Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

Calibration of a Background Oriented Schlieren (BOS) Set-up[1]
DAVID PORTA, CARLOS ECHEVERRíA, HIROKI CARDOSO, ALEJANDRO AGUAYO, CATALINA STERN, UNAM — We use two materials with different known indexes of refraction to calibrate a Background Oriented Schlieren (BOS) experimental set-up, and to validate the Lorenz-Lorentz equation. BOS is used in our experiments to determine local changes of density in the shock pattern of an axisymmetric supersonic air jet. It is important to validate, in particular, the Gladstone Dale approximation (index of refraction close to one) in our experimental conditions and determine the uncertainty of our density measurements. In some cases, the index of refraction of the material is well known, but in others the density is measured and related to the displacement field.

[1]We acknowledge support from UNAM through DGAPA PAPIIT IN117712 and the Graduate Program in Mechanical Engineering

Catalina Stern
UNAM

Date submitted: 01 Aug 2014 Electronic form version 1.4