

Abstract Submitted
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Observation of the Sliding Phase in ^{87}Rb A DEWAN, M. E. W REED, Z. S SMITH, S. L ROLSTON, Joint Quantum Institute/Univ of Maryland-College Park — We present observations of the sliding phase in disordered ultracold ^{87}Rb . For systems with a, b, c axis, and 1D disorder along c -axis, the sliding phase is when “ c -axis superfluid response disappears, while the system remains superfluid in the a and b directions”¹. We generate the sliding phase potential using a disordered optical lattice generated by our high-bandwidth arbitrary lattice apparatus. Our findings show three phase crossover regimes at distinct temperatures, which compares favourably to theoretical predictions^(2,3,4). In addition, we present data suggesting the presence of a Griffiths phase.

¹David Pekker *et al.*, **Phys. Rev Lett.**, 105:085302, 2010

²Ibid.

³Priyanka Mohan *et al.*, **Phys. Rev Lett.**, 105:085301, 2010

⁴Nicolas Laflorencie, **EPL**, 99, 2012

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