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Experimental Studies of Alignment Tolerance and High Temperature Performance of A Fabry-Perot Interferometric Pressure Sensor IVAN PADRON, ANTHONY FIORY, NUGGEHALLI RAVINDRA, New Jersey Institute of Technology — Fabry-Perot interferometry is one of the most reliable of the several optical techniques that can be utilized to facilitate the fabrication of an optical sensor. Devices based on this technique can provide high degree of sensitivity, versatility and immunity to environmental noise. The Fabry-Perot Interferometric Sensor (FPIS), to be discussed in this presentation, consists of a Fabry-Perot cavity formed between two bonded surfaces: a corrugated diaphragm with a center rigid body (or boss) which deflects under external pressure and keeps a high alignment tolerance and a glass surface with an optical fiber insert. The Fabry-Perot cavity and optical fiber have been used as the sensing element and interconnect, respectively. The Fabry-Perot cavity has been fabricated using the MEMS technology. Micromachining techniques make Fabry-Perot sensors very attractive by reducing the size and cost of the sensing element.

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