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 GaN$_{0.021}$As$_{0.979}$ epilayer, obtained at 3K under $\sigma^+$ and $\sigma^-$ excitation at 850 nm. The microwave frequency used is 9.2823 GHz. A simulated ODMR spectrum of the identified Ga$_i$ defect (denoted by Ga$_i$-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 ($\Delta m_2=\pm 1$ and $\Delta m_1=0$) occur when the electron spin splitting matches the microwave photon energy, and are marked by the vertical lines.