER AND ORAL PRESENTATIONS

- **Isabella Aguilera**, Danielle Ochoa, Raúl Sedano and Efraín Solarte. *XXIX Physics National Congress, Armenia, Colombia, September 2022*. “Optical characterization, using LASER or LED sources, of insular and continental populations of the diurnal Lepidoptera *Heliconius sara* to examine the potential for evolutionary fractionation.”
- **Isabella Aguilera**, Danielle Ochoa, Raúl Sedano and Efraín Solarte. *10th International Symposium “Optics & its Applications”, Cali-Armenia, Colombia, December 2022*. “Optical characterization, using LASER or LED sources, of insular and continental populations of the diurnal Lepidoptera *Heliconius sara* to examine the potential for evolutionary fractionation.”
- **Isabella Aguilera**, Danielle Ochoa, Raúl Sedano and Efraín Solarte. *I Iberoamerican Congress of Physics Students, Virtual Congress, December 2022*. “Optical characterization, using LASER or LED sources, of insular and continental populations of the diurnal Lepidoptera *Heliconius sara* to examine the potential for evolutionary fractionation.”
- **Isabella Aguilera**. *Invited speaker with virtual presentation at Fotónica: La Tecnología de la Luz Congress, Universidad de Guadalajara, Mexico, May 2023*. “Óptica al alcance de todos: La divulgación como herramienta de conocimiento y oportunidades.”

TEACHING AND MENTORING EXPERIENCE

ASES STRATEGY | Mentor, U. DEL VALLE Cali, CO | Aug 2021 – Nov 2021

- Offer social-academic mentorship to physics students belonging to social government programs focused on vulnerable populations in order to assist and decrease academic drop out.

CALCULUS I COURSE | Teaching Assistant, U. DEL VALLE Cali, CO | Dec 2021 – Jan 2023

- Mentor students in the Calculus I course offered to all the Natural and Exact Sciences Faculty (Physics, Mathematics, Chemistry and Biology).
- Create student evaluation problems in the course’s virtual platform with Moodle using LaTeX and Mathematica.

MEMBERSHIPS

OPTICA (FORMERLY OSA) | STUDENT MEMBER | 2019 - Present

SPIE | STUDENT MEMBER | 2019 - Present

RESEARCH INTERESTS

Optics

Biomedical Optics

Biophotonics

Medical Physics

SKILLS

Programming Languages: C, C++, MatLab

Operative Systems: Linux and Windows

Software: Gnuplot, \LaTeX , Mathematica

LANGUAGES

Spanish: Native language

English: Proficient reading, writing and speaking