Bismuth-based flexible magnetic sensors: from thin films to nanowires

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This contribution describes the modification of Bi structure and its influence on magnetotransport properties. Thin film samples deposited on Kapton substrates were vacuum annealed up to the melting point. There morphology and crystallographic structure were studied with scanning electron microscopy and X-ray diffraction while there transport properties (magnetoresistance MR and Hall effect) were studied with standard 4-point probe technique at fields up to 20 kOe. Low-temperature MR measurements were carried out at field up to 70kOe and temperature down to 5K. These results obtained for bismuth films have enabled us to optimise the magnetoresistive response of nanowires array embedded in the alumina matrix.

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