

Chirally coupled magnets

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Magnetically coupled nanomagnets have many potential applications including non-volatile memories, logic gates and sensors. For these applications, the most effective magnetic couplings have been found to occur between the magnetic layers in a vertical stack [1-5]. However, in order to realize functional two-dimensional networks of coupled nanoscale magnetic elements such as those used for nanomagnet logic and artificial spin ice, it is desirable to engineer effective lateral magnetic couplings in a controllable way. Up to now, this has been achieved by exploiting the long-range dipolar interaction. However, the dipolar interaction is non-local and scales inversely with the magnet volume, so limiting its use in applications involving nanometer sized structures and thin films.