



## **Analogue and digital detection of a tuned fluxgate magnetometer for space applications.**

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Tuning the sense winding of ringcore sensors can result in significant amplification of the second harmonic component of the sensor output voltage. We describe detection techniques for a tuned sensor in the analogue and digital domains and compare performance of both designs implemented with the same sensor. The analogue version is currently operating in-flight on board the CNSA-ESA Double Star spacecrafts investigating the near Earth polar and equatorial regions of the magnetosphere. The instrument and has been shown to have excellent performance and stability in-flight. The digital version is a first iteration of a magnetometer to be flown on the ESA Bepi-Colombo mission to the planet Mercury.