16901 - The XUV environment of the young exoplanet HIP 67522b

Cycle: 29, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

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VISITS

Visit	*Targets used in Visit*	*Configurations used in Visit*	*Orbits Used*	*Last Orbit Planner Run*	*OP Current with Visit?*
01	(1) HD-120411	COS/FUV COS/NUV	3	12-Jan-2022 16:00:40.0	yes

3 Total Orbits Used

ABSTRACT

We propose joint XMM-Newton and HST observations of the nearby young G- type star HIP 67522 Tau, hosting a close-in Jupiter- size transiting exoplanet discovered with TESS, and possibly a second smaller body. The first confirmed planet in this young system is expected to be in a contraction phase toward its final size and possible photoevaporation. Our immediate objective is to reconstruct the full XUV spectrum, and to assess

the spectral and time variability of the host star. In this way we will characterize its activity level and the dose of high-energy irradiation in the planetary environment. This system is particularly compelling to investigate evolutionary paths of exo- planets in the mass-radius diagram, and to provide constraints for planetary atmospheres modeling.

OBSERVING DESCRIPTION

This is a coordinated observation with XMM-Newton.

We ask observations with HST/COS joint and simultaneous with XMM-Newton observations of the young G-type star HD . We aim to acquire high resolution spectra in the band 1180 - 1450 Angstrom with the G130M grating (central wavelength of 1291 Angstrom) during 3 HST orbits.

The declination of the star ensures an average HST visibility of about 50' per orbit, available for science exposures.

We intend to measure the intensity of ion lines from Si II, Si III, Si IV, CII , CIII, NV falling in the above wavelength range.

Visit

Proposal 16901, Observation (01) Wed Jan 12 21:00:40 GMT 2022

Diagnostic Status: No Diagnostics

Scientific Instruments: COS/FUV, COS/NUV

Special Requirements: (none)

Fixed Targets

#	Name	Target Coordinates	Targ. Coord. Corrections	Fluxes	Miscellaneous
(1)	HD-120411 Alt Name1: HIP-67522	RA: 13 50 6.2796 (207.5261650d) Dec: -40 50 8.88 (-40.83580d) Equinox: J2000	Proper Motion RA: -0.002541505982966705 sec of time/yr Proper Motion Dec: -0.022425000020120933 arcsec/yr Epoch of Position: 2015.5 Radial Velocity: 5.40 km/sec	V=9.8+/-0.03	Reference Frame: ICRS

Comments: This object was generated by the targetselector and retrieved from the SIMBAD database.
Category=STAR
Description=[EXTRA-SOLAR PLANETARY SYSTEM, G V-IV, PRE-MAIN SEQUENCE STAR]
Extended=NO

Exposures

#	Label (ETC Run)	Target	Config,Mode,Aperture	Spectral Els.	Opt. Params.	Special Reqs.	Groups	Exp. Time (Total)/[Actual Dur.]	Orbit
1	Target acquisition (COS.ta.1683417)	(1) HD-120411	COS/NUV, ACQ/IMAGE, BOA	MIRRORA				34 Secs (34 Secs) *[==>]*	*[1]*
2	First science exposure (COS.sp.1683578)	(1) HD-120411	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=5600; FLASH=YES; FP-POS=3			2300 Secs (2464 Secs) *[==>2464.0 Secs]*	*[1]*
3	Second science exposure (COS.sp.1683579)	(1) HD-120411	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=5600; FLASH=YES; FP-POS=3			2700 Secs (2782 Secs) *[==>2782.0 Secs]*	*[2]*
4	Third science exposure (COS.sp.1683579)	(1) HD-120411	COS/FUV, TIME-TAG, PSA	G130M 1291 A	BUFFER-TIME=5600; FLASH=YES; FP-POS=4			2700 Secs (2782 Secs) *[==>2782.0 Secs]*	*[3]*

Orbit Structure