

# Near-infrared spectroscopy of Cepheids in the Galactic nuclear disk

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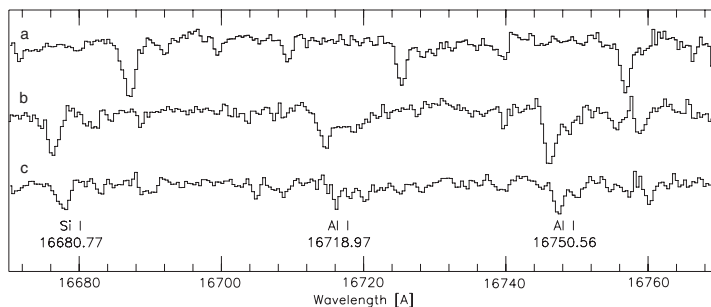
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**Abstract.** We are carrying out near-infrared spectroscopy of Cepheids in the Galactic nuclear disk. The *H*-band spectra taken with SUBARU/IRCS indicate that their kinematics are consistent with the rotation of the nuclear disk.

**Keywords.** stars: variables: Cepheids, Galaxy: bulge, infrared: stars

Cepheid variable stars are useful tracers of the distance scale and stellar populations within the Galaxy. Matsunaga *et al.* (2011) discovered three Cepheids in the Galactic nuclear bulge (within 200 pc of the Galactic center). With SUBARU IRCS high-resolution spectrograph, we collected *H*-band spectra of the three Cepheids as well as of several additional Cepheids in 2012. The *H*-band spectra of Cepheids show dozens of strong absorption lines (Figure 1). Data analysis is still in progress, but Figure 1 already indicates that their radial velocities are different from each other even considering the Cepheid pulsation effect ( $\pm 20$  km/s). The trend of the velocity difference agrees with the rotation of the nuclear disk in that the object (a) in the positive Galactic longitude shows a red shift whereas the others in the positive longitude show blue shifts.



**Figure 1.** A part of the *H*-band spectra of Cepheids, where some prominent metallic lines are indicated. Differences of the radial velocities are clearly seen.

## Reference

Matsunaga, N., *et al.* 2011, *Nature*, 477, 188