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## **ARIEL as a powerful machine for exomoon/Trojan detection and TTVs**

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The ARIEL instruments, AIRS and FGS, coupled with the nominal observational strategy, will provide us at zero cost with transit light curves at different integrated bands (VIS to IR) with a rather unique combination of ultra-high photometric precision and fast sampling cadence, which can be exploited for high-impact additional science. Among this, we illustrate the opportunity of searching for exomoons and Trojans around giant planets, and the confirmation and characterisation of multiple planetary systems through the Transit Time Variation and Transit Duration Variation (TTV/TDV) dynamical technique. For known systems already observed by other missions such as TESS, CHEOPS, and PLATO, ARIEL will be appropriate to extend the time baseline (a key factor in TTV analysis), allowing us to reach unprecedented precision and accuracy on the mass and orbital parameters of the planets.

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