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**Core Convection, A Possible Driving Mechanism for Gamma Doradus-Delta Scuti Pulsations** TAYLOR MORGAN, JOYCE GUZIK, NICHOLAS NELSON, Coauthor — Delta Scuti stars lie on the instability strip of the Hertzsprung-Russell diagram where stars undergo self-excited oscillations, pulsating in radial and non-radial acoustic modes with periods of one to several hours. Gamma Doradus stars are nonradial gravity-mode pulsators that lie just at the red edge of the delta Scuti instability strip. They pulsate with periods in the range of 0.3 to 3.0 days. It was originally thought that convective blocking at the bottom of the envelope convection zone was the sole mechanism for driving g-modes. However, recent Kepler data shows that stars that are either too hot or too cold for this mechanism to work also exhibit these pulsations. We propose that core convection within gamma Doradus - delta Scuti type stars contributes to driving gravity-mode pulsations. We show results for a 1.62 solar mass model developed to investigate a Kepler gamma Doradus - delta Scuti hybrid, and simulate its core convection using the 3D hydrodynamics code ASH (Anelastic Spherical Harmonic). In order to generate the initial conditions for ASH, we evolve a model using a 1D Lagrangian code MESA (Modules for Experiments in Stellar Astrophysics).

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