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MAGNETORESISTIVE SENSOR BASED ON OSCILLATIONS
IN THE MAGNETORESISTANCE

ABSTRACT

Described is a magnetoresistive (MR) sensor comprising a multilayered structure formed on a substrate includes alternating layers of a ferromagnetic material (12) and copper (14). The ferromagnetic material and the copper form bilayers which exhibit the property that the magnetoresistance of the multilayered structure oscillates as a function of thickness of the non-magnetic material. A current flow is produced through the MR sensor, and the variations in the resistivity of the MR sensor are sensed as a function of the magnetic field being sensed. Also described is a sensor having a quadlayer structure which comprises alternating layers of a first and second ferromagnetic material and a non-magnetic metallic material.

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