

Post-doctoral position in distributed fiber sensing and ultrafast all-optical signal processing

About the Position:

The **Photonics Engineering Group** at the **University of Alcalá (GRIFO-UAH)** is a multidisciplinary group dedicated to developing photonic solutions for communications, sensing, and energy harvesting. It provides an international and dynamic research environment, with strong collaboration with research groups worldwide from both the academy and the industry.

We are currently offering a postdoc position framed within the **ERC Starting Grant project SENSE**, whose main objective is to attain a **global sensing network** by ensuring full compatibility between the already-deployed optical fiber telecom network and distributed optical fiber sensing technologies.



Role Description:

This is a **full time, on site postdoctoral position** based at **GRIFO-UAH**. The selected candidate will carry out advanced research on distributed fiber sensing technology and cutting-edge all-optical signal processing. They will contribute to the conceptual design, theoretical analysis, numerical modelling, and experimental validation of novel optical signal processing and signal conditioning systems for distributed acoustic sensing (DAS) architectures. Our work spans both scientific and application perspectives, aiming attain DAS schemes compatible with already deployed telecom networks.

Key responsibilities include:

- Develop and implement advanced signal-processing algorithms for fiber-optic systems, with emphasis on noise mitigation and phase-sensitive amplification techniques.
- Contribute to the definition of initial and final specifications for fiber optic sensing techniques and their components.
- Design and develop new performance enhancing methods for DAS systems compatible with telecom data traffic.
- Collaborate with pre- and post-doctoral researchers within the GRIFO and with partner institutions.
- Support the dissemination and communication of project results at scientific events, in the media, and on social networks.
- Contribute to the management of the data generated, in line with the project's data management plan.

Required Qualifications:

- PhD in Physics, Electronics Engineering, Telecommunications Engineering or a closely related field.
- Expertise in signal processing and/or optical systems.
- Solid experience in scientific programming, particularly in Matlab and/or Python.
- Good written and verbal communication skills in English.

Desirable Skills:

- Previous experience in all-optical signal processing technologies, specially based on Fourier optics and/or microwave photonics.
- Previous experience with DAS or fiber-optic sensing techniques.
- Prior experience with modelling of optical systems and processors.
- Experience working in an experimental research environment.

This position is well suited for motivated early-stage researchers who enjoy the combination of fundamental and applied research, and who wish to contribute to the development of next generation distributed optical fiber sensing technologies within an international and collaborative research team.

Interested candidates should send their curriculum vitae to

M. Rosario Fernández at rosario.fernandezr@uah.es

Suitable candidates will be contacted to arrange an online interview. We look forward to receiving your application!