

High-precision photometry with Ariel

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Abstract In this paper we describe the photometry instruments of Ariel, consisting of the VisPhot, FGS1 and FGS2 photometers in the visual and mid-IR wavelength. These photometers have their own cadence, which can be independent from each other and the cadence of the spectral instruments. Ariel will be capable to do high cadence and high precision photometry in independent bands. There is also a possibility for synthetic J , H , K , and wide-band thermal infrared photometry from spectroscopic data. Although the cadence of the synthetic bands will be identical to that of the spectrographs, the precision of synthetic photometry in the suggested synthetic bands will be at least as precise as the optical data. We present the accuracy of these instruments, and provide limb darkening coefficients for a complete grid of model stars. We also review selected fields of new science which will be opened up by the possibility of high cadence multiband space photometry.

Keywords

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