

Massive star evolution put to the test with *Kepler*/TESS

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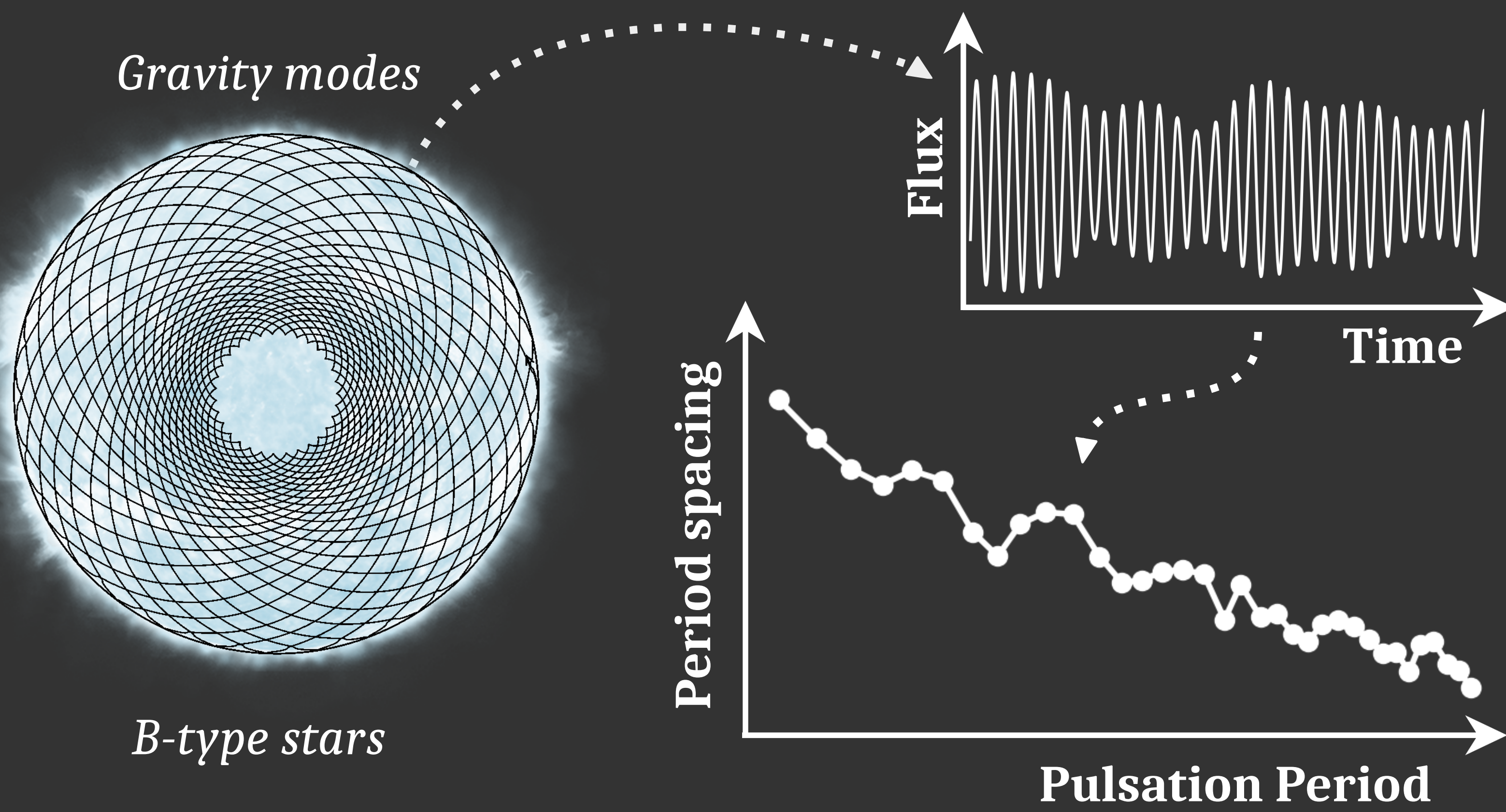
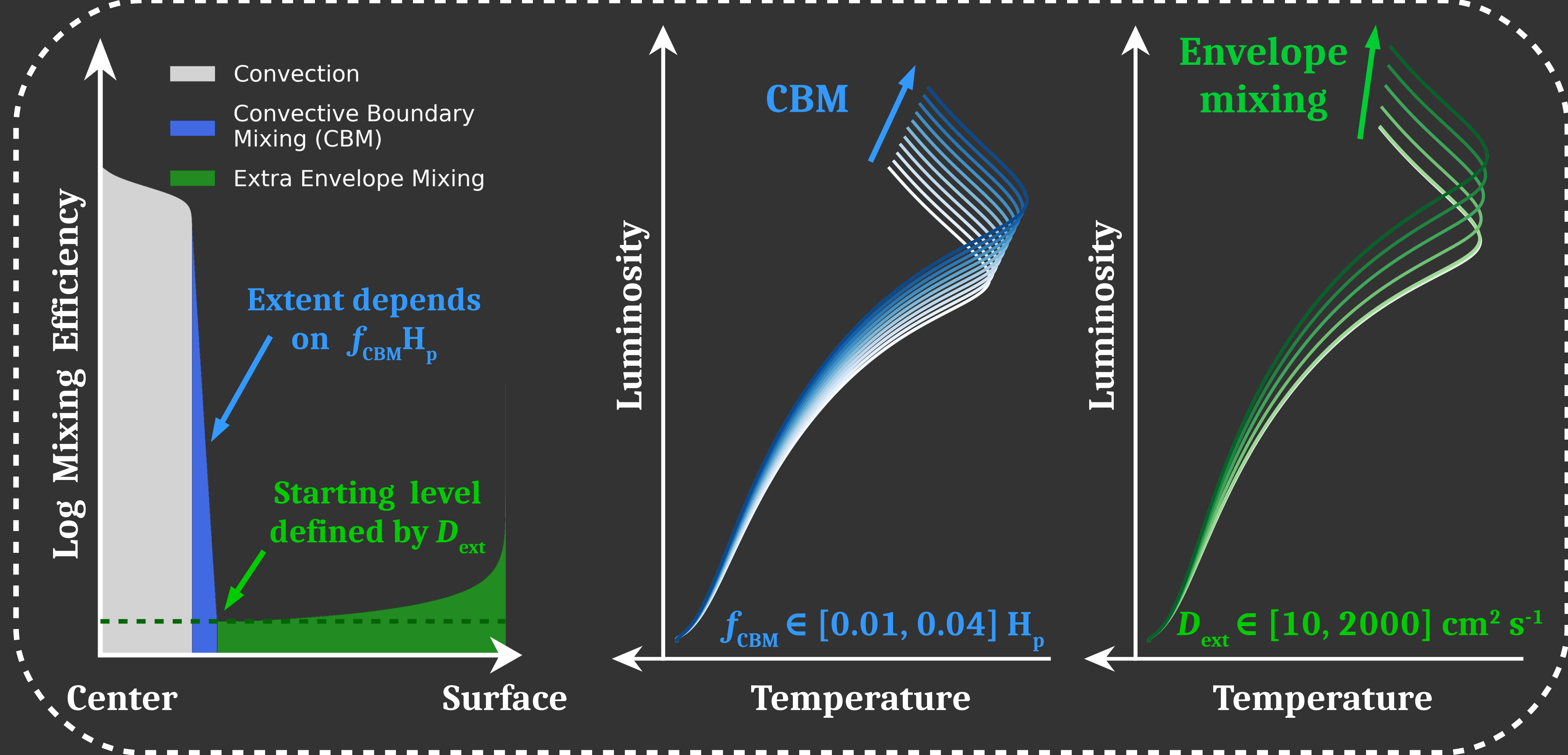
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Internal mixing has a high impact on stellar evolution, but remains a poorly calibrated quantity for massive stars in particular.

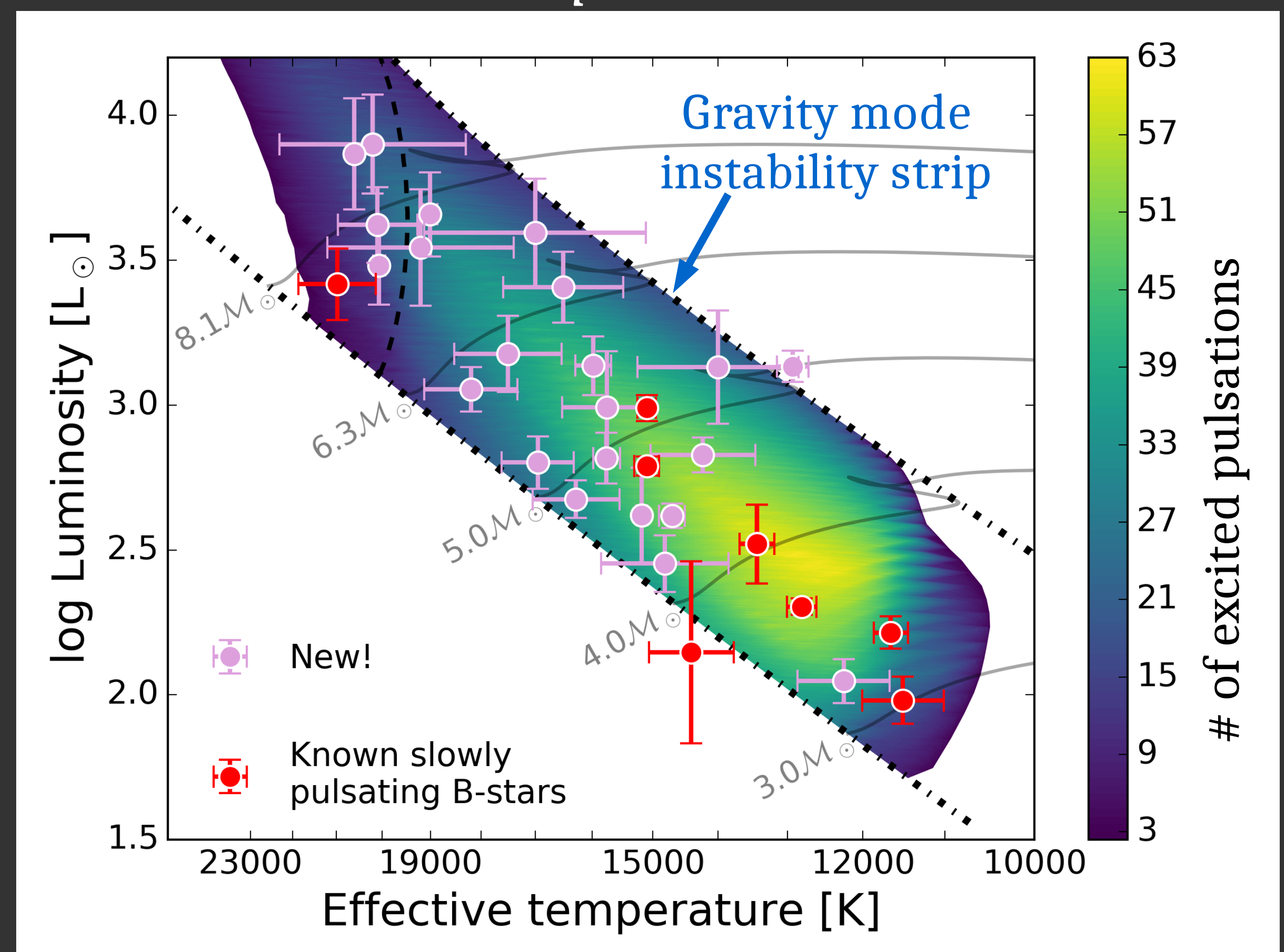
Asteroseismology allows us to probe the stellar interiors, and determine the efficiency of the internal mixing from the core to the surface of the star.

However, the number of O- and B-type stars suitable for asteroseismic modeling has been limited!

Effect of mixing on the main-sequence evolution of stars with convective cores



Based on *Kepler* observations



Revisiting the *Kepler* field has led to a four-fold increase in the number of B-type stars suitable for asteroseismic modeling

Take away

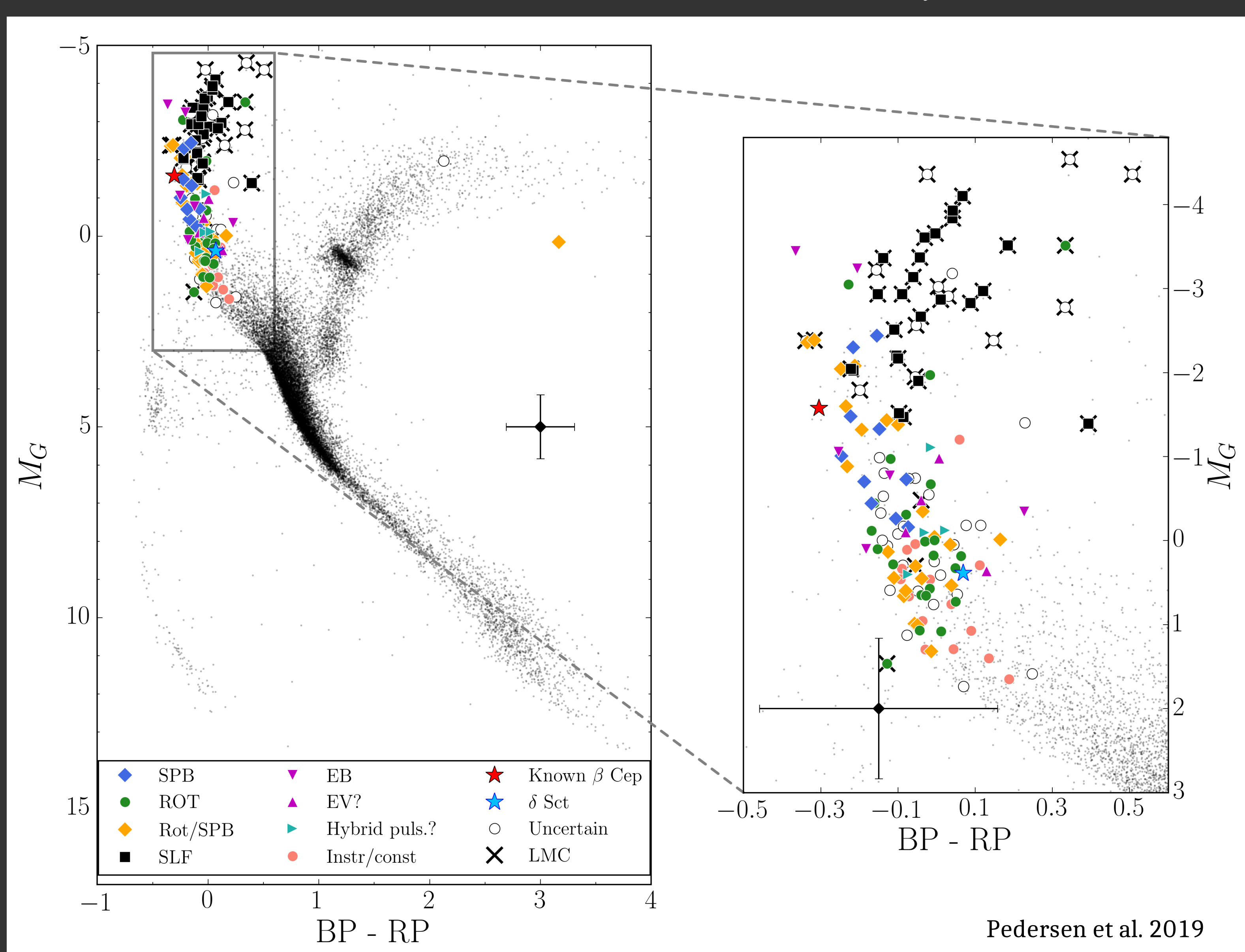
We found 4x more B-type pulsators in the *Kepler* data suitable for asteroseismic modeling compared to previous findings (summary in Szewczuk et al. 2018)

Due to the choice of field-of-view, no stars more massive than $\sim 8.5 M_{\odot}$ revealed suitable pulsation modes from the nominal *Kepler* mission, while K2's time span is too short.

The TESS continuous viewing zone is therefore crucial for the calibration of stellar structure and evolution models of the most massive stars in the Universe.

But how about more massive stars that will become supernova?

TESS to the rescue!



Stellar variability detected in 90% of all OB-type stars observed in 2-min cadence by TESS in sectors 1 and 2, covering masses up to $\sim 45 M_{\odot}$

