

Spectroscopic follow-up of planet candidates with the Thai National Telescope

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Overview

Thai National Telescope (TNT)	
Location	Doi Inthanon Mountain, Chaing Mai, Thailand.
Aperture	2.4 m
Latitude	E 98° 28' 56".06
Longitude	N 18° 34' 25".41
Altitude	2,457 m
Seeing	~2"
Observing Season	November - May
Total observing time	150 Nights
Organized by	National Astronomical Research Institute of Thailand (NARIT)

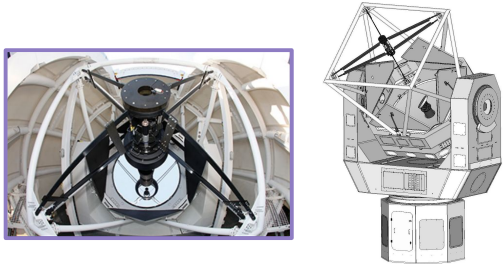


Fig 1 : Picture of the 2.4m Thai National Telescope
Credit: National Astronomical Research Institute of Thailand website

Medium Resolution Spectrograph (MRES)

Format	Echelle
Spectral Resolution	~18,000
Spectral Range	380-900 nm
Wavelength calibration	ThAr lamp
Radial Velocity precision	~0.2 km/s

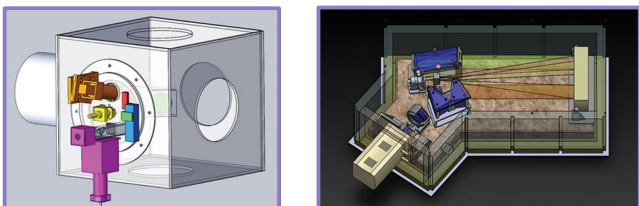


Fig 2 : Picture of MRES spectrograph

Credit: National Astronomical Research Institute of Thailand website

Example data from MRES spectrograph and current status

We have developed a set of MRES reduction routines designed specifically for transiting planet follow-up, including derivation of reconnaissance radial velocities and stellar parameters.



Example spectra from MRES are shown below, demonstrating quick identification of rapid rotators and composite spectra for reconnaissance vetting.

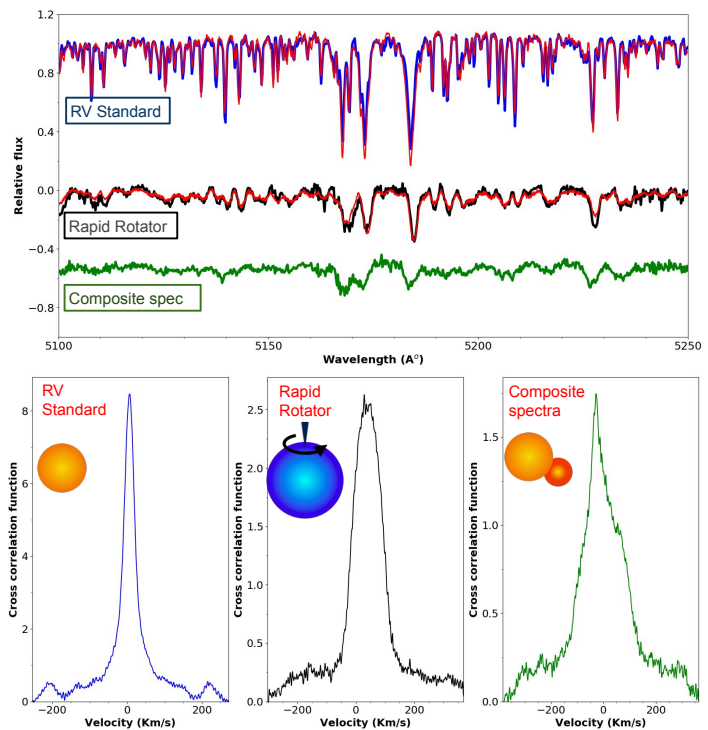


Fig 3 : (top) Example spectrum from 3 example stars.
(bottom) Cross correlation functions of example stars, differentiating between a slowly rotating star, rapid rotator and a composite spectrum.

Status and future outlook

We observed 31 planet candidates from KELT/TESS in January-April 2019. The exercise showed that our program with MRES is well suited towards reconnaissance vetting of TESS candidates. We look forward to Northern planet candidates from the second year of the mission.

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