334. Title: Terahertz generation by nonlinear mixing of laser pulses in a clustered gas
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Abstract: A scheme of terahertz (THz) generation by two collinear laser pulses of finite spot size in

a clustered gas is investigated theoretically. The lasers quickly ionize the atoms of the clusters, converting them into plasma balls, and exert a ponderomotive force on the cluster electrons, producing a beat frequency longitudinal current of limited transverse extent. The current acts as an antenna to produce beat frequency terahertz radiation. As the cluster expands under the hydrodynamic pressure, plasma frequency of cluster electrons pe decreases and approaches √3 times the frequency of laser, resonant heating and expansion of clusters occurs. On further expansion of clusters as pe approaches √3 times the terahertz frequency, resonant enhancement in THz radiated power occurs.