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The Pulsational Analysis of the oEA component of RX Hydrae

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RX Hydrae is a bright Algol-type eclipsing binary system with orbital period is 2.2825 days. This system was classified as the member group of oEA stars in 2002. The short-periodic pulsations of a primary component were detected by Kim et.at (2002) who classified the system as a new member of oEA group of pulsators. The new CCD photometric and spectroscopic observations of RXHya were obtained in 2014-2015 in order to study the pulsation spectrum. The B-filter CCD photometry was acquired on Thai Southern Hemisphere Telescope (TST, PROMPT-8) at Cerro Tololo Inter-American Observatory (CTIO) in Chile. The spectroscopic observations were acquired with fiber-fed medium resolution echelle-spectrograph of the 2.4-meter telescope of Thai National Observatory (TNO). Binary light curve and the radial velocity curve of the primary oEA component of RX Hya were subtracted using polynomials fitting to get the residual observational data. The period search in the residual data was performed using the Period04 software (Lenz & Breger, 2005). From the analysis of photometric residuals we found the two pulsation frequencies at 19.344 $\pm$ 0.004 c/d ($\triangle$B=0.003mag) and 31.351 $\pm$ 0.005 c/d ($\triangle$B=0.0026 mag). We confirmed existence of pulsations at these frequencies 19.343 $\pm$ 0.002 c/d ($\triangle$RV=0.36 km/s) and 31.254 $\pm$ 0.002 c/d ($\triangle$RV=0.37 km/s) in the residual radial velocities. Thus, we detected a new mode and independently confirm existence of at least two oscillation modes in RX Hya.

Primary author: Ms A-THANO, Napaporn (National Astronomical Research Institute of Thailand)

Co-authors: Dr MKRTICHIAN, David (National Astronomical Research Institute of Thailand); Ms GUNSRIWIWAT, Khemsinan (Chiang Mai University); Dr KIM , Seung-Lee (Korea Astronomy and Space Science Institute); Dr LEE , Jae-Woo (Korea Astronomy and Space Science Institute)

Presenter: Ms A-THANO, Napaporn (National Astronomical Research Institute of Thailand)

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