



## **TArget PrioritizATIon routineS for CHEOPS observations: A grid of planet upper atmosphere models**

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Most of the recent detailed exoplanet studies are focused on the so-called hot Jupiters, since the smaller planets remain to be difficult to observe. At the same time, low-mass planets in the habitable zone of bright stars appear to be more interesting in terms of habitability studies and the quest of an Earth twin. In the last years, the Kepler mission has revealed hundreds of such intermediate mass (between Earth and Neptune) planets, and the upcoming CHEOPS mission accounts them as primary targets. The large number of planets so far discovered and the time-constrained nature of CHEOPS observations indicates the need of a prioritization scheme, possibly based on the inference of the unknown planet fundamental parameters, such as the planetary radius for planets discovered with the radial velocity method. To this end, we elaborated a grid of hydrodynamic planet upper atmosphere models for planets within this range of parameters: stellar mass ( $0.4 - 1.3 M_{sun}$ ), equilibrium (surface) planet temperature ( $300 - 2000$  K), EUV flux (up to  $10^5 \text{ erg} \cdot \text{cm}^{-2} \text{ s}^{-1}$ ), planet radius ( $1 - 10$  Earth radii) and mass ( $1 - 40$  Earth masses). Interpolation over the grid provides a fast estimation of the upper atmosphere parameters for any possible target planet inside the parameter space. We will then couple the grid with planet evolution models to greatly upgrade what currently available. The grid will be made available through a dedicated web site. We will present the grid, the first results obtained from its analysis, and future plans.