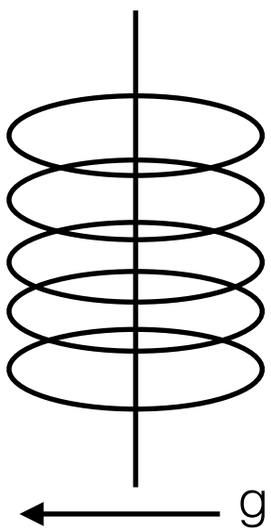
Jacqueline Goldstein (UW Madison)
with Ellen Zweibel and Richard Townsend

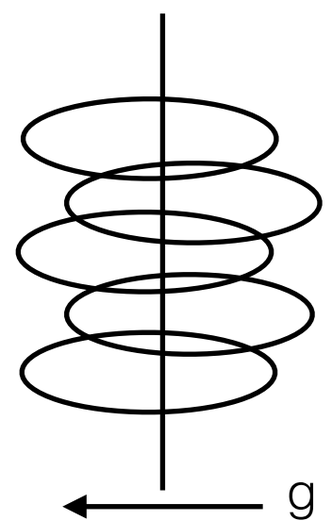
Instability Driven Angular Momentum Transport in Stars



Tayler Instability

Tayler 1973

$$0 = \frac{d}{dr}\left(P + \frac{B_\theta^2}{8\pi}\right) + \frac{B_\theta^2}{4\pi r} - \rho g$$



Tayler Instability Criterion

$$\delta W(P, \rho, B^2, g, \gamma) < 0$$

Anelastic Tayler Instability Criterion

$$\nabla \cdot (\rho_0 \vec{u}) = 0$$

$$\delta W(P, \rho, B^2, g, \gamma) + \delta W_{\rm a}(P, \rho, g, \gamma) < 0$$

GYRE (Oscillation Code)

Townsend & Teitler 2013