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Quantum diamond sensors – Best of both worlds

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Biography

Ronald Walsworth is a Minta Martin Professor in the Department of Physics and in the Department of Electrical and Computer Engineering at the University of Maryland (UMD). He is also the Founding Director of the Quantum Technology Center (QTC) at UMD, which focuses on the development and translational applications of quantum science, as well as education of the quantum technology workforce.

Abstract

The nitrogen–vacancy (NV) quantum defect in diamond is a leading modality for magnetic, electrical, temperature, and force sensing with high spatial resolution and wide field-of-view under ambient conditions. This quantum sensing technology has diverse applications across the physical and life sciences — from probing magnetic materials to imaging integrated circuit activity to biomedical diagnostics. I will provide an overview of quantum diamond sensors and their many applications; and outline paths toward improved performance and utility.