

Abstract Submitted
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Detecting Paired and Counterflow superfluidity via dipole oscillations ANZI HU, LUDWIG MATHEY, Joint Quantum Institute, University of Maryland and National Institute of Standard and Technology, Gaithersburg, MD 20899, IPPEI DANSHITA, Department of Physics, Faculty of Science, Tokyo University of Science, Shinjuku-ku, Tokyo 162-8601, Japan, CARL WILLIAMS, CHARLES CLARK, Joint Quantum Institute, University of Maryland and National Institute of Standard and Technology, Gaithersburg, MD 20899 — We study the dynamic response of the paired superfluid (PSF) and counterflow superfluid (CFSF) states in a binary mixture of ultra-cold bosonic atoms following an abrupt displacement of the trapping potential. In the PSF and CFSF states, the pairing and anti-pairing orders lead to novel transport properties and distinctive dynamic responses to the abrupt displacement. The findings provide a clear experimental procedure to detect these orders and give an intuitive insight into the dynamics of paired and counterflow superfluidity.

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