

The scientific promise of HIRES, a high resolution spectrograph for the ELT (Alessandro Marconi) (I)

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I will present the results from the phase A study of ELT-HIRES, an optical-infrared High Resolution Spectrograph for ELT, which has been completed in 2018 by a consortium of 30 institutes from 12 countries forming a team of about 200 scientists and engineers. The top science cases of ELT-HIRES will be the detection of life signatures from exoplanet atmospheres, tests on the stability of Nature's fundamental couplings, the direct detection of the cosmic acceleration. However, the science requirements of these science cases enable many other groundbreaking science cases. The baseline design, which allows to fulfil the top science cases, consists in a modular fiber-fed cross-dispersed echelle spectrograph with two ultra-stable spectral arms providing a simultaneous spectral range of 0.4-1.8 μm at spectral resolutions of 100,000 or 150,000. The fiber-feeding allows ELT-HIRES to have several, interchangeable observing modes including a SCAO module and a small diffraction-limited IFU.

Primary authors: MARCONI, Alessandro (Dipartimento di Fisica e Astronomia, Università di Firenze); HIRES CONSORTIUM

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