# PLATOSpec, support for space missions

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## Motivation:

PLATOSpec is a new precise spectrograph successfully installed and commissioned at La Silla in December 2024. The PLATOSpec instrument is offering a spectral resolving power of 70,000 and an observable wavelength range from 380-700 nm. The precision in radial velocities is about 3 m/s. The instrument is used mainly for exoplanetary science but also for stellar physics. We present here an update on the PLATOSpec project status. Furthermore, first results from the six months of science verification and possible future applications are also presented.

## The PLATOSpec consortium:

Astronomical Institute of the Czech Academy of Sciences, CZ – *PI institute (contact: petr.kabath@asu.cas.cz)*; Universidad Católica de Chile, CL – *major partner*; Thuringer Landessternwarte Tautenburg, DE – *major partner*; Masaryk University, CZ – *minor partner*; Universidad Adolfo Ibanez, CL – *minor partner,* Institute of plasma physics of the Czech Academy of Sciences, CZ - *minor partner*

## The location and the telescope E152

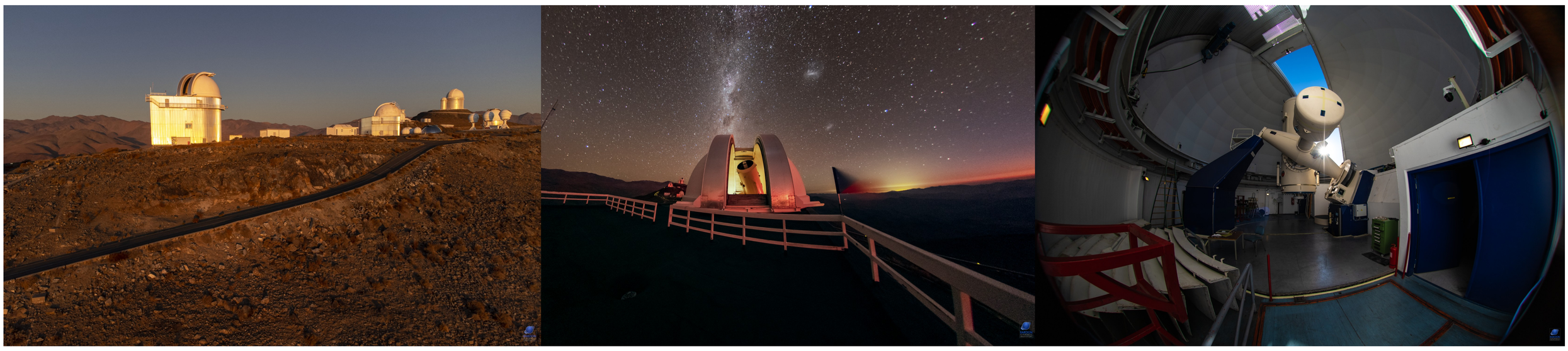


**Figure 1:** The telescope E152 was one of the first telescopes at La Silla, ESO in Chile (July 1968). It was decommissioned in 2002. On 03 April 2022, 20 years after its decommissioning, it is back.The E152 telescope is a twin telescope of 1.92-m at OHP, built also by REOSC, which discovered the 51 Peg b. New control systems were implemented by the ProjectSoft HK a.s. company. Cu The PLATOSpec instrument was successfully commissioned in November 2024. We will be reporting here on first results from the science verification run (December 2024 – May 2025). Photos taken by Zdeněk Bardon.

## PLATOSpec (November 2024):

| | |
|---|---|
| Wavelength coverage | 360-680 nm |
| Spectral resolution | 70k |
| Thermal stability | 0.1deg |
| RV precision | 3m/s |
| Calibration | ThAr+Iodine cell |

## Core observing programms for PLATOSpec):

**1)** Support of TESS and PLATO space missions
- Follow-up of planetary candidates, initial screening
- Determination of masses and radii

2) Characterization of Hot Jupiters
3) Long term monitoring programs
4) Asteroseismology, stellar variability
5) Other science – limited open calls for proposals

Data feed to ESO archive (proprietary period: 12 months)

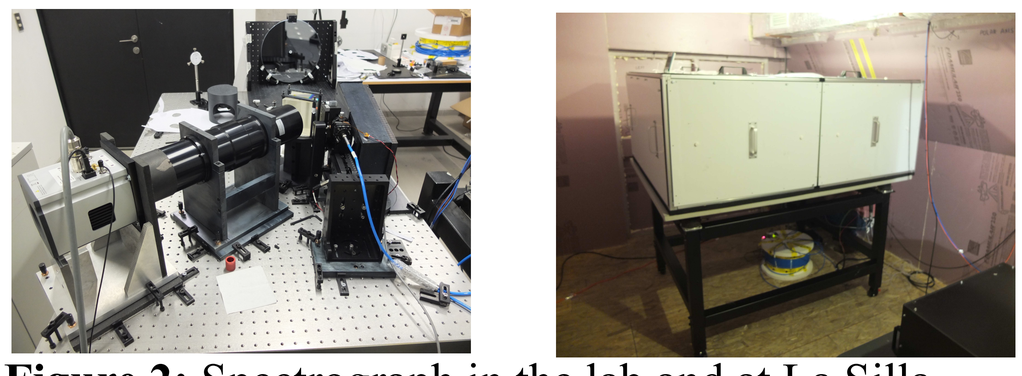


**Figure 2:** Spectrograph in the lab and at La Silla.

## PLATOSpec, the first results:

Rossiter-McLaughlin effect: TESS and K2 planets
New article by Žák et al. 2025 (A&A submitted)

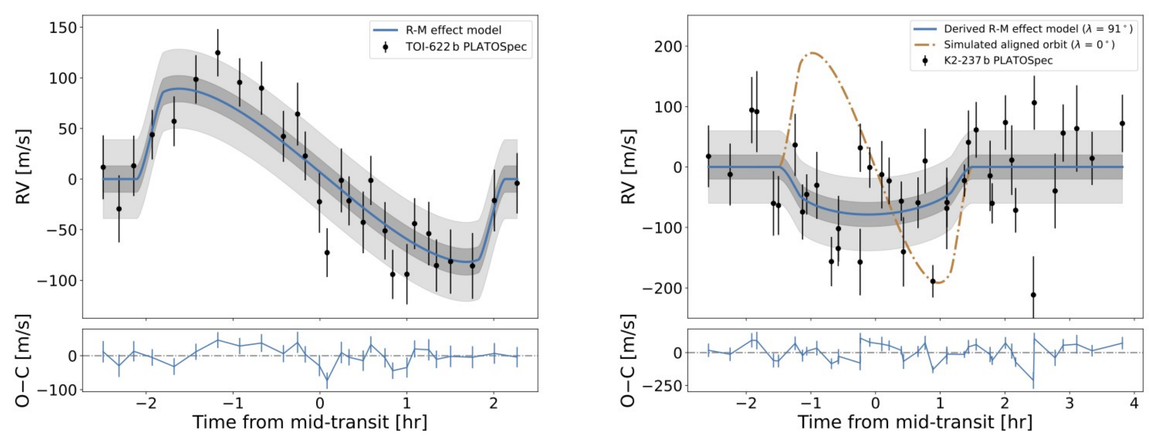
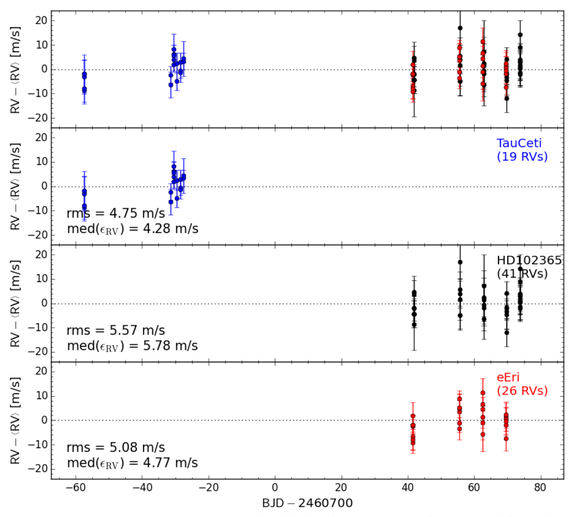



**Figure 3:** R-M effect measured with PLATOSpec for a TESS (left) and K2 (right) planet on polar orbit (Žák et al. 2025)




Demonstration of the stability of radial velocities with iodine cell on tau Ceti and other rad. el. standards. The radial velocity stability over 1-3 Months is about 4-5 m/s. Further Improvement is to be expected with a new and better iodine cell. The pipeline VIPER is provided by Jana Koehler (TLS)

**Figure 4:** Stabilities of radial velocities with an iodine cell. (Kabáth et al. 2025 MNRAS submitted)

***References:***

**Kabath** et al., 2019PASP..131h5001K
**Vanzi** et al., 2012MNRAS.424.2770V
**PLATOSpec WEB**: http://stelweb.asu.cas.cz/plato

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