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**TRANTAPHYLLOS AKYLAS, MIT**

*On the interaction of an internal wavepacket with its induced mean flow and the role of streaming\**

The coupled nonlinear interaction of three-dimensional gravity-inertia internal wavepackets, in the form of beams with nearly monochromatic profile, with their induced mean flow is discussed. Unlike general three-dimensional wavepackets, beam wavepackets are not susceptible to modulation instability from their inviscid, purely modulation-induced mean flow. However, streaming – the induced mean flow associated with the production of mean potential vorticity by the combined action of dissipation and nonlinearity – can cause cross-beam bending, transverse broadening and increased along-beam decay of the beam profile, in qualitative agreement with earlier laboratory experiments. For non-beam wavepackets, by contrast, streaming does arise, but plays a less prominent role in the interaction dynamics

\*Joint work with Boyu Fan (MIT) and Takeshi Kataoka (Kobe University, Japan)