

Alexis Cristian Sparapani

WORK EXPERIENCE

01/04/2019 – CURRENT San Carlos de Bariloche, Argentina

PHD SCHOLAR CONICET (CONSEJO NACIONAL DE INVESTIGACIONES CIENTÍFICAS Y TÉCNICAS)

I develop my research at Grupo de Comunicaciones Ópticas, Departamento de Ingeniería en Telecomunicaciones, Centro Atómico Bariloche. My research focuses on nonlinear fiber optics, short-pulse interactions, propagation in media with arbitrary frequency-dependent nonlinear profiles, time-space analogies in fiber optics, and fiber-optic sensors. My work has led to five publications in high quality international journals and two patent applications in Argentina.

Patents:

- Método de medición distribuida no lineal para medir deformaciones mecánicas de materiales y estructuras. CONICET. Presented to Instituto Nacional de Propiedad Industrial. Application N° 20230102020.
- Método de medición no lineal para medir deformaciones mecánicas de materiales y estructuras. CONICET. Presented to Instituto Nacional de Propiedad Industrial. Application N° 20210103011.

Participation in research projects:

- Aplicaciones de la óptica no lineal en fotónica: generación de supercontinuo en nanowires, metamateriales y fuentes de pares de fotones para la ingeniería de single-photon sources. Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET). PIP 2021 – 2023.

01/04/2022 – CURRENT San Carlos de Bariloche, Argentina

UNIVERSITY TEACHING ASSISTANT INSTITUTO BALSEIRO

Teaching assistant in the Telecommunications Engineering degree program at Instituto Balseiro.

01/09/2023 – 30/11/2023 Rochester, NY, United States

FULBRIGHT VISITING SCHOLAR FULBRIGHT COMMISSION AND MINISTRY OF EDUCATION OF ARGENTINA

Fulbright Commission and Ministry of Education of Argentina scholarship. Three-month research stay hosted by Prof. Govind P. Agrawal, at The Institute of Optics, Hajim School of Engineering and Applied Sciences, University of Rochester. During the research stay, I worked in the project called "All-Optical Switching Using Spatio-Temporal Analogies in Media with Arbitrary Nonlinear Profiles". My research work was focused on nonlinear effects in optical fibers and optical solitons.

05/02/2018 – 02/03/2018 San Carlos de Bariloche, Argentina

SUMMER INTERNSHIP INSTITUTO BALSEIRO

Research and development intership at Departamento de Mecánica Computacional, Comisión Nacional de Energía Atómica, Centro Atómico Bariloche. Project title: "Implementación de código Open Source para integrar modelo virtual de manos en un visualizador 3D".

01/03/2016 – 31/03/2019 San Nicolás de los Arroyos, Argentina

UNIVERSITY TEACHING ASSISTANT UNIVERSIDAD TECNOLÓGICA NACIONAL - FACULTAD REGIONAL SAN NICOLÁS

Teaching assistant in Mathematical Analysis 2 in the Electronic Engineering degree program.

01/03/2015 – 31/03/2019 San Nicolás de los Arroyos, Argentina

RESEARCH AND DEVELOPMENT SCHOLARSHIP UNIVERSIDAD TECNOLÓGICA NACIONAL - FACULTAD REGIONAL SAN NICOLÁS

Undergraduate student researcher at Grupo de Investigación de Comunicaciones (GICom). Drafting recommendations for the International Telecommunication Union (ITU). Participation and presentation at conferences.

Participation in research projects:

- Monitoreo Global en Tiempo Real de Datos de Vuelo. Secretaría de Ciencia y Tecnología at Universidad Tecnológica Nacional, Facultad Regional San Nicolás. ICINNSN0004114. 2016 – 2017.

01/03/2014 – 31/03/2019 San Nicolás de los Arroyos, Argentina

RESEARCH AND DEVELOPMENT SCHOLARSHIP UNIVERSIDAD TECNOLÓGICA NACIONAL - FACULTAD REGIONAL SAN NICOLÁS

Undergraduate student researcher at Grupo de Análisis, Desarrollos e Investigaciones Biomédicas (GADIB). Research and development of devices for health monitoring and care. Participation and presentations at conferences.

Participation in research projects:

- Estudio y análisis crítico de sistemas de comunicaciones para dispositivos vestibles. Secretaría de Ciencia y Tecnología at Universidad Tecnológica Nacional. UTN4591. 2017 – 2018.
- Análisis bioinformático de promotores de genes vinculados al estrés en plantas. Secretaría de Ciencia y Tecnología at Universidad Tecnológica Nacional. ICUTNSN0002072. 2014 – 2015.

01/04/2014 – 31/12/2014 San Nicolás de los Arroyos, Argentina

STUDENT ASSISTANT UNIVERSIDAD TECNOLÓGICA NACIONAL - FACULTAD REGIONAL SAN NICOLÁS

Laboratory assistant scholarship as a university student in the Electronic Laboratory, Department of Electronic Engineering.

EDUCATION AND TRAINING

27/07/2019 – CURRENT San Carlos de Bariloche, Argentina

PHD CANDIDATE Instituto Balseiro

01/03/2012 – 11/02/2019 San Nicolás de los Arroyos, Argentina

ELECTRONIC ENGINEER Universidad Tecnológica Nacional - Facultad Regional San Nicolás

24/03/2023 – 28/03/2023 San Carlos de Bariloche, Argentina

AUTUMN SCHOOL ON ULTRAFAST LASERS Satellite School to the Ultrafast Optics Conference UFOXIII

07/10/2019 – 01/11/2019 San Carlos Bariloche, Argentina

ESCUELA J. A. BALSEIRO "TÓPICOS MODERNOS DE TELECOMUNICACIONES" Instituto Balseiro

27/06/2017 – 01/07/2017 Bogotá, Colombia

INTERNATIONAL SUMMER SCHOOL "EMERGING TECHNOLOGIES TO SUPPORT HEALTH CARE AND INDEPENDENT LIVING" Pontificia Universidad Javeriana

LANGUAGE SKILLS

Mother tongue(s): **SPANISH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	B2	B2	B2	B2	B2
FRENCH	A2	A2	A2	A2	A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Programming: Python, Matlab | Presentation Techniques and Teamwork | Research and Development | LaTeX | Scientific Communication | Teaching

ADDITIONAL INFORMATION

HONOURS AND AWARDS

01/03/2023

Fulbright Scholarship – Fulbright Commission and Ministry of Education of Argentina I have been awarded by the Fulbright Commission and the Ministry of Education of Argentina to conduct a three-month doctoral research stay at the Institute of Optics, University of Rochester, Rochester, NY, USA.

01/08/2020

Excellence award – Fundación Hermanos Agustín y Enrique Rocca - Grupo Techint For outstanding academic performance during the university degree.

01/04/2019

CONICET doctoral scholarship – CONICET I obtained an scholarship to pursue a PhD at Instituto Balseiro, Argentina.

01/08/2017

Scholarship for Merit in Study – Fundación Hermanos Agustín y Enrique Rocca - Grupo Techint Scholarship obtained in 2014, 2015, 2016 and 2017, for outstanding academic performance.

Stimulus Scholarships with Scientific Vocations (EVC - CIN) – Consejo Interuniversitario Nacional (CIN) Scholarship obtained in 2017 and 2018. During this period, I developed the project "Monitoreo remoto usando sensores vestibles para rehabilitación y personas en situación vulnerable" at Grupo de Análisis, Desarrollos e Investigaciones Biomédicas (GADIB), Universidad Tecnológica Nacional, Facultad Regional San Nicolás.

PUBLICATIONS

[Temporal reflection and refraction in the presence of a zero-nonlinearity wavelength](#) – 2023

Sparapani, A. C., Bonetti, J., Linale, N., Hernandez, S. M., Fierens, P. I., & Grosz, D. F.

Optics Letters, 48(2), 339-342.

[All-optical pulse-train generation through the temporal analogue of a laser](#) – 2022

Sparapani, A., Fernández, G., Sánchez, A. D., Bonetti, J., Linale, N., & Grosz, D. F.

Optical Fiber Technology, 68, 102785

[A proposal for linear and nonlinear discrete and distributed sensing of mechanical strain with graphene-decorated optical fibers](#)

– 2022

Fernández, G., Sparapani, A. C., Linale, N., Benítez, J. C., & Grosz, D. F.

Optical Fiber Technology, 73, 103046.

[Dispersive waves and radiation trapping in optical fibers with a zero-nonlinearity wavelength](#) – 2022

Hernandez, S. M., Sparapani, A., Linale, N., Bonetti, J., Grosz, D. F., & Fierens, P. I.

Waves in Random and Complex Media, 1-15

[Equation for modeling two-photon absorption in nonlinear waveguides](#) – 2020

Linale, N., Bonetti, J., Sparapani, A., Sánchez, A. D., & Grosz, D. F.

Journal of the Optical Society of America B, 37(6), 1906-1910

CONFERENCES AND SEMINARS

18/10/2023 – 21/10/2023 – Rochester, NY, USA

SPIE Optifab 2023 Industrial Associates Symposium Fall 2023. Poster presentation.

30/07/2023 – 03/08/2023 – Munich Germany

Optica Sensing Congress 2023 Fernandez, G., Sparapani, A. C., Linale, N., Hernandez, S. M., Benítez, J. C., Grosz, D. F. (2023). Distributed Nonlinear Sensing of Strain With Graphene-Covered Fibers. In Optica Sensing Congress. (pp. STu2C.3). Optica (Formerly OSA). Oral presentation. Hybrid event, virtual participation.

Link <https://doi.org/10.1364/SENSORS.2023.STu2C.3>

09/08/2021 – 13/08/2021 – Washington, DC United States

OSA Nonlinear Optics 2021 Sparapani, A., Linale, N., Grosz, D. F., Bonetti, J., Fierens, P. I., & Hernandez, S. M. (2021, August). Dispersive waves in optical fibers with a zero-nonlinearity wavelength. In Nonlinear Optics (pp. NTu2A-4). Optical Society of America. Oral presentation. Virtual participation.

Link <https://doi.org/10.1364/NLO.2021.NTu2A.4>

14/09/2020 – 17/09/2020 – Washington, DC United States

Frontiers in Optics 2020 Sparapani, A. C., Sánchez, A. D., Linale, N., Bonetti, J., Grosz, D. F., & Fernández, G. R. (2020, September). All-optical pulse-train generation through the temporal analogue of a laser. In Frontiers in Optics (pp. JTh4A-41). Optical Society of America. Poster presentation. Virtual participation.

Link <https://doi.org/10.1364/FIO.2020.JTh4A.41>

26/03/2023 – 31/03/2023 – San Carlos de Bariloche, Argentina

Ultrafast Optics XIII Participation as collaborator and assistant. Awarded a full waiver to participate, given by Optica (Formerly OSA).

06/05/2022 – 10/05/2022 – Ciudad Autónoma de Buenos Aires, Argentina

Foro Internacional de Enseñanza de Ciencias y Tecnologías and Feria Internacional del Libro de Buenos Aires 2022 Oral presentation at institutional stand of Instituto Balseiro at the International Book Fair and exhibitor as a specialist at the International Forum of Teaching in Science and Technology.

02/10/2019 – 05/10/2019 – Cancún, México

VIII Latin American Conference on Biomedical Engineering 2019 Ponce, S., Avetta, S., Sparapani, A., Garcia, C., Piccinini, D., & López, N. (2019). Home and Physiological Remote Monitoring System for Elderlies and People with Chronic Diseases. In Latin American Conference on Biomedical Engineering (pp. 1306-1312). Springer, Cham.

09/10/2017 – 20/10/2017 – Ciudad Autónoma de Buenos Aires, Argentina

World Telecommunication Development Conference (WTDC) 2018 Participation as a member of International Telecommunication Union (ITU), Academia Sector, as part of Argentine delegation.

03/06/2018 – 08/06/2018 – Prague, Czech Republic

World Congress on Medical Physics and Biomedical Engineering 2018 Ponce, S., Piccinini, D., Avetta, S., Sparapani, A., Roberti, M., Andino, N., Garcia, C. & Lopez, N. (2019). Wearable Sensors and Domotic Environment for Elderly People. In World Congress on Medical Physics and Biomedical Engineering 2018 (pp.195-200). Springer, Singapore.

29/05/2017 – 31/05/2017 – San Carlos de Bariloche, Argentina

ITU International Satellite Symposium 2017 Topic: "Space Development and Sustainability in the Americas Region".

25/10/2017 – 27/10/2017 – Córdoba, Argentina

SABI 2017 - XXI Congreso Argentino de Bioingeniería Presentations:

- Avetta, S. E., & Sparapani, A. C. (2019). Wearable system for the measurement of pulse oximetry and heart rate on the wrist. *Revista Argentina de Bioingeniería*, 23(2), 36-38.
- Martin, J. P., Sparapani, A. C., & Folonier, M. F. (2018). Non-ionizing Radiation Emission Analysis of wearable devices. *Revista Argentina de Bioingeniería*, 22(4), 21-25.

26/10/2023 – 28/10/2023 – Bucaramanga, Colombia

VII Latin American Congress on Biomedical Engineering CLAIB 2016 Ponce, S., Lopez, N., Piccinini, D., Roberti, M., Avetta, S., Andino, N., Sparapani A. & García, C. E. (2016). Desarrollo de un sistema vestible de medición de variables fisiológicas. In Proc. VII Congreso de Ingeniería Biomédica.

NETWORKS AND MEMBERSHIPS

01/01/2023 – CURRENT

Institute of Electrical and Electronics Engineers (IEEE)

01/01/2023 – CURRENT

IEEE Photonics Society Membership

01/07/2023 – CURRENT

Optica Membership (Formerly OSA)

01/04/2015 – 31/03/2019

International Telecommunication Union (ITU) Academy Member, Universidad Tecnológica Nacional

VOLUNTEERING

01/04/2019 – CURRENT Instituto Balseiro, Bariloche, Argentina

Scientific communication activities Participation as a volunteer in an institutional stand in International Book Fair (Buenos Aires, Argentina), exhibition of art, science and technology Tecnópolis (Buenos Aires, Argentina) and academic careers exhibition (Bariloche, Argentina). Additionally, I collaborate on institutional visits.

31/01/2022 – 25/02/2022 Instituto Balseiro, Bariloche, Argentina

Director of Summer Scholarship Technical teaching activity. Project title: "Sensores de fibra óptica y aplicaciones".

01/03/2016 – 31/03/2019 Universidad Tecnológica Nacional, Facultad Regional San Nicolás

Scientific communication activities

01/01/2016 – 31/12/2016 San Nicolás de los Arroyos, Argentina

Vice President of IEEE San Nicolás Student Branch