¿A qué llamamos Golden Sample?

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Gaia data release 3: A Golden Sample of Astrophysical Parameters

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"In this work we demonstrate the potential of the new data products in Gaia DR3 by producing **very high quality samples of astrophysical parameters of stars all across the HR diagram**. We aim to make clean samples of stars based **on severe quality cuts**."

Each Section has a **Scientific motivation,** a **Sample selection** and a **Validation** subsection.

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We first focus on three samples that span a large parameter space:
1) [Section 3] young massive disk stars (OBA, ~3M),
2) [Section 4] FGKM spectral type stars (~3M),
3) and [Section 5] ultra-cool dwarfs (UCDs, ~20K).

We furthermore identify
4) [Section 6] 15 740 bone fide carbon stars,
5) [Section 7] 5 863 solar-analogues, and
6) [Section 8] provide the first homogenous set of stellar parameters of the SPSS sample.

Sects. 3 - 8 are entirely independent sections and a reader can choose to focus only on their section of choice without missing important information for the rest of the paper.

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Examples of use cases for the golden sample

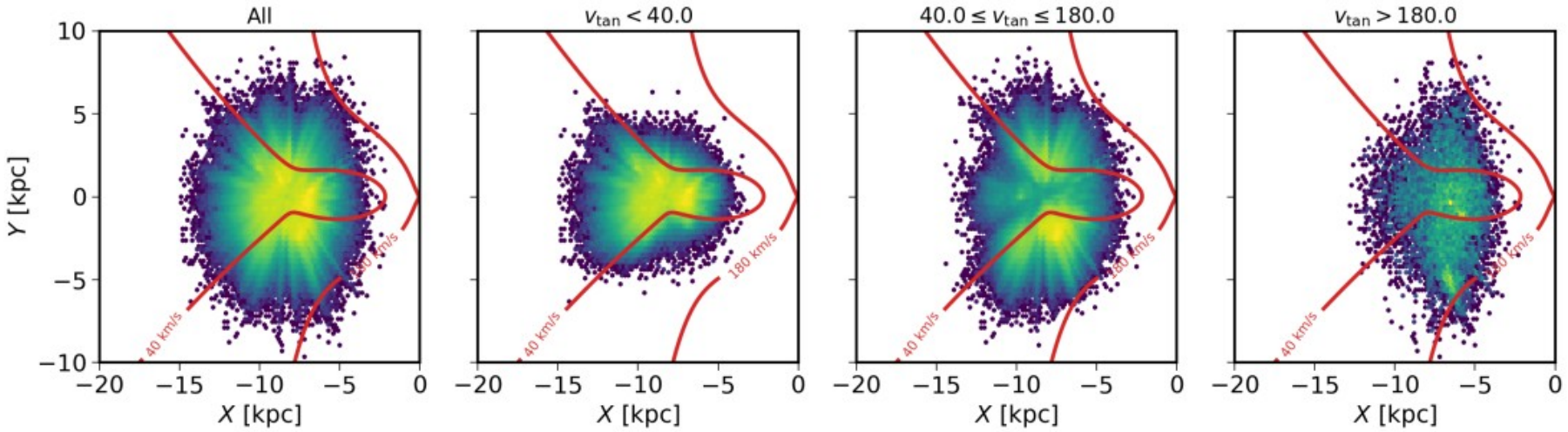
We use a subset of the OBA sample to illustrate its usefulness to **analyse the Milky Way rotation curve.**

We then use the properties of the **FGKM stars** to analyse known **exoplanetary systems.**

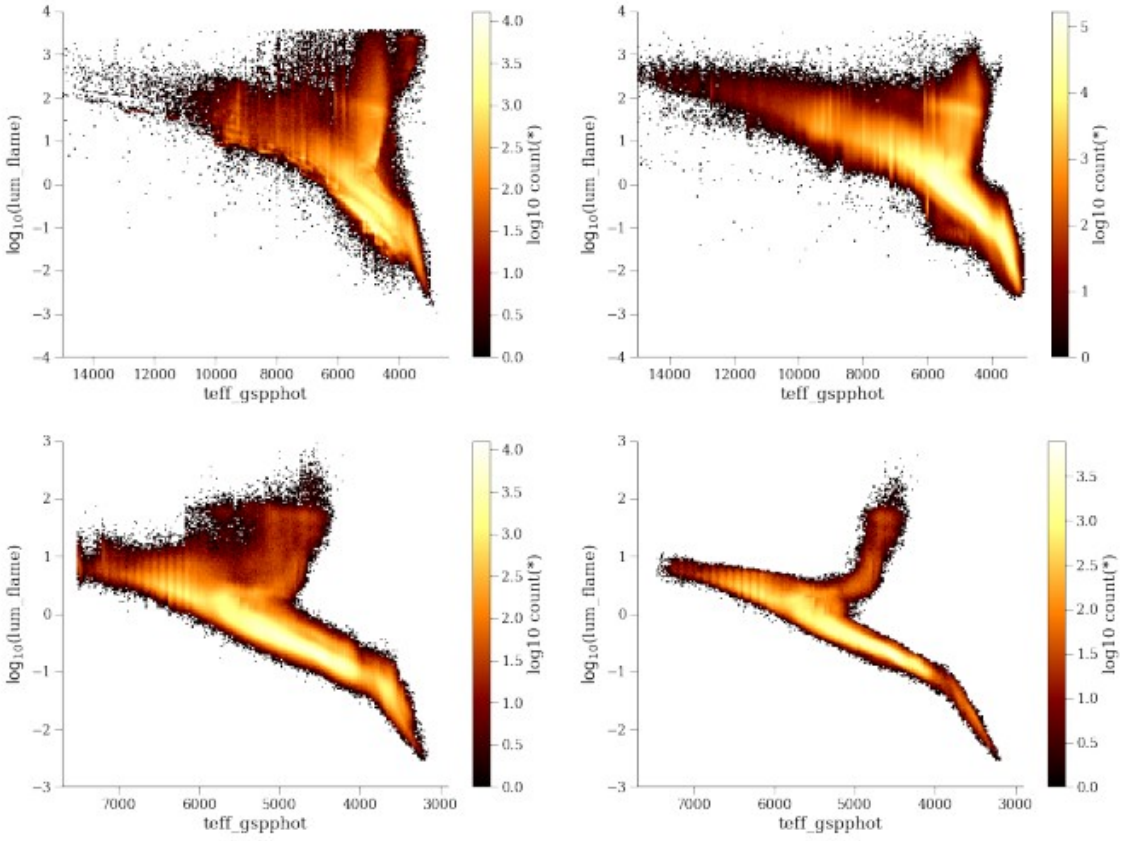
We also analyse the ages of some **unseen UCD-companions** to the **FGKM stars.**

We additionally predict the colours of the Sun in various passbands (Gaia, 2MASS, WISE) using the solar-analogue sample.

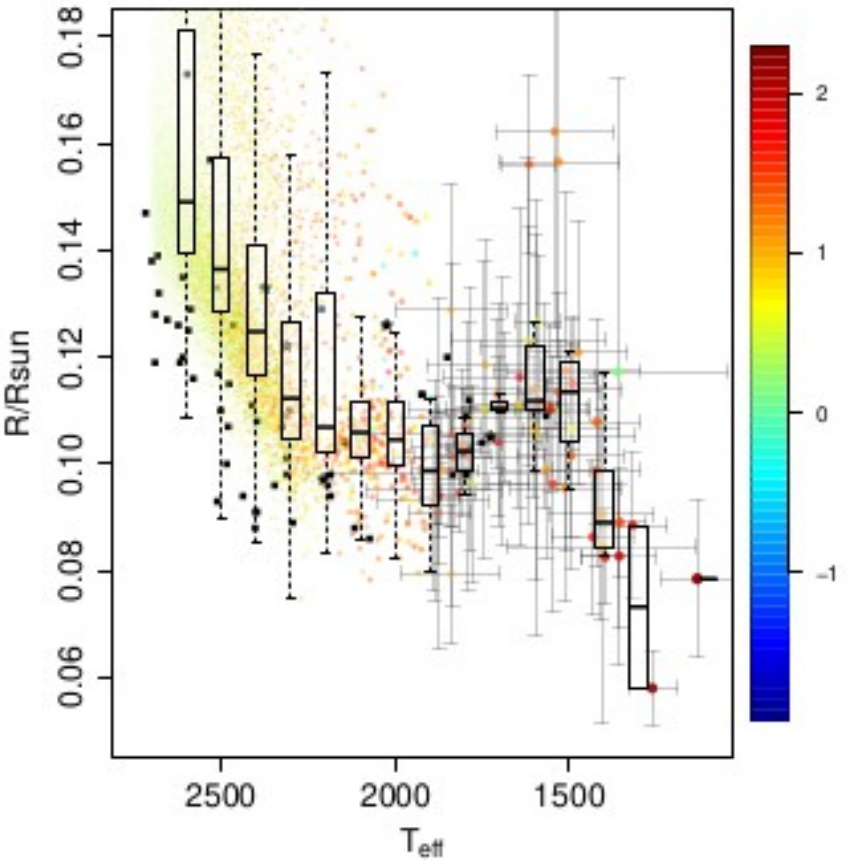
Young massive disk stars

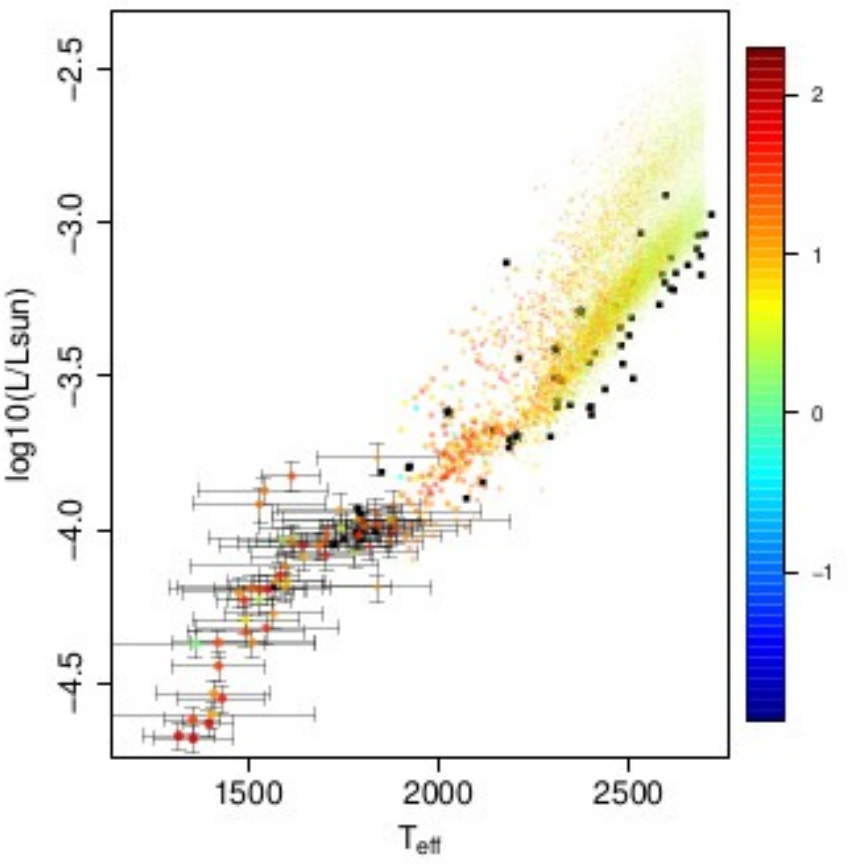


FGKM sample (GSP-PHOT & GSP-SPEC)

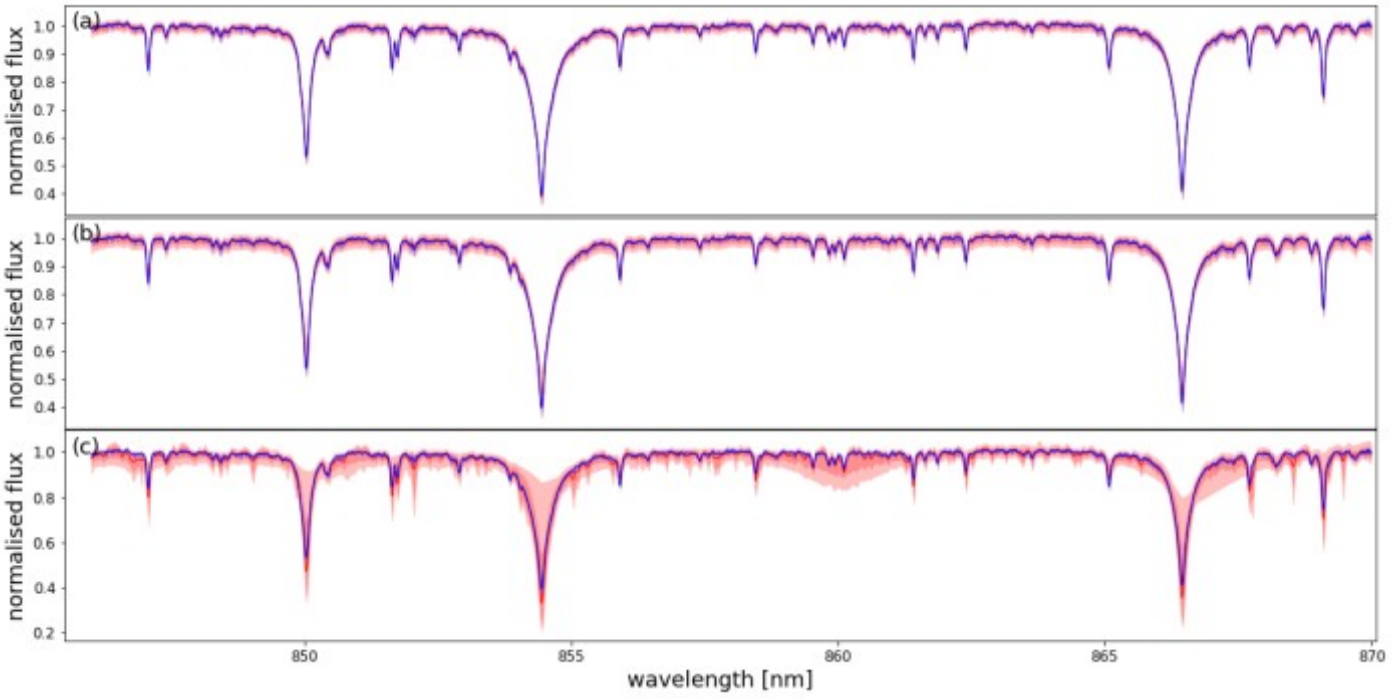


UltraCool Dwarfs, radii and luminosities

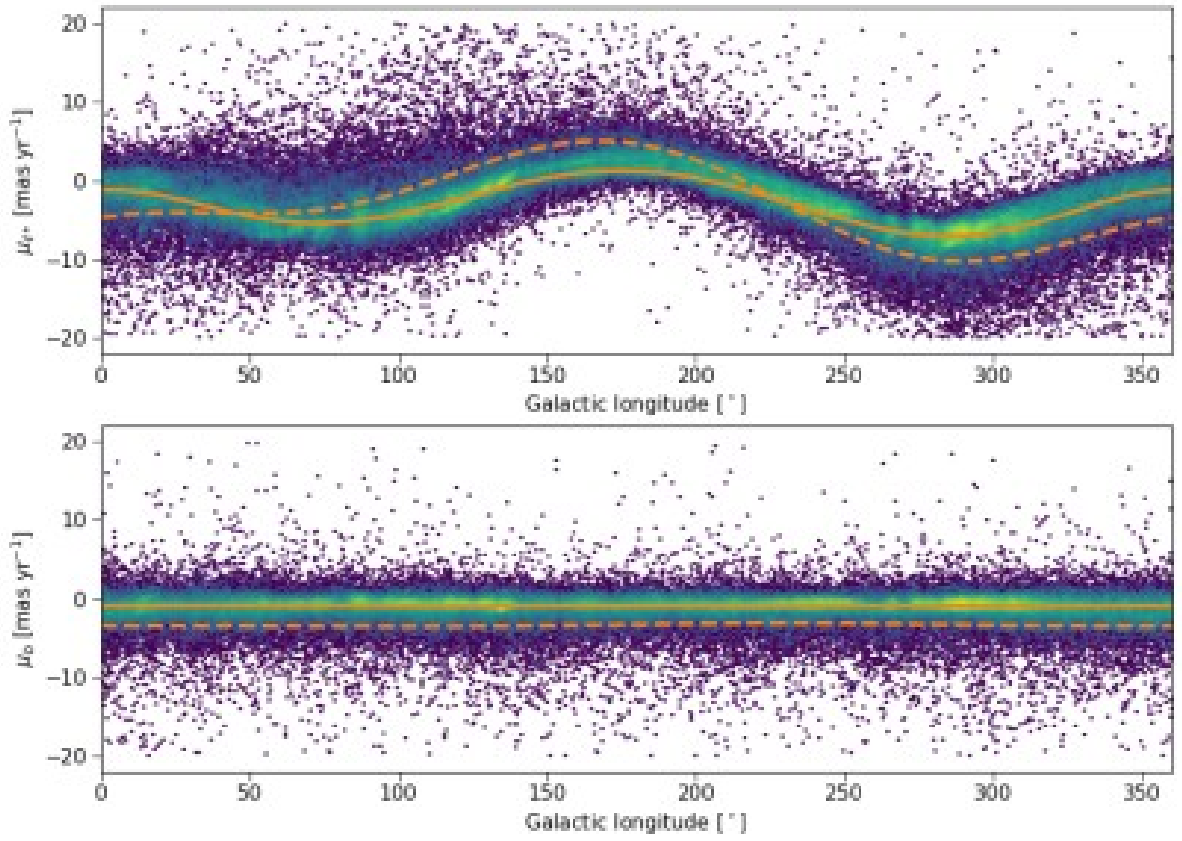




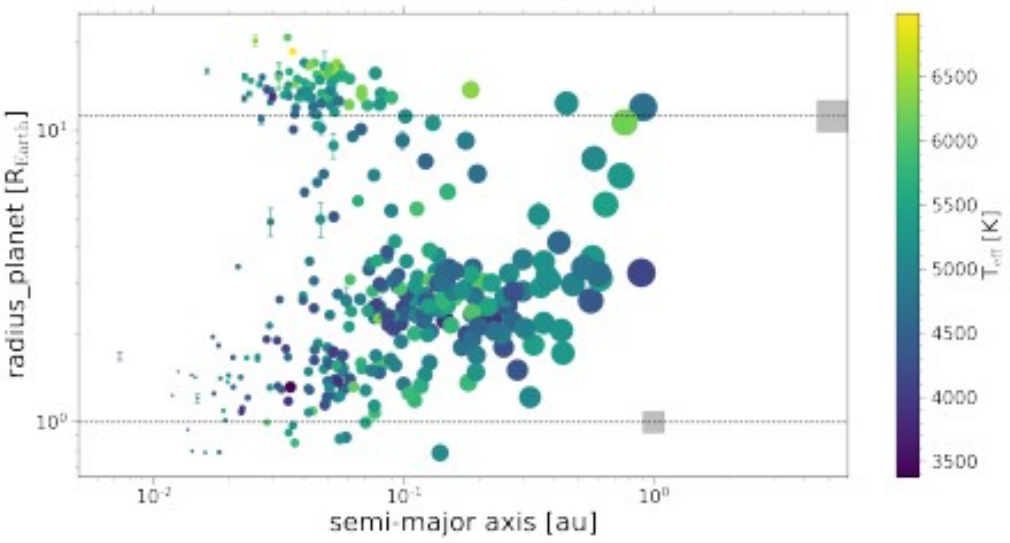
Solar Twins

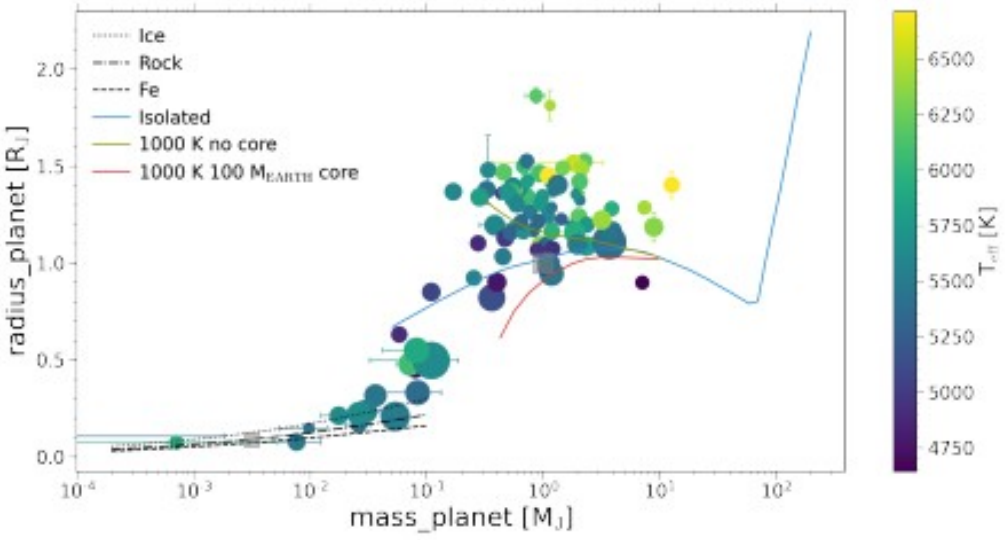


The Milky Way rotation curve



Exoplanets in Gaia





Unseen UCD companions to FGKM stars