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Collective Excitations in quasi-2D Condensates DAN LOBSER, JILA, National Institute of Standards and Technology and Department of Physics, University of Colorado, LIN XIA, The Pennsylvania State University, Department of Physics, ANDREW BARENTINE, ERIC CORNELL, JILA, National Institute of Standards and Technology and Department of Physics, University of Colorado — Quantum gases confined to lower dimensions exhibit remarkable physical properties such as the Berezkinskii-Kosterlitz-Thouless transition or the Tonks-Girardeau gas. Confinement effects in a quasi-2D condensate are predicted to shift the frequency of certain collective excitations, in particular the monopole mode [1,2]. In our experiment, quasi-2D condensates are created by loading a 3D condensate into a 1D optical lattice, collective modes are then parametrically driven by modulating the strength of the trap. We present current results on our measurements of these collective excitations and how they compare with radial trapping frequency.

[1] Olshanii et al., Phys. Rev. Lett. 105, 095302 (2010).
[2] Hu et al., Phys. Rev. Lett. 107, 110401 (2011).

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