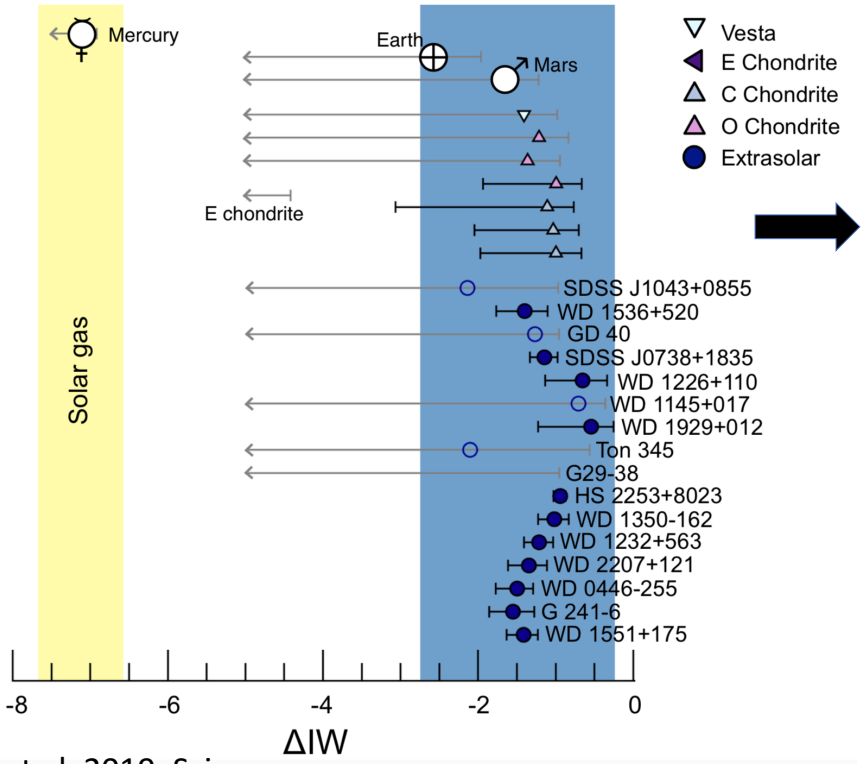
Probing Core-Compositions using WDs:
Calculated oxygen fugacities for rocky extrasolar bodies



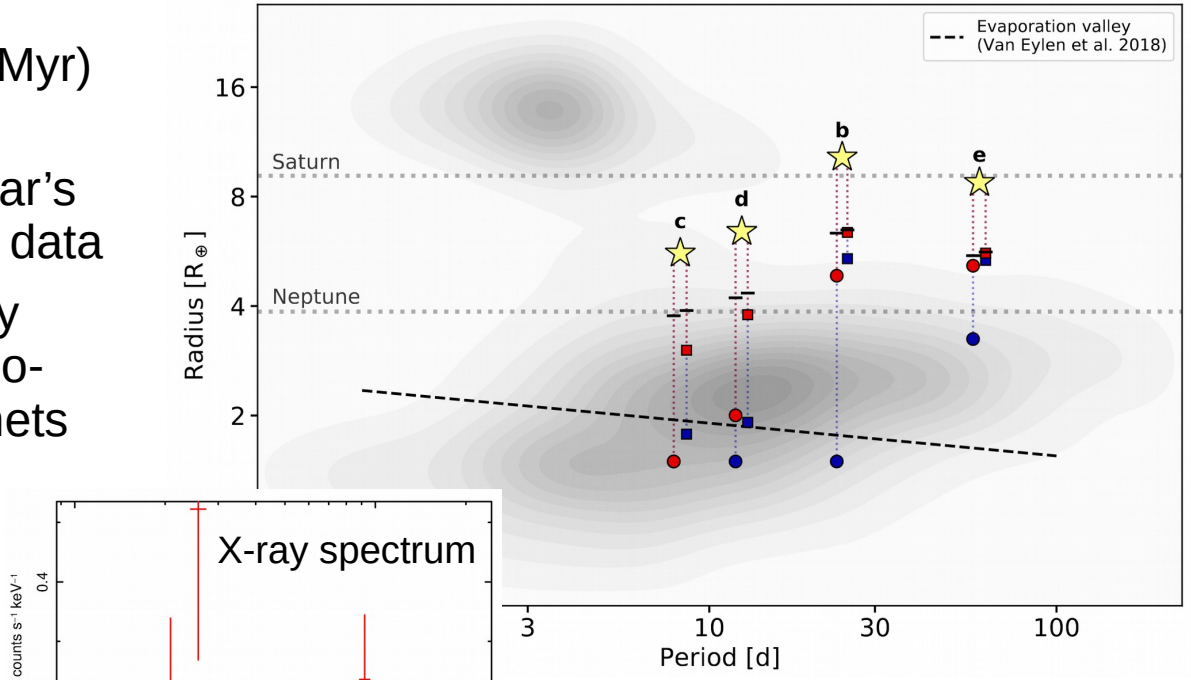
Doyle et al. 2019, Science

At least some rocky exoplanets are likely to be geophysically and geochemically similar to Earth

Processes that led to oxidation of rocks in the solar system appear to be typical of other planetary systems

X-ray driven evaporation of the four young planets around V1298 Tau

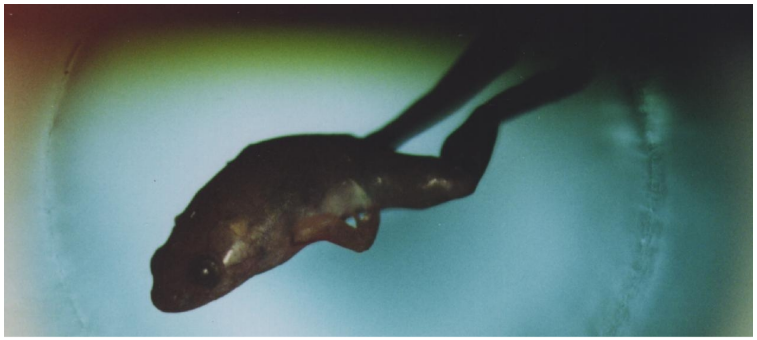
- V1298 Tau is a young sun (25 Myr) and has 4 transiting planets
- We have measured the host star's X-ray luminosity from Chandra data
- We extrapolate the stellar X-ray evolution and estimate the atmospheric evaporation of the planets under fast and slow stellar spin-down
- Fast vs. slow spin-down can make the difference between radius gap crossing or not!



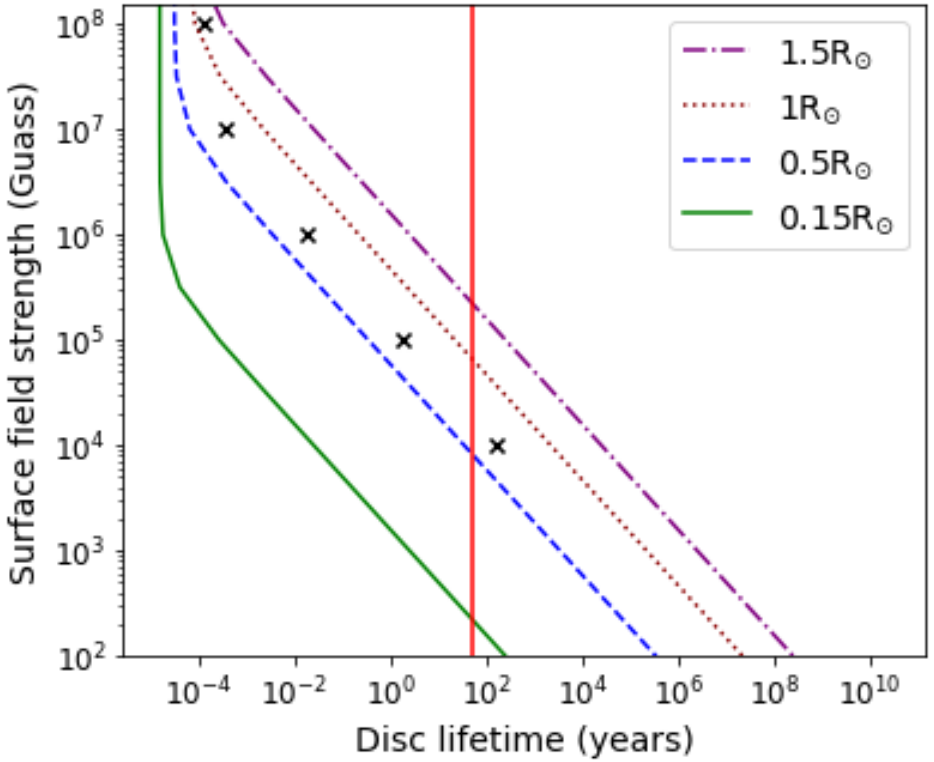
Poppenhaeger et al. (2020)

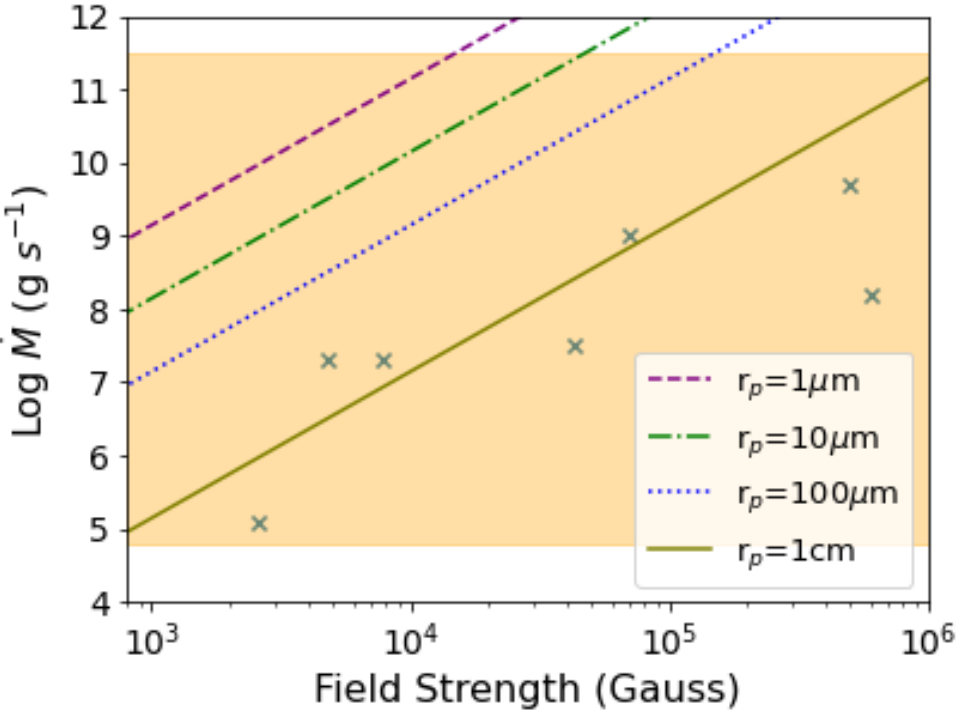
Levitating Frogs and Debris Discs

Ry Cutter (University of Warwick)



$$F = \frac{V}{R}\frac{B(r)^2}{8\pi}$$





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Convective overshoot and macroscopic diffusion in pure-hydrogen-atmosphere white dwarfs

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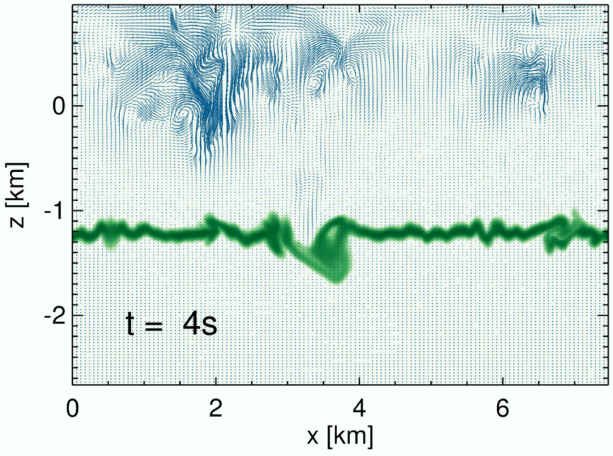
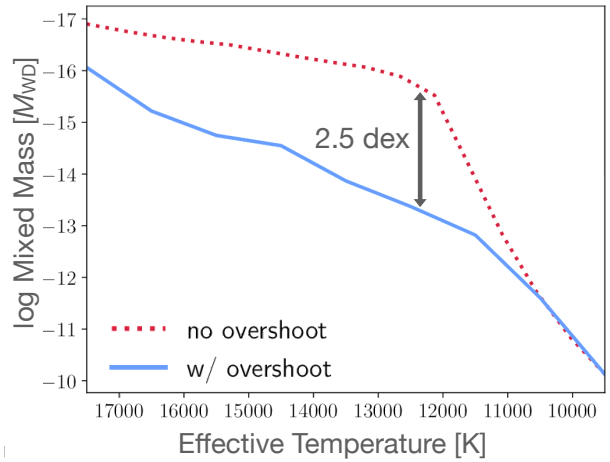
Hans-Günter Ludwig[3] and Detlev Koester[4]

Passive scalars (green) probe mixing due to **convective overshoot**



Mixed mass increases by up to 2.5 dex



Accretion rates increase by factor 5