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Evidence of Vortex Jamming in Abrikosov Vortex Flux Flow Regime[1] GORAN KARAPETROV, Physics Department, Drexel University, V. YEFREMENKO, G. MIHAJLOVIC, J.E. PEARSON, Argonne National Laboratory, M. IAVARONE, Temple University, V. NOVOSAD, S.D. BADER, Argonne National Laboratory — We report on dynamics of non-local Abrikosov vortex flow in mesoscopic superconducting Nb channels. Magnetic field dependence of the non-local voltage induced by the flux flow shows that vortices form ordered vortex chains. Voltage asymmetry (rectification) with respect to the direction of vortex flow is evidence that vortex jamming strongly moderates vortex dynamics in mesoscopic geometries. The findings can be applied to superconducting devices exploiting vortex dynamics and vortex manipulation, including superconducting wires with engineered pinning centers.

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