

Abstract Submitted
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Modulation of Rayleigh-Benard Convection by Lagrangian Thermal Forcing¹ LOKAHITH AGASTHYA, LUCA BIFERALE, University of Rome, "Tor Vergata", ANDREAS BARTEL, MATTHIAS EHRHARDT, Bergische Universität Wuppertal, FEDERICO TOSCHI, Eindhoven University of Technology — The Rayleigh-Benard (R-B) convection, consisting of a layer of fluid heated from the top and cooled from the bottom, has been widely investigated as an archetype of turbulent convection. ² The enhancement (diminution) of turbulence is known to strongly increase (decrease) the heat transfer in convection. ³ The use of a "nudging term" ⁴ is a technique to force a dynamic system towards a given state. In this study, we use a nudging term added to the thermal component of the R-B equations to simulate tracer particles suspended in a R-B system releasing heat in a Lagrangian manner.

Our first investigations indicate it is possible to vary the degree of turbulence and thus modulate the bulk heat transfer using such a Lagrangian thermal forcing approach.

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