Excitation of acoustic waves in rotating stars

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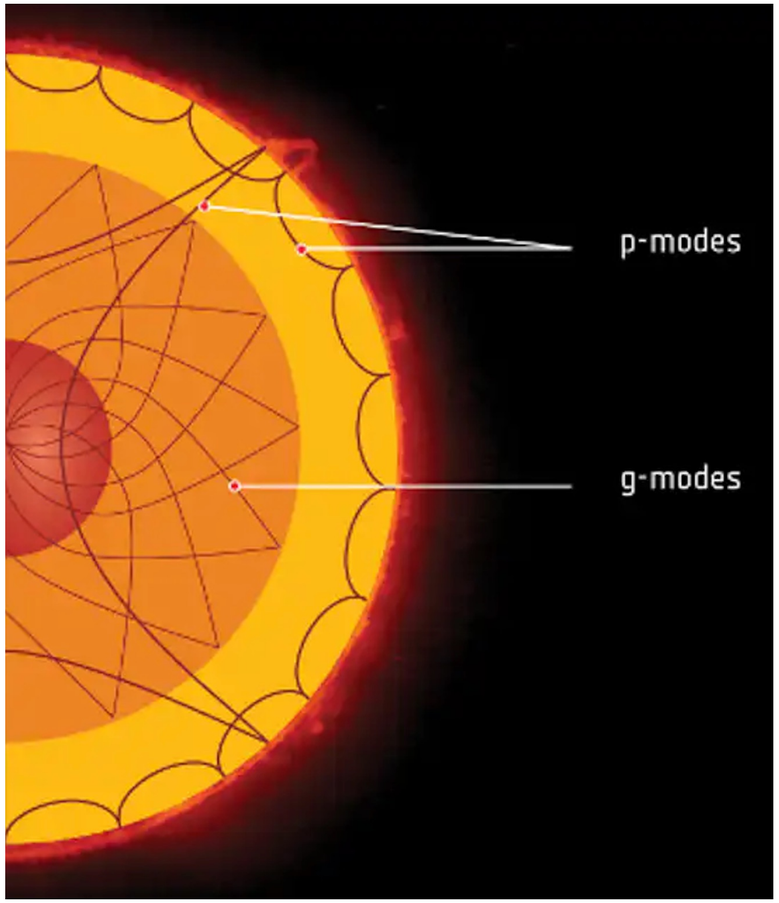
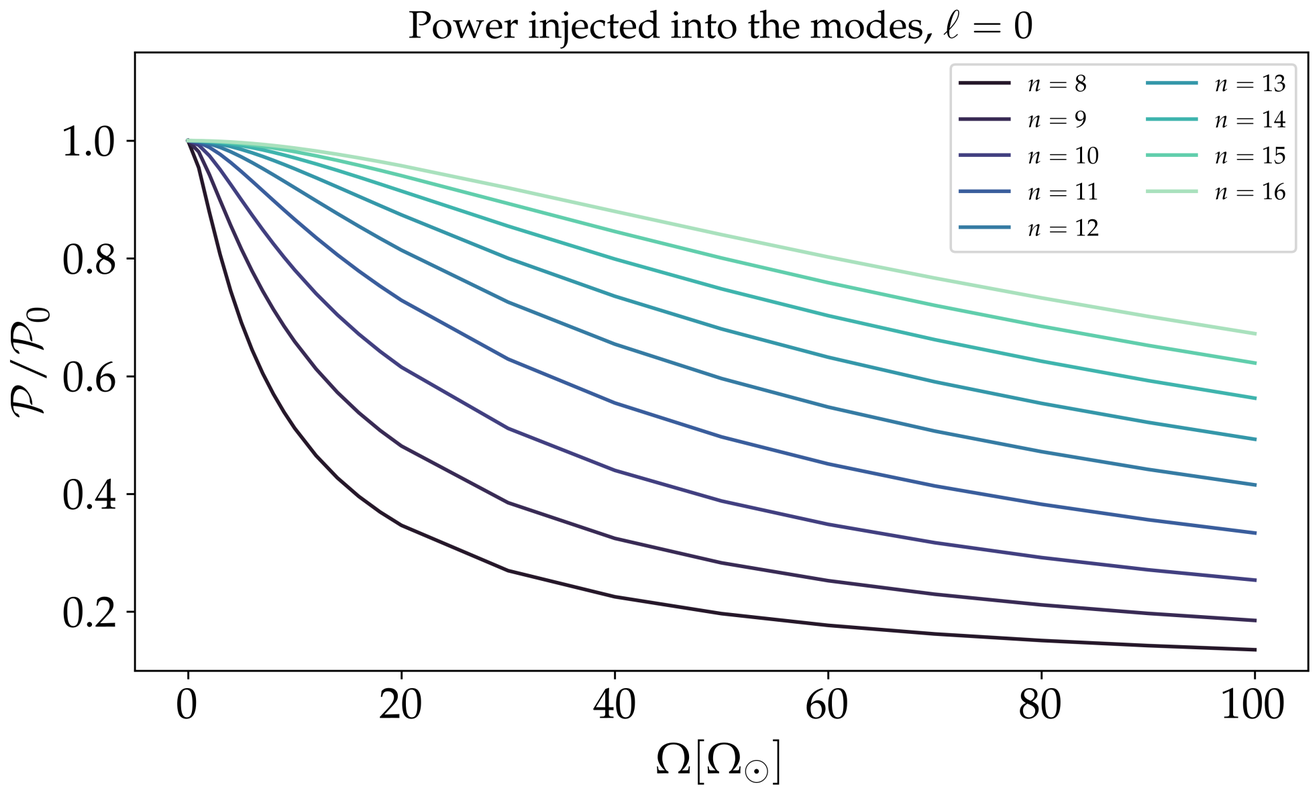


- Acoustic waves in stars are paramount in asteroseismology :
  mass, radius, internal rotation profile or internal magnetic field of stars

- In the outer convective zone, the waves are excited by turbulent convection

- Problem : acoustic modes are detected in only 40% of the stars !
  We do not detect them in rapidly rotating and magnetised stars
  ➡ Maybe they are not excited enough ?



$$\left\langle |A|^2 \right\rangle = \frac{1}{8\eta\,(\sigma I)^2} \int d^3x_0 \int_{-\infty}^{+\infty} d^3r d\tau e^{-i\omega_0\tau} \left\langle (\boldsymbol{\xi}\cdot\boldsymbol{\mathcal{S}})_1 (\boldsymbol{\xi}\cdot\boldsymbol{\mathcal{S}})_2 \right\rangle .$$

- Semi-analytical study 1D with stellar modelling (MESA/GYRE softwares)
- Rotation inhibits the stochastic excitation
- Low-frequency modes (low n) are more affected by rotation.