

Abstract for an Invited Paper  
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**Comparative study of the hot and cold thermal boundary layers in turbulent Rayleigh-Benard convection<sup>1</sup>**

ANDRE THESS, Ilmenau University of Technology

We report a comprehensive series of measurements of the mean temperature profiles in turbulent Rayleigh-Benard convection of air in a cylindrical cell with aspect ratio one and Rayleigh numbers in the range  $10^{11}$  to  $10^{12}$ . The measurements differ from those reported in the paper du Puits et al [J. Fluid Mech., vol. 572 (2007), pp. 231-254] in that the profiles are taken simultaneously at the heating and the cooling plates and that we can directly measure the local heat flux at the heating plate. In the present communication we will discuss the results of these measurements and compare them to previous ones as well as to recent predictions about the asymptotic shape of the mean temperature profiles derived by Hoelling and Herwig [Int. J. Heat Mass Transf., vol. 49 (2006) pp. 1129-1136]. In collaboration with Christian Resagk and Ronald du Puits, Ilmenau University of Technology.

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