

E 500: Optical Detected Magnetic Resonance



Dedicated ODMR accessory for X- and Q-Band

Device Characteristics

- High speed microwave amplitude modulation
- CW microwave amplifier for X- and Q-Band
- Up to 1 GS/s digitizer rate



(a) Typical ODMR spectra by monitoring the total intensity of the band-to-band photoluminescence from an $\text{GaN}_{0.021}\text{As}_{0.979}$ epilayer, obtained at 3K under σ^x and σ^+ excitation at 850 nm. The microwave frequency used is 9.2823 GHz. A simulated ODMR spectrum of the identified Ga_i defect (denoted by $\text{Ga}_i\text{-C}$) is also shown.

(b) Calculated energy levels associated with the electronic and nuclear spin states of the Ga_i^{2+} defect. The allowed ESR transitions ($\Delta m_s = \pm 1$ and $\Delta m_l = 0$) occur when the electron spin splitting matches the microwave photon energy, and are marked by the vertical lines.

[From X.J. Wang, I.A. Buyanova, F. Zhao, D. Lagarde, A. Balocchi, X. Marie, C.W. Tu, J.C. Harmand and W.M. Chen, Nature Materials 8, 198 (2009)]

