ENERGY TRANSFER COLLISIONAL PROCESS INVOLVING HETEROMOLECULAR COLLISIONS BETWEEN METHYL FLUORIDE AND N_2, Ar, He, CO_2, AND AIR

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Time resolved IR/THz double resonance (DR) spectroscopy has been performed with a Q-switched CO_2 laser and heterodyne THz detection. The rate constants associated with allowed rotational- and vibrational-state changing collisions of CH_3F with N_2, Ar, He, CO_2, and air are measured by monitoring the temporal evolution of the absorption strength for numerous rotational transitions as a function of pressure. Collision partner dependent energy transfer processes are studied and compared with homomolecular collisions. Energy transfer maps and associated collisional cross sections will be presented for each collision partner.