COLLISIONAL EXCITATION OF AUTOMOTIVE FUEL COMPONENTS (ETHANOL AND ISOOCTANE)

RACHELLE H. COBB, ALLEN R. WHITE,, *Department of Mechanical Engineering, Rose-Hulman Institute of Technology, 5500 Wabash Ave., Terre Haute, IN 47803*; REBECCA B. DEVASHER, *Department of Chemistry, Rose-Hulman Institute of Technology, 5500 Wabash Ave., Terre Haute, IN 47803*.

It is possible to excite fuel components indirectly via a 10.6 um CO2 laser. A 9CO2 laser excitation of pure ethanol caused little or no change in absorption in the C-H stretch region. However, the ethanol/isopropanol mixture did show a response proportional to laser excitation. Further studies indicate that excitation of isooctane/isopropanol mixture is also possible via collisional energy transfer between the laser excited isopropanol and isooctane.