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Differential spectro-photometry, an ExTrA method to detect exoplanets

Since the ground-breaking discoveries of other planets outside our Solar System, over 1500 extra-solar planets have been detected and several thousands candidates are awaiting confirmation. Much interest is now focused on finding and characterizing terrestrial mass planets in the habitable zone of their host stars. The project ExTrA(Exoplanets in Transit and their Atmosphere) offers a method to improve the precision of both the detection and the characterization of exoplanets. The method makes use of a multi-object spectrograph to add spectroscopic resolution on traditional differential photometry in the infrared. This shall enable the fine correction of the atmospheric variations that would otherwise hinder ground-based observations and may place ExTrA survey as the most sensitive survey for Earth-size planets transiting bright nearby stars.