



FABRICATION AND USE OF NANOCOILS ON NITROGEN-VACANCY DIAMOND SUBSTRATES FOR MAGNETIC FIELD DETECTION AND MANIPULATION

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The Invention

UW-Madison researchers have created a spiral inductor for on chip electromagnetic signal conversion. The spiral inductors include an electrically conductive spiral coil and a nitrogen vacancy (NV) diamond substrate. A thin barrier layer of a dielectric material separates the spiral coil from the surface of the NV diamond substrate and an overlayer of dielectric material is disposed over the spiral nanocoil. The integration of the spiral coil with an NV substrate in this manner creates a highly enhanced magnetic transduction and produces a simple, high-performance way to control and read out electromagnetic signals. Because the spiral inductors enable electromagnetic-to-optical signal conversion, they can be used as sensors for environmental or biomedical applications and spin-based computation.

Tech Fields

- [Analytical Instrumentation, Methods & Materials : Sensors](#)
- [Information Technology : Hardware](#)

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