All-optical control of a quantum fluid of light in hot atomic vapor

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We present an experimental platform allowing to model arbitrary 2D hamiltonians using all- optical control of fluid of light in a hot Rubidium vapor [1]. Using full-field retrieval of the quantum fluid, we can measure momenta distributions and hydrodynamical observables and use this information to probe the superfluid transition [2, 3] in a time-resolved manner. We also engineer the quantum fluid to study the dynamics of quantized vortices and scale it towards the study of turbulence [4].

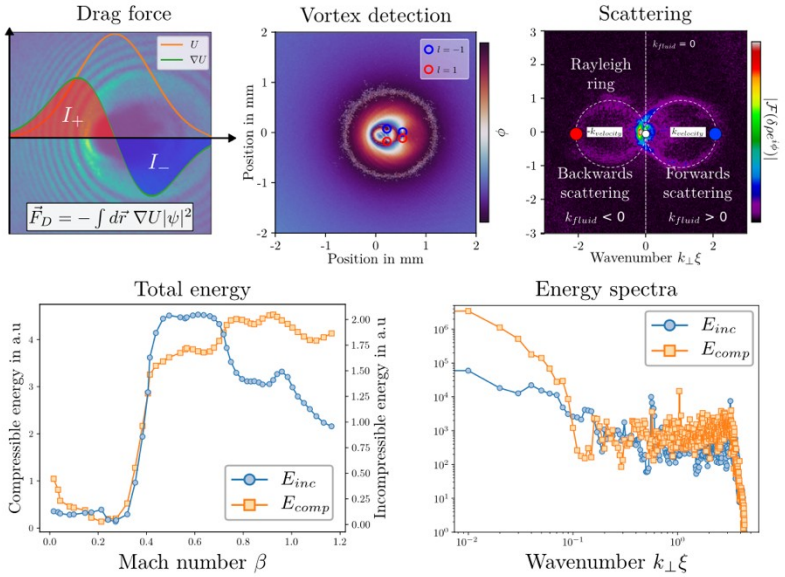

Fig. 1

References

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