

**AFFORDABLE DOPPLER VELOCITIES TO  
50 M/S WITH SUB-METER TELESCOPES**

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**Abstract.** Accurate radial velocity observations of radially pulsating stars enable the determination of full set of physical parameters, such as the radius, temperature, luminosity, mass and evolutionary age. On the other hand, currently running transiting exoplanet search projects are delivering literally thousands of candidates in a desperate need for RV confirmation. Here we discuss how recent advances in optical spectroscopy have made it possible to measure Doppler velocities down to  $\pm 50$  m/s with surprisingly small optical telescopes. Using the recently installed 0.5 m RC telescope of the ELTE Gothard Astrophysical Observatory and the 1m RC telescope of the Konkoly Observatory, we have collected extensive observations of pulsating stars as well as exoplanet host stars in the apparent brightness range of  $V=4$  to  $V=12$  magnitudes. We measure radial velocities with the cross-correlation technique and the achieved velocity precision ranges from 50 m/s to 500 m/s, depending on the brightness of the targets. Our results indicate that measuring sub-km/s radial velocities has become an affordable technique available to small national or university observatories, opening up a whole new avenue into the spectroscopic studies of moderately faint ( $V \sim 10-12$  mag) stars.

**Presentation link:** [http://belissima.aob.rs/Conf2012/Kiss\\_2012.pdf](http://belissima.aob.rs/Conf2012/Kiss_2012.pdf)

