

PPS002-01

Room: 201A

Time: May 26 15:33-15:48

Mid-infrared observations of mass-losing late-type stars

Takashi Miyata^{1*}

¹Institute of Astronomy, Univ. of Tokyo

Mass-losing late-type stars are one of the most important suppliers of dust grains in the Galaxy. Thanks to the high mass-loss rate and high luminosity of central stars, dust emissions are bright enough for mineralogical studies of the dust grains. In addition, distances to mass-losing stars are relatively short (for example, the distance of the nearest mass-losing late-type star is less than 100 pc) because of the ubiquitous distribution in the Galaxy. So we can think of the mass-losing late-type stars as very useful laboratories of the dust formation in the Universe.

So far many observational studies have been carried out in mid-infrared wavelength range. For the mid-infrared observations, space telescopes such as Spitzer Space Telescope and Akari are quite powerful because of their high sensitivities. Ground-based telescopes, on the contrary, have two advantages over space telescopes: spatial resolution and monitoring capability. High spatial resolution of the current large telescopes (8-10 meter telescopes, which provide 0.3 arcsec resolution at 10 micron) enables us to investigate the spatial distribution of dust species around the central stars. It is critical information to understand the dust forming mechanism. The dust formation is also strongly affected by time variation of the central stars. Many of the mass-losing late-type stars are variable, so it is important to carry out monitoring observations. Unfortunately the number of mid-infrared instruments is limited and the observing time is quite competitive. Accessible backyard telescopes having mid-infrared observing capabilities are strongly needed in order to carry out repeated observations.

In this presentation I would like to make brief summary of the observational studies of the dust grains around the mass-losing late-type stars. Current and near future projects of the ground-based observations will be also reviewed. Especially potencies of our promoting Tokyo-Univ. Atacama Observatory (TAO) project will be discussed in detail.

Keywords: late type stars, mass loss, dust formation, mid infrared, ground-based instruments