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Quantum Turbulence in Fermionic Superfluids[1] MICHAEL FORBES, Washington State Univ, AUREL BULGAC, University of Washington, GABRIEL WLAZLOWSKI, Warsaw University of Technology — Fermionic superfluids provide a new realization of quantum turbulence, accessible to both experiment and theory, yet relevant to phenomena from both cold atoms to nuclear astrophysics. In this talk I will underscore several unique properties such as the high vortex line density of the unitary Fermi gas, which allows for quantum turbulence in small systems that can be studied experimentally and with a time-dependent density functional theory (TDDFT) that quantitatively captures their behaviour. Applications range from explaining cold atom experiments to resolving the 40-year old mystery of pulsar glitches in neutron stars.

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