

Abstract Submitted  
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**Spontaneous creation of non-zero angular momentum modes in tunnel-coupled two-dimensional degenerate Bose Gases<sup>1</sup>** TOM MONTGOMERY, ROBIN SCOTT, IGOR LESANOVSKY, MARK FROMHOLD, The University of Nottingham, ULTRA COLD ATOMS RESEARCH GROUP TEAM — We investigate the dynamics of two tunnel-coupled two-dimensional degenerate Bose gases. The reduced dimensionality of the clouds enables us to excite specific angular momentum modes by tuning the coupling strength, thereby creating striking patterns in the atom density profile. The extreme sensitivity of the system to the coupling and initial phase difference results in a rich variety of subsequent dynamics, including vortex production, complex oscillations in relative atom number and chiral symmetry breaking due to counter-rotation of the two clouds.

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