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Self-contained fiber-coupled atomic magnetometers[1] FRANK SHU, GUANGHAI JIN, Agiltron, TOM KORNACK, Twinleaf, JEFFREY NORELL, ANTONIJE RADOJEVIC, JOSEPH KINAST, Draper, EKATERINA MEHNERT, NEZIH DURAL, MICHAEL ROMALIS, Princeton University — Atomic magnetometers using a dense alkali-metal vapor have reached magnetic field sensitivities on the order of 200 aT/Hz$^{1/2}$, exceeding the sensitivity of best SQUID magnetometers.[2] They are also relatively simple devices amenable to miniaturization and mass production. We are developing a fiber-coupled self-contained atomic magnetometer based on well-established fiber optic fabrication techniques. The magnetometer incorporates a Rb-Cs hybrid alkali-metal cell and a non-magnetic light polarization modulator for sensitive polarimetry. An array of such sensors can be used for magnetoencephalography and many other applications.

[1]Supported by DARPA.
[2]H.B. Dang, A.C. Maloof, and M.V. Romalis, Appl. Phys. Lett. 97, 151110 (2010)

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