

Distributed Brillouin scattering sensor for discrimination of wall-thinning defects in steel pipe under internal pressure

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A distributed Brillouin scattering sensor has been employed to identify several inner wall cutouts in an end-capped steel pipe by measuring the axial and hoop strain distributions along the outer surface of the pipe. The locations of structural indentations that constitute 50–60% of the inner pipe wall are found and distinguished by use of their corresponding strain–pressure data. These results are quantified in terms of the fiber orientation, defect size and depth, and behavior relative to those of unperturbed pipe sections. © 2004 Optical Society of America

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