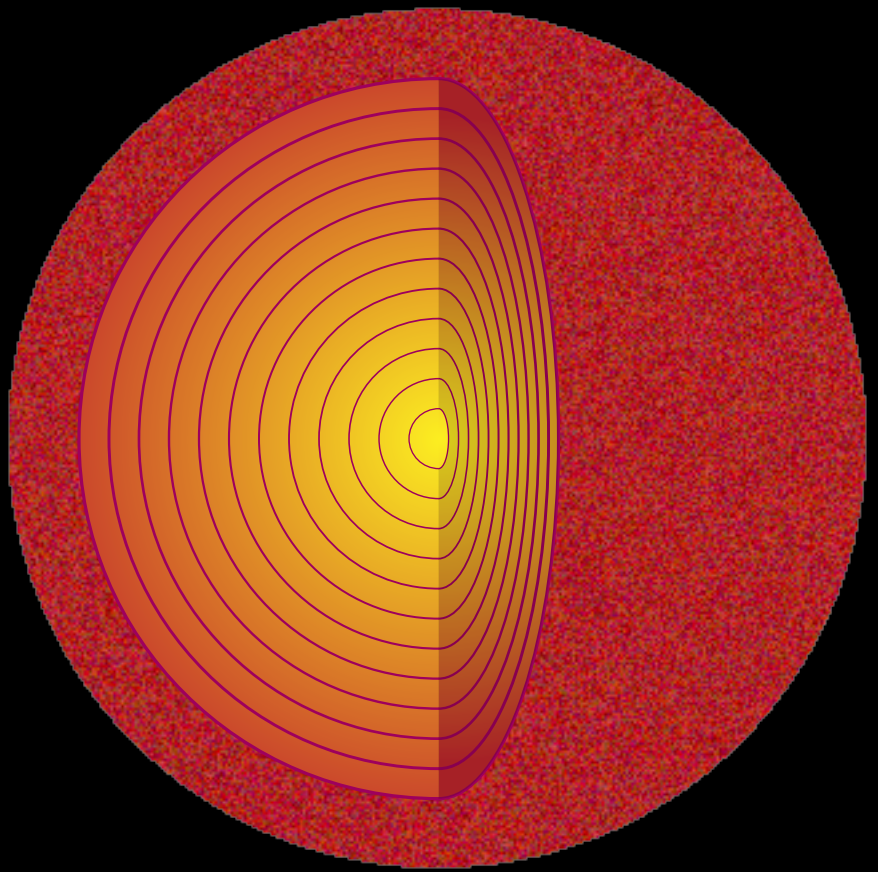
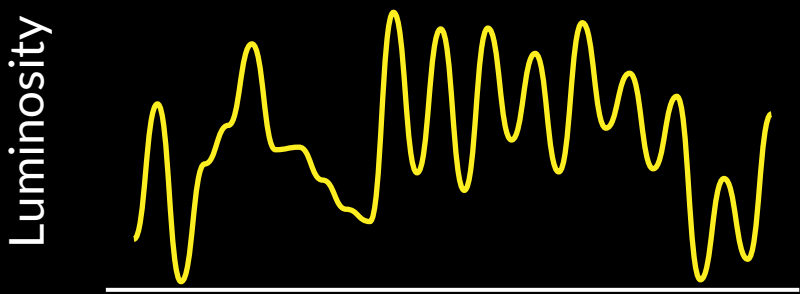
In the same way as a sound wave resonates inside an organ pipe to create a musical tone, sound waves can resonate inside a star. By measuring the frequencies of these waves, we learn about the star's internal structure.

Vibrations are generated by ionization and turbulence near the star's surface.



The vibrations penetrate into the interior, setting up resonant pulsations at frequencies depending on density, temperature, luminosity, and abundance profiles.

We see these oscillations as subtle, rythmic changes in the star's luminosity.



Resonant frequencies can vary from one every few minutes in Sun-like stars to one every few hundred days in red giants.