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Interaction between the Flow and the Shock Structure in a Supersonic Jet<sup>1</sup> CATALINA STERN, CESAR AGUILAR, MANUEL ALVARADO, ALEJANDRO CARREÑO, FC-UNAM — A 534nm laser is used to study density fluctuations in the near field of a small supersonic jet through Rayleigh scattering. Besides the expected peaks due to acoustic and entropic fluctuations, a third low frequency fluctuation has been detected always close to the shocks along the centerline. In this work, this low frequency motion is studied in all points of the jet. At each point, the direction for which the amplitude of the peak is higher is considered the direction of propagation of the fluctuation. With our method, the local speed of the flow and of the fluctuation can be determined. Results are compared to the shock pattern visualized also through Rayleigh scattering. We obtain not only the acoustic radiation pattern inside the flow but also some insight on the flow-shock interaction.

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