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Optically Detected NMR of Optically Hyperpolarized ^{31}P Nuclear Spins in ^{28}Si A. YANG, M. STEGER, T. SEKIGUCHI, K. SAEEDI, M. L. W. THEWALT, Department of Physics, Simon Fraser University, Burnaby, BC, Canada V5A 1S6, K. M. ITOH, Keio University, Yokohama 223-8522, Japan, H. RIEMANN, N. V. ABROSIMOV, Institute for Crystal Growth (IKZ), 12489 Berlin, Germany, P. BECKER, PTB Braunschweig, 38116 Braunschweig, Germany, H.-J. POHL, VITCON Projectconsult GmbH, 07745 Jena, Germany — We have recently shown that the improved spectral resolution possible in highly enriched ^{28}Si permits the optical measurement of the ^{31}P electron and nuclear spin populations via the donor bound exciton transitions. We also demonstrated how the same optical transitions can be used to hyperpolarize both the electron and nuclear spins at low magnetic field. Here we combine these effects to measure the NMR of dilute ^{31}P in a regime inaccessible to other methods.

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