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Characteristics of a Propagating Shock Wave in Gas Discharges
AARON LOCASCIO, NIRMOL PODDER, Troy University, Troy, AL, LANE ROQUEMORE, Princeton Plasma Physics Lab — Acoustic shock waves are launched in both neutral and ionized gases and their properties are measured with pressure sensors, laser beams, and a high-speed camera. The pressure sensors yield information on the total gas pressure, the deflection of the laser beams gives an indication of the gas density, and the high-speed camera captures the dynamics of the propagating shock wave. Shock wave propagation velocities (∼ Mach 2) are determined from all three methods and compared well with one another. The emission characteristic and structure of the shock-front are obtained from the laser beam deflection signals and the camera images.

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Nirmol Podder
Troy University, Troy, AL

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