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Collective excitations of quasi-two-dimensional trapped dipolar fermions MEHRTASH BABADI, EUGENE DEMLER, Harvard University — We study the collective excitations of quasi-two-dimensional fermions with dipole-dipole interactions in an isotropic harmonic trap by solving the collisional Boltzmann-Vlasov equation. Except for the scaling monopole mode which exhibits a negligible damping, the other collective modes undergo a transition from the collisionless regime to a highly dissipative crossover regime and finally to the hydrodynamic regime upon increasing the dipolar interaction strength. In the 2D limit, we predict the existence of a temperature window within which the characteristics of the collective modes become temperature independent.

Mehrtash Babadi
Harvard University

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