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Paper: Efficient dynamic events discrimination technique for fiber distributed Brillouin sensors
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Abstracts: A technique to detect real time variations of temperature or strain in Brillouin based distributed fiber sensors is proposed and is investigated in this paper. The technique is based on anomaly detection methods such as the RX-algorithm. Detection and isolation of dynamic events from the static ones are demonstrated by a proper processing of the Brillouin gain values obtained by using a standard BOTDA system. Results also suggest that better signal to noise ratio, dynamic range and spatial resolution can be obtained. For a pump pulse of 5 ns the spatial resolution is enhanced, (from 0.541 m obtained by direct gain measurement, to 0.418 m obtained with the technique here exposed) since the analysis is concentrated in the variation of the Brillouin gain and not only on the averaging of the signal along the time