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Nanomechanical Magnetometry[1]

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To experimental physicists across the ages, torque has been a fabulous companion in the exploration of nature. Highlights in the history of torque measurements include the discovery of earth's magnetic field and the principle of the compass, and weighing the earth with a Cavendish balance. In the present day, extreme miniaturization of torque experiments has become possible thanks to procedures developed for silicon chip production. A recent application of this approach has enabled the solution of a long-standing problem in magnetism, dating from the discovery of magnetic domains almost a century ago [1,2]. The "lab-on-a-chip" concept pioneered in analytical chemistry is now beginning to exert its considerable influence in basic and applied studies of magnetism.

[1] H. Barkhausen, Phys. Z. 20, 401 (1919).
[2] J.A.J. Burgess et al., Science 339, 1051 (2013).

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