

Abstract Submitted
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Low-Temperature and High-Pressure ^{31}P -NMR Study of the Magnetic Properties of the 2D Frustrated Square-Lattice Compound $\text{BaCdVO}(\text{PO}_4)_2$ ¹ BEAS ROY, Ames Laboratory, Iowa State University, RAMESH NATH, Indian Institute of Science Education and Research, Thiruvananthapuram, DAVID C. JOHNSTON, YUJI FURUKAWA, Ames Laboratory, Iowa State University — $\text{BaCdVO}(\text{PO}_4)_2$ is a spin $S = 1/2$ frustrated square-lattice compound with a nearest-neighbor exchange coupling $J_1 = -3.62$ K and a next-nearest-neighbor exchange coupling $J_2 = 3.18$ K yielding $|J_2/J_1| = 0.88$. A transition to an anti-ferromagnetic (AFM) ground state occurs below a temperature $T_N = 1.0$ K under ambient pressure p . Based on the J_2/J_1 ratio, the system is located close to the disordered ground state regime of the phase diagram. We carried out ^{31}P -NMR measurements under high p up to 1.88 GPa, and at low temperatures T down to 100 mK, to investigate the effects of p on the magnetic properties of the system. We established the first H - p - T phase diagram for this system. With increasing p , the magnetization saturation field is suppressed from $H_S = 4.2$ T at ambient p to $H_S = 0.55$ T at $p = 1.88$ GPa and $|J_2/J_1|$ decreases to 0.62 at $p = 1.45$ GPa, thus moving towards the disordered region of the phase diagram.

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