

Abstract Submitted
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Structured pinning potentials for guiding vortex motion in superconductors.¹ K. YU, T.W. HEITMANN, C. SONG, B.L.T. PLOURDE, Syracuse University, M.B.S. HESSELBERTH, P.H. KES, Leiden University — Nanofabricated pinning structures can be used to guide vortices in superconductors through various potential energy landscapes. We report transport measurements of vortex flow dynamics in structured weak-pinning channels of a-NbGe with strong-pinning NbN channel edges. By arranging the channels in circular patterns on a Corbino disk geometry, we eliminate the influence of edge barriers to vortex entry on the dynamics. Patterning channel edges with different shapes allows us to explore the influence of the confinement potential on the vortex dynamics. We discuss one such pattern with channel edges in an asymmetric sawtooth configuration for investigations of vortex ratchet dynamics.

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