

Alexis Cristian Sparapani

Personal information

Nationality: Argentine
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Current position

- **Postdoctoral Research Fellow.** Sapienza Università di Roma, Rome, Italy. Under the supervision of Prof. Stefan Wabnitz. Since June 2024.

Academic background

- **PhD in Engineering** at Instituto Balseiro. CONICET Scholarship. Advisor: Dr. Diego F. Grosz. 2019 - 2024.
- **Electronic Engineer.** Universidad Tecnológica Nacional, Facultad Regional San Nicolás (UTN - FRSN). 2012 - 2019.

Professional experience

- **Fulbright Visiting Scholar** at The Institute of Optics, University of Rochester, Rochester, New York, USA. Fulbright - Ministry of Education of Argentina scholarship. A three-month research stay hosted by Prof. Govind P. Agrawal. September - November 2023.
- **Teaching assistant** at Instituto Balseiro. 2022 - 2024.
- **Research internship** at Instituto Balseiro Summer Scholarship (Four weeks). February 2018.
- **Teaching assistant** at UTN - FRSN. 2016 - 2019.
- **Research scholarship** at Grupo de Investigación en Comunicaciones (GICom). UTN - FRSN. 2015 - 2019.
- **Research scholarship** at Grupo de Análisis, Desarrollo e Investigaciones Biomédicas (GADIB). UTN - FRSN. 2014 - 2019.
- **Student assistant** at Electronic Laboratory. UTN - FRSN. 2014.

Publications

1. Sparapani, A. C., Hernandez, S. M., Fierens, P. I., Grosz, D. F., and Agrawal, G. P. (2024). **Optical fibers with a frequency-dependent Kerr nonlinearity: Theory and applications.** To be published in Wave Motion.
2. Sparapani, A. C., Gutierrez, L. N., Hernandez, S. M., Fierens, P. I., Grosz, D. F., & Agrawal, G. P. (2024). **Raman suppression and all-optical switching in media with a zero-nonlinearity wavelength.** To be published in IEEE Journal of Quantum Electronics.
3. Sparapani, A. C., Bonetti, J., Linale, N., Hernandez, S. M., Fierens, P. I., & Grosz, D. F. (2023). **Temporal reflection and refraction in the presence of a zero-nonlinearity wavelength.** Optics Letters, 48(2), 339-342.
4. Fernández, G., Sparapani, A. C., Linale, N., Benítez, J. C., & Grosz, D. F. (2022). **A proposal for linear and nonlinear discrete and distributed sensing of mechanical strain with graphene-decorated optical fibers.** Optical Fiber Technology, 73, 103046.
5. Hernandez, S. M., Sparapani, A., Linale, N., Bonetti, J., Grosz, D. F., & Fierens, P. I. (2022). **Dispersive waves and radiation trapping in optical fibers with a zero-nonlinearity wavelength.** Waves in Random and Complex Media, 1-15.
6. Sparapani, A., Fernández, G., Sánchez, A. D., Bonetti, J., Linale, N., & Grosz, D. F. (2022). **All-optical pulse-train generation through the temporal analogue of a laser.** Optical Fiber Technology, 68, 102785.
7. Linale, N., Bonetti, J., Sparapani, A., Sánchez, A. D., & Grosz, D. F. (2020). **Equation for modeling two-photon absorption in nonlinear waveguides.** Journal of the Optical Society of America B, 37(6), 1906-1910.

Patents applications

1. **Método de medición distribuida no lineal para medir deformaciones mecánicas de materiales y estructuras.** 16.6% inventive activity. CONICET. Presented to Instituto Nacional de Propiedad Industrial. Application N° 20230102020.
2. **Método de medición no lineal para medir deformaciones mecánicas de materiales y estructuras.** 20% inventive activity. CONICET. Presented to Instituto Nacional de Propiedad Industrial. Application N° 20210103011.

Recognitions and scholarships

1. **Optica (Formerly OSA).** Full scholarship to participate in Ultrafast Optics XIII Conference. Bariloche, Argentina. 2023.
2. **Fundación Hermanos Agustín y Enrique Rocca (Techint Organization)** Excellence Award at university stage. Argentina. 2020.
3. **Consejo Interuniversitario Nacional (CIN)** Stimulus Scholarship to the Scientific Vocation. Research and development activities. Argentina. 2017 - 2019.
4. **Fundación Hermanos Agustín y Enrique Rocca (Techint Organization)** Merit Award Scholarship at university stage. Argentina. Continuously received every year. 2014 - 2017.

Recent conference proceedings publications

1. [Sparapani, A. C.](#), Gutierrez, L. N., Hernandez, S. M., Fierens, P. I., Grosz, D. F., and Agrawal, G. P. **Raman suppression and all-optical switching in media with a zero-nonlinearity wavelength**. In CLEO 2024 (pp. JW2A.37).
2. 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).
3. [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.
4. [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.

Recent conferences and meetings

1. **AES 2024 10th International Conference on Antennas and Electromagnetic Systems**. Participation as an assistant, collaborator, and session chairperson. June 2024.
2. **SPIE Optifab 2023**. Poster presentation. Rochester, NY, USA. October 2023.
3. **Optica Sensing Congress**. Oral presentation. Hybrid event, virtual participation. Munich, Germany. August 2023.
4. **Ultrafast Optics XIII**. Participation as collaborator and assistant. Bariloche. March 2023.
5. **46° Buenos Aires International Book Fair**. Oral presentation. Ciudad Autónoma de Buenos Aires. May 2022.
6. **OSA Nonlinear Optics Topical Meeting**. Oral presentation. Virtual participation. August 2021.
7. **OSA Frontiers in Optics + Laser Science Conference**. Poster presentation. Virtual participation. September 2020.
8. **World Telecommunication Development Conference (WTDC)**. International Telecommunication Union (ITU). October 2017. Buenos Aires, Argentina.
9. **ITU Satellite Communication Symposium 2017**. International Telecommunication Union (ITU). San Carlos de Bariloche, Argentina. May 2017.

International Telecommunication Union contributions

1. **Proposal for adding content of WDHS power restrictions used in healthcare environment in Y.IoT-WDS-Reqts**, Martín, J.P.; Folonier, B.; Sparapani, A.C., ITU-T SG20 Meeting, Dubai, United Arab Emirates. T17-SG20-C-0097. March 2017.
2. **Proposal for adding content of WDs power restrictions to comply with EMF exposure limits in Y.IoT WDS-Reqts**, Martín, J.P.; Folonier, B.; Sparapani, A.C., ITU-T SG20 Meeting, Dubai, United Arab Emirates. T17-SG20-C-0098. March 2017.
3. **Deliverable 5 - Key findings, recommendations for next steps and future work**, Martín, J.P.; García, M.F.; Folonier, B.; Marengo, B.; Podestá, M.A.; Prina, J.P.; Sparapani, A.C., Focus Group Aviation Cloud, Frankfurt, Alemania. December 2015.
4. **Simulation of ADS-B Message Collision Onboard Satellites**, Martín, J.P.; García, M.F.; Folonier, M. Marengo, B.; Podestá, M.A.; Prina, J.P.; Sparapani, A.C., Study Group Meeting 5B, Bucarest, Rumania. R12-WP5B-C-0853. July 2015.

Languages

1. **English**. Intermediate - Advanced
2. **French**. Elementary - Intermediate. DELF A2.
3. **Italian**. Elementary.

Technical courses

1. **Autumn School on Ultrafast Lasers**, satellite school to the XIII Ultrafast Optics Conference. Instituto Balseiro. 2023.
2. **J. A. Balseiro School "Tópicos modernos de Telecomunicaciones"**. Instituto Balseiro. 2019.
3. **Summer School "Emerging Technologies to Support Health Care and Independent Living"**. Organized by the International Federation for Medical and Biological Engineering IFMBE. Pontificia Universidad Javeriana. Bogotá, Colombia. 2017.

Outreach activities

1. Co-director of the Final Project of the Telecommunications Engineering degree at Instituto Balseiro. Since August 2023.
2. Instituto Balseiro ambassador in scientific dissemination activities. 2022.
3. Mentor in Advanced Laboratory at Instituto Balseiro. February – June 2022.
4. Director of Summer Scholarship at Instituto Balseiro. February 2022.
5. Collaborator in "X Escuela de Estudiantes de Óptica y Fotónica" (EEOF). Instituto Balseiro. San Carlos de Bariloche. 2019.

Memberships

1. Institute of Electrical and Electronics Engineers (IEEE) Member.
2. IEEE Photonics Society Member.
3. IEEE San Nicolás Student Branch Vice President (2017) and Secretary (2018).
4. International Telecommunication Union (ITU) Academy Member, UTN – FRSN. 2015 – 2021.