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Energy Radiation from Plasmons on Nanotubes ANTONIOS BALASSIS, GODFREY GUMBS, Hunter College of CUNY — A formalism has been developed for calculating the rate of transfer of energy from a current of charged particles to multi-walled and a linear array of nanotubes. Numerical calculations are presented for tubules of various radii and impact parameters of the moving charged particles. The dispersion relation of the coupled tubules interacting through the Coulomb interaction has several branches corresponding to excitation of electrons within a subband as well as between energy subbands. The electric field of the current excites these modes but one of them is unstable and radiates energy. This is demonstrated in the spectrum of energy transfer with a "dip" unlike the other plasmon modes which have a "peak" for arbitrary impact parameter. The single-particle excitation spectrum does not have an instability for any charged particle velocity or impact parameter.

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