



Contribution ID: 4

Type: **Talk**

【626】 High-resolution spectroscopy of a single nitrogen-vacancy defect at zero magnetic field

Thursday 12 September 2024 15:15 (15 minutes)

In this work, we have studied the effect of intrinsic electric and strain fields, collectively known as the effective field, on the energy level structure of the nitrogen-vacancy (NV) center in diamond. We used pulsed electron spin resonance spectroscopy to resolve the hyperfine structure at zero magnetic field and its vicinity in a polycrystalline diamond. Results revealed characteristic splitting and transition imbalance due to level anti-crossing in the presence of a transverse effective field. This work is a crucial step for advancing spin-based quantum sensors. We also introduce a theoretical model of the magnetic dipole transitions that provides an improved understanding of the polarization response of the hyperfine spin transitions.

Primary author: KUMAR, Shashank (IISER Bhopal)

Co-authors: Ms SAHA, Jayita (IISER Bhopal); Mr NALIYAPARA, Jemish (IISER Bhopal); Dr PEDDIBHOTLA, Phani Kumar (IISER Bhopal); Mr DUBEY, Pralekh (IISER Bhopal); Mr BHADADE, Sudhan (IISER Bhopal)

Presenter: KUMAR, Shashank (IISER Bhopal)

Session Classification: Spintronics and Magnetism at the Nanoscale

Track Classification: Spintronics and Magnetism at the Nanoscale