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Magnetic Properties of the quasi-2D S=1/2 Heisenberg antiferromagnet $[Cu(pyz)_2(HF_2)]PF_6$ SERGEI ZVYAGIN, Dresden High Magnetic Field Laboratory (HLD), FZ Dresden-Rossendorf, Dresden, Germany, E. ČIŽMÁR, Centre of Low Temperature Physics, P.J. Šafarik University, Košice, Slovakia, R. BEYER, M. UHLARZ, M. OZEROV, Y. SKOURSKI, J. WOSNITZA, Dresden High Magnetic Field Laboratory (HLD), FZ Dresden-Rossendorf, Dresden, Germany , J.L. MANSON, Department of Chemistry and Biochemistry, Eastern Washington University, Cheney, WA, USA, J.A. SCHLUETER, Materials Science Division, Argonne National Laboratory, Argonne, IL , USA — We report on electron spin resonance, high-field magnetization, and specific-heat studies of $[Cu(pyz)_2(HF_2)]PF_6$ single crystals, identified as a quasi-two-dimensional spin-1/2 Heisenberg antiferromagnet. Our measurements revealed $J_{inter}/J_{intra} \leq 0.063$ and $A/J \sim 0.003$, where J_{inter}, J_{intra}, J are the interplane, intraplane and mean exchange interactions, respectively, and A is the anisotropy constant. It is argued that the magnetic properties of this material (including high-magnetic-field magnetization and the temperature-field phase diagram) are strongly affected by two-dimensional spin fluctuations, despite of onset of 3D long-range magnetic ordering at $T_N \approx 4.4$ K. The ESR magnetic excitation spectrum in the 3D ordered phase is studied in detail.

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