

Abstract Submitted
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Resonant drag instabilities in fluids and plasmas JONATHAN SQUIRE, Caltech — Many plasma instabilities, for instance two-stream instabilities or the magnetorotational instability, arise due to a resonance between two or more oscillation frequencies of the system. In this talk, I will introduce a general method for understanding, and calculating the properties of, such resonant instabilities. Application to dust-laden fluids and plasmas has uncovered a variety of new instabilities that occur when dust moves with a relative speed that matches the phase velocity of a fluid wave. These have interesting astrophysical applications for systems ranging from galactic winds to protoplanetary accretion disks. I will also discuss applications to other systems, for instance plasmas with a population of streaming cosmic rays, or resonant instabilities in collisionless plasmas.

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