Field demonstrations of double-resonance magnetometry

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Wide dynamic range and kHz+ bandwidth make double-resonance OPMs an attractive technology for unshielded measurements, where pT-range sensitivity is highly competitive with existing sensor types. Double-resonance OPMs in compact packages offer precise measurement in numerous applications where inductive magnetometers are currently commonplace [1,2].

The development of laboratory double-resonance OPMs [3,4] into portable systems for collaborative field trials in defence and geophysics applications is discussed. Details of sub-component design and characterisation, including microfabricated alkali vapour cells, compact laser drivers and embedded signal processing, are presented, along with the results and discussion of portable system performance.

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