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**High-field optically detected magnetic resonance of a single nitrogen-vacancy center in diamond** VIKTOR STEPANOV, CHATHURANGA ABEYWARDANA, FRANKLIN CHO, RANA AKIEL, SUSUMU TAKAHASHI, University of Southern California — A nitrogen-vacancy center (NV) in diamond is a promising candidate for fundamental investigation of spin physics and applications to quantum information processing and quantum sensing because of its remarkable properties such as long lived coherence, superb photostability and capability to detect a single NV center using an optically detected magnetic resonance (ODMR) technique. Here, we discuss a platform to investigate a NV center at high magnetic fields. We will present the development of a high-field ODMR system consisting of a high-frequency excitation component, superconducting magnet, NV detection system, microscope system and sample stage. We also discuss ODMR and double electron-electron resonance measurements of a single NV center at high magnetic fields.

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