

Key points:

- NV center ensemble are promising room-temperature magnetometer but are partly limited by the interactions between the spins.
- Dipole-dipole interaction in dense ensemble of NV centers causes spin relaxation. The effect is stronger at low magnetic field.
- The low field depolarization effect can be used to create microwave-free and orientation-free magnetometers.

Perspectives:

- Further studies on low field depolarization: temperature dependance, material aspects...
- LFDM applications: real-time magnetometry in liquids, background-free fluorescence microscopy, large NV magnetometers...