

(B. MILLER presiding)

Shock Waves II

5D4 High β , Collision-Free Shock Experiments. W. W. DESTLER, and D. L. MORSE, Laboratory of Plasma Studies, Cornell University.--A plasma wind tunnel is used to generate shock waves at rest in the laboratory frame of reference. The upstream pressure ratio β is in the range 1 to 3. The upstream and downstream plasma density and magnetic field have been shown previously to satisfy the shock conservation relations¹. Measurement of the neutral content of the upstream plasma indicates that neutrals are not a factor in determining the shock properties. An electrostatic ion energy analyzer is used to investigate the ion energy distribution in the free stream and shocked plasma. Multiple magnetic probes are used to investigate the time and space-resolved structure of the magnetic field within the shock region. The results of these investigations are compared with those of related experiments.

1. D. L. Morse and W. W. Destler, Plasma Physics (to be published)