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Properties of the Boundary Zonal Flow (BZF) in rapidly rotating turbulent convection[1] XUAN ZHANG, LUKAS ZWIRNER, Max Planck Institute for Dynamics and Self-Organization, SUSANNE HORN, Coventry University, DENNIS VAN GILS, University of Twente, MARCEL WEDI, Max Planck Institute for Dynamics and Self-Organization, GUENTER AHLERS, University of California, Santa Barbara, STEPHAN WEISS, EBERHARD BODENSCHATZ, Max Planck Institute for Dynamics and Self-Organization, ROBERT ECKE, Los Alamos National Laboratory, OLGA SHISHKINA, Max Planck Institute for Dynamics and Self-Organization, INTERNATIONAL COLLABORATION FOR TURBULENCE RESEARCH (ICTR) COLLABORATION — Properties of the boundary zonal flow (BZF) in rapidly rotating Rayleigh-Benard convection are investigated numerically. Based on direct numerical simulations (DNS) using the finite-volume code GOLDFISH, we analyze in detail the BZF and, in particular, the traveling-mode structures and their dependencies on Ekman number. We also investigate the role of the BZF in the global heat transport in the system as well as the influence of the Prandtl number and the aspect ratio of the cylindrical convection cell on the BZF properties.

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Xuan Zhang
Max Planck Institute for Dynamics and Self-Organization

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