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Spatial distribution of dusts in a circumstellar shell of R Cas

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Dust formation in outflows from evolved stars plays an important role for evolution of solids in space. Dusts condensed in hot inner regions grow and/or react with gas to change their sizes and chemical compositions with the expansion of the dust shell. The dust formation condition around an evolved star may also vary with the mass loss rate and due to abrupt thermal events, and the kinds and amounts of dusts should vary with such changes of dust formation condition. Therefore, the dust distribution of silicates and oxides around evolved stars should preserve time-dependent dust formation processes.

We report preliminary results on spatially resolved N-band spectroscopy and N- and Q-band imaging of a Mira variable, R Cas, with Subaru/COMICS, which were performed to investigate the spatial structure and dust distribution of the dust shell of R Cas.

Keywords: Evolved star, dust, observation