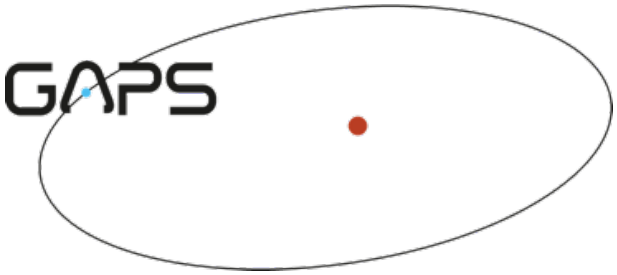

Contribution ID: **3** Type: **not specified**

Understanding the XUV-induced Atmospheric Erosion of Young Planets and their Evolution With Time

Tuesday, 5 May 2020 14:50 (15 minutes)

In the talk we will discuss the effects of X-ray and ultraviolet radiation on atmospheric erosion around young stars. Specifically, we focus on the bimodal distribution of exoplanet radii (i.e. "The Fulton Gap"; Fulton et al. 2017). In Modirrousta-Galian et al. (2020,b) this distribution is theoretically analysed in order to make several predictions that can be astronomically tested. For instance, a transition region from 1.75–$2.00 R_\oplus$ full of planets with and without hydrogen atmospheres is expected. Within this region a small peak in mega-Earths (telluric planets with masses greater than $10 M_\oplus$) is also probable. These are the remnant cores of bodies which originally had much larger atmospheres but then lost them. Furthermore, whilst it cannot be currently verified, a potential mass distribution in exoplanets is shown. Finally, the dependence of the initial and present radius distributions on system parameters (i.e. equilibrium temperature, stellar temperature, and orbital distance) will be discussed.

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Session Classification: Modelling and interpretation