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Cross-Beam Energy Transfer Experiments at High Ion-Acoustic Wave Amplitudes[1] AARON HANSEN, University of Rochester, DAVID TURNBULL, Laboratory for Laser Energetics, AVRAM MILDER, University of Rochester, JOSEPH KATZ, RUSSELL FOLLETT, JOHN PALASTRO, DUSTIN FROULA, Laboratory for Laser Energetics — The tunable OMEGA port 9 (TOP9) laser on OMEGA was used to perform cross-beam energy transfer (CBET) experiments in a gas-jet plasma where it interacted with one or five other 351-nm UV beams to study the limitations of linear CBET modeling. The TOP9 laser is a wavelength-tunable UV beam which enables CBET experiments in a stationary plasma. The frequency of the TOP9 beam was set so that the beat frequency generated with other UV pump beams was resonant with the ion-acoustic wave frequency of the gas-jet plasma. By changing the intensity of the TOP9 probe beam, the amplitude of the resonantly excited ion-acoustic waves was scaled from low amplitudes (dn/n $<0.7\%$) to high amplitudes (dn/n $>2.5\%$), where ion-wave saturation mechanisms were expected to limit the amount of energy transfer in the interaction.

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