

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Mass transport through 8 μm thick solid helium samples without dislocation intersections¹ JAE HO SHIN, DUK YOUNG KIM², ARIEL HAZIOT³, MOSES H.W. CHAN, Pennsylvania State Univ — We have measured mass flow induced by fountain effect through 8 μm thick solid helium samples sandwiched between Vycor rods infused with superfluid. Since the network length of dislocation is on the order of the thickness of our sample, we expect the dislocation lines in the sample will be pinned at the Vycor surfaces without forming a complex network. Solid samples of successive higher pressures were grown from superfluid under a mass flow field. We confirm the presence of mass flow through solid helium and find that the mass flow decreases with increasing temperature and decays exponentially with pressure. In contrast to the results from the University of Mass., we found mass flow continues up to 1 K and pressure above 30 bar.

¹The experiment is supported by NSF under grant DMR 1103159.

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Date submitted: 09 Nov 2016

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