

**CONTROL ID:** 2253085

**TITLE:** A high-resolution mid-infrared spectral survey of H<sub>2</sub>O in the circumstellar envelope of VY CMa with EXES on SOFIA

**ABSTRACT BODY:**

**Abstract Body:** During March 2015 commissioning observations, the EXES instrument on the Stratospheric Observatory for Infrared Astronomy (SOFIA), observed the O-rich evolved star VY Cyg in the range of 5.57 to 6.67  $\mu\text{m}$  with a resolution ( $R=\lambda/\Delta\lambda$ ) approaching 100,000.

We detect many H<sub>2</sub>O vapor lines with P Cygni structure- blueshifted absorption with redshifted emission, as expected from outflowing material in this system. The analysis and identification of other chemical species within this rich data set are ongoing.

The wavelength region of these observations is impossible to observe from ground-based observatories due to atmospheric absorption; past space-based missions such as ISO/SWS were limited to  $R\sim 1000$ . EXES on SOFIA opens a new frontier for high-resolution spectroscopy at difficult-to-access mid-infrared wavelengths.

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**PRESENTATION TYPE:** Poster