

## Brillouin optical frequency-domain analysis: opportunities and challenges

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Distributed optical fiber sensors based on Brillouin scattering provide a continuous spatial distribution of a physical quantity (typically strain or temperature). Thanks to the extremely low propagation loss in silica fibers, Brillouin-based sensors can operate over long distances, making them ideal for structural monitoring of long structures such as pipelines and power cables. The Brillouin optical frequency-domain Analysis (BOFDA) technique, first proposed in 1996, represents a valid alternative to conventional, time-domain techniques, as it provides high (cm-scale) spatial resolution at the cost of a reduced range and a longer acquisition time. In this talk, the main characteristics of BOFDA sensors will be given, together with some application examples taking advantage of their high spatial resolution capabilities. The main limitations will be also discussed, together with an analysis of the future challenges.



**Short Bio:** Aldo Minardo is a full professor of Electronics at the University of Campania Luigi Vanvitelli, Italy. He received the (summa cum laude) degree in Electronic Engineering from the University of Naples in 2000, and the PhD degree in Electronic Engineering from the Second University of Naples in 2003. He has been a co-founder of the Spin-off company Optosensing srl.

He was the recipient of the Best Doctoral Thesis Award in Optoelectronics from the IEEE-LEOS Italian Chapter in 2005. He is the author of more than 100 papers in international journals and eight patents. He was responsible for scientific research conventions with private bodies and European projects under the seventh Framework and Horizon 2020 Programs. His research interests include the design and application of distributed optical fiber sensors for structural and environmental monitoring.