Abstract Submitted
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Convective penetration in stars[1] JANE PRATT, ISABELLE BARAFFE, TOM GOFFREY, TOM CONSTANTINO, University of Exeter, M.V. POPOV, ROLF WALDER, DORIS FOLINI, ENS Lyon, TOFU COLLABORATION — To interpret the high-quality data produced from recent space-missions it is necessary to study convection under realistic stellar conditions. We describe the multi-dimensional, time implicit, fully compressible, hydrodynamic, implicit large eddy simulation code MUSIC, currently being developed at the University of Exeter. We use MUSIC to study convection during an early stage in the evolution of our sun where the convection zone covers approximately half of the solar radius. This model of the young sun possesses a realistic stratification in density, temperature, and luminosity. We approach convection in a stellar context using extreme value theory and derive a new model for convective penetration, targeted for one-dimensional stellar evolution calculations.

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