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Forced Turbulence in Relativistic Conformal Fluids JOHN RYAN WESTERNACHER-SCHNEIDER, University of Guelph, STEPHEN GREEN, LUIS LEHNER, Perimeter Institute for Theoretical Physics, KIPP CANON, Canadian Institute for Theoretical Astrophysics, YARON OZ, Tel Aviv University — Given the renewed interest arising both from AdS/CFT and astrophysics, we revisit the phenomenon of relativistic turbulence. We build on some recent work which extends known non-relativistic results in turbulence to the case of relativistic (and thus compressible) fluids. In particular, we derive the scaling behaviour of two-point correlation functions in 2+1 dimensions—holographically dual to 3+1 dimensional gravity. Turbulence in 2+1 dimensions also approximates several astrophysical situations, such as thin accretion disks around black holes. We perform numerical simulations of forced steady-state turbulence to verify our derived correlation functions.

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