# IRG2-Seed: Room-temperature 2D Magnets

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**Achievement**: Employing quantum sensors based on nitrogen-vacancy (NV) center in diamond, we studied the two-dimensional (2D) magnets $Fe_5GeTe_2$ (FGT) and co-substituted FGT (CFGT). Our studies reveal that magnetism persists in thin flakes of these materials, down to 16 nm thick, at room temperature and above.

**Importance of the achievement**: 2D magnetic materials present a promising platform for novel spintronics and hybrid quantum materials. However, the vast majority of 2D magnets have Curie temperature $T_c$ much below room temperature. Hence, this result paves the way towards practical application of 2D magnets.

**Relation to IRG2**: Our result identifies 2D magnets as a promising platform for THz devices and magnon-based hybrid quantum systems.

**Publications**:
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H. Chen *et al*., *ACS Appl. Mater. Interfaces* **15**, 3287 (2023).
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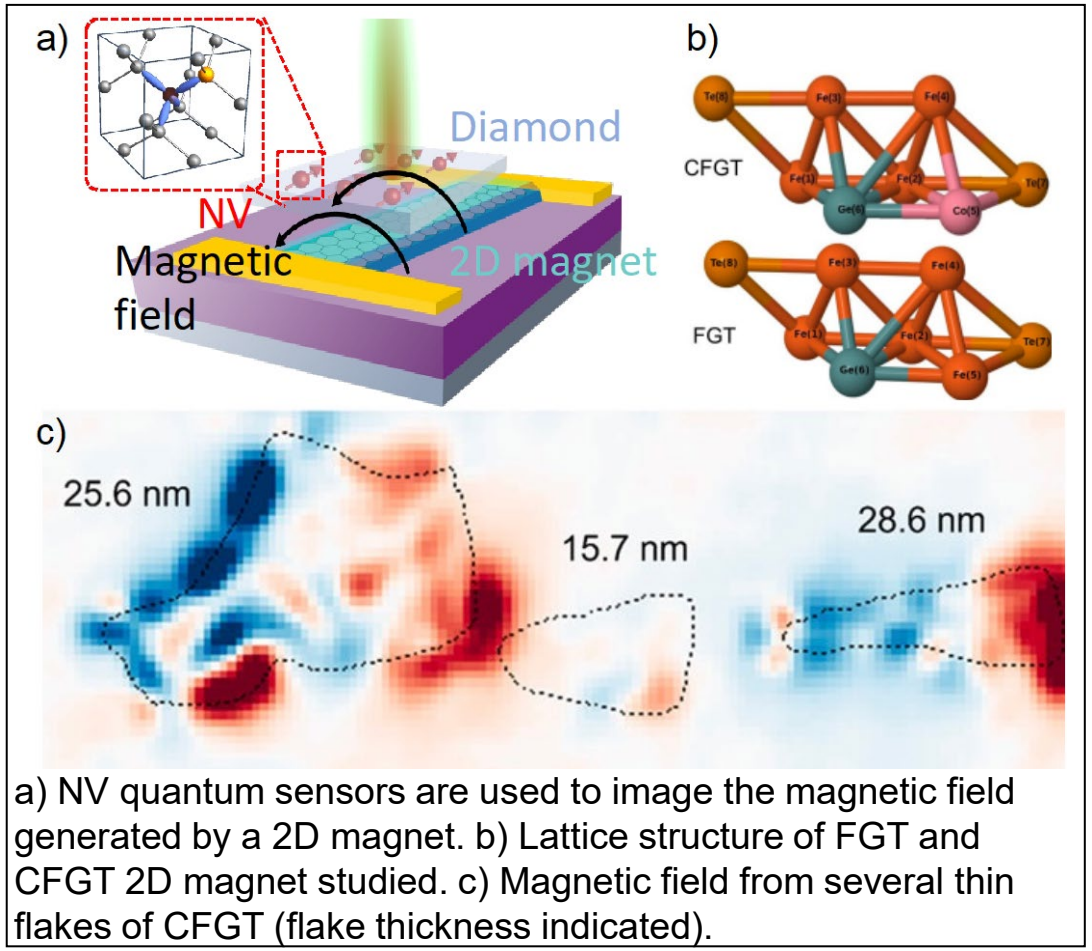


a) NV quantum sensors are used to image the magnetic field generated by a 2D magnet. b) Lattice structure of FGT and CFGT 2D magnet studied. c) Magnetic field from several thin flakes of CFGT (flake thickness indicated).