Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

**Experimental study of free convection in a slender cell using PIV**
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An experimental study of the steady free convection flow induced by a cylindrical heat source immersed in a slender cell for several values of Richardson and Raleigh numbers is undertaken using PIV in order to determine the corresponding velocity fields. The flow is set in motion under the action of a temperature differential (dT) that is induced between the heat source and the surrounding fluid. In the case in which such differential is positive (i.e. hot source) vertical ascending flow occurs, while in the case of a negative value of dT vertical descending flow takes place. Stream or close path trajectories occur, depending on the value of Ri and Ra numbers. Velocity fields and streamlines are presented for several values of Ri and Ra. Said results are compared with numerical models.

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Date submitted: 01 Aug 2014 Electronic form version 1.4