A research of an improved ellipse method in magnetoresistive sensors error compensation

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Abstract: Measurement of the weak geomagnetic signal is very prone to the factors of the environmental interference. Through theory analysis and simulation research, it is found that the error compensation ellipse method commonly applied in engineering practice is unable to reduce the quadrant error due to soft iron materials effectively. In response to the phenomenon that the ellipse revolves around the long and short axes in the plane, the conception and mathematical description of the rotation factor are brought forward, in the meantime, the error compensation experiments and data analysis concerning this improved ellipse method are also carried out. The result of research shows that the error compensation effect by using this particular method is improved significantly compared with the ellipse method. ©2009 IEEE.

Author Keywords: Ellipse method; Error compensation; Magnetoresistive sensor; Rotation factor

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