Over the last two decades there has been a strong focus in the RBC community on understanding the scaling of the Nusselt number (Nu) with respect to Ra and Pr. As the years have progressed ever larger Ra have been reached in experimental and numerical studies with the goals of defining the scaling behavior and reaching the 'ultimate' state for turbulent convection that was first proposed by Kraichnan [8]. Many different scaling laws for characterizing the heat transfer scaling in RBC systems (Ahlers *et al.*, 2009), but the most seminal and enduring work over the last 20 years is the theory proposed by [3]. Grossmann and Lohse initial publication for a unifying theory to predict the scaling of the Reynolds number (Re) and Nusselt number (Nu) in turbulent RBC for any given Pr and Ra occurred in 2000 and has been improved by several additional publications [4, 5, 6, 7, 11]. This theory relies on three main assumptions for the flow field: statistical stationarity, a single dominant velocity scale represented by a mean wind, and characteristic boundary layer thicknesses for respective kinematic and thermal fields.

The majority of numerical and experimental studies have been performed in unit Γ boxes and cylinders. The 'wind of turbulence' concept is often used to describe the flow structure in these small Γ domains. The 'wind of turbulence' is characterized by a single roll-cell, or large-scale circulation (LSC), which spans the height and width of the cell, see figure **??**. This roll-cell creates boundary layers along the side walls and thermally active top and bottom plates which are well described by the Prandtl-Blasius profiles according to [3]. While the theory has proven remarkably robust in predicting the scaling of Nu, the underlying assumptions are not guaranteed to hold at larger Γ where the large-scale structure of the flow departs from the concept of a single LSC.

For example, [2] clearly showed that the 'wind of turbulence' breaks down as Γ increases by performing experiments in air over a wide range of $\Gamma = 1 - 11$ and $Ra = 10^8 - 10^1 1$. This has been further corroborated by numerical studies of [1] ($Ra = 10^7 - 10^9$ and $\Gamma = 0.5 - 11.0$) and [9] ($Ra = 10^8$ and $\Gamma = 6.3$) that reveal complex multi-dimensional patterns for roll-cells in moderate Γ containers with sidewalls. In a recent conference [10] presented a numerical study that outlined the spatial extent needed to support true horizontal homogeneity in a periodic domain at $Ra = 10^8$ and $Pr = 1$. [10] found that $\Gamma = 32$ is required to support the full structure of the flow field, and that measured Nu departs from the Grossmann-Lohse theory until $\Gamma > 4$. These variations from the standard picture of $\Gamma = 1$ RBC show that the physics of thermal convection is not fully described by the unit Γ case, and that there is a clear value in returning to largeΓ studies that were prevalent several decades ago.

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