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   Titolo Auf metrischen und differentialgeometrischen Konzepten basierende neue mathematische Algorithmen zur Sensordatenfusion mit Anwendungen in der Faser-Bragg-Gitter-Formsensorik

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   Sommario/riassunto In this work a Fiber Bragg grating (FBG) shape sensor for shape detection of flexible objects is presented. Such sensors are used particularly in medical technology. Although the subject of FBG sensor technology has been investigated and advanced by research groups worldwide since the beginning of the 21st century, no sensor concept has yet been able to establish itself on the market. This work focuses on the derivation of shape sensing algorithms to improve FBG-shape sensors.