

AN ANGULAR POSITION SENSOR USING MULTILAYER NANOWIRES

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Abstract. Electrodeposited multilayered nanowires, grown in a polycarbonate membrane, represent a new medium in which perpendicular to the plane Giant Magnetoresistance (GMR) has been observed. These nanostructures can reach a GMR change of up to 22% at ambient temperature. In this paper we present the application of the multilayered nanowires and a preliminary characterization of an angular position sensor. The sensitive elements are mounted in a special arrangement (two 45 degrees phase shifted Wheatstone bridges) and provide a pair of sine-cos waveforms as outputs.

Key words: Nanowires; GMR; position sensor.