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Magnetic penetration depth and critical current density in aligned grains of NdFeAsO(F)[1] YURI L. ZUEV, E. D. SPECHT, D. K. CHRISTEN, Oak Ridge National Laboratory, J. R. THOMPSON, Dept. of Physics, University of Tennessee, and Oak Ridge National Laboratory, R. JIN, B. C. SALES, A. SEFAT, M. A. MCGUIRE, D. G. MANDRUS, Oak Ridge National Laboratory — We have prepared a powder sample of NdFeAsOF, where most crystallite particles are aligned with their c-axis along a common direction. We have measured magnetic penetration depth and a critical current density in the basal-plane. The penetration depth shows a fully gapped superconducting state with two energy gaps, one roughly twice as large as the other. The in-plane critical current density is as high as several MA/cm^2 at low temperatures, zero field, which may be promising for applications.

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Yuri Zuev
Oak Ridge National Laboratory

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