SWS Observation of a Silicate Carbon Star V778 Cyg

Issei Yamamura[1,2], Teije de Jong[2,3], Kay Justtanont[2], Jan Cami[2,3], and Rens Waters[2,3]

[1] Department of Astronomy, University. of Tokyo, Japan
[2] SRON-Groningen, the Netherlands
[3] Institute of Astronomy, University of Amsterdam, the Netherlands

Abstract

We report the preliminary result of SWS observation of a silicate carbon star V778 Cyg. Silicate carbon stars were discovered in the studies of IRAS Low Resolution Spectra (Willems and de Jong 1986, Little-Marenin 1986). They show silicate dust emission features at 10 and 18 micron which are the characteristics of oxygen-rich circumstellar envelopes, while the central stars have properties of carbon stars. Detailed spectroscopic studies (e.g., Lloyd Evans 1990) revealed that the central stars are usually ^{13}C rich (i.e. J-type stars). Several explanations about the origin of the silicate feature have been proposed, such as quick transition from oxygen-rich to carbon-rich (Willems and de Jong 1986), binary with a oxygen-rich giant (Little-Marenin 1986), or a disk around a companion (Morris 1987). We observed one of such stars in the guaranteed time program AGBSTARS (P.I. T. de Jong). The observation was carried out by SWS AOT01 speed 3, with a spectral resolution of about 700. Results of comparison with templates of carbon-rich and oxygen-rich stars are presented and the implications for the origin of silicate carbon stars will be discussed.

References

Little-Marenin, I. R. 1986, ApJ 307, L15
Lloyd Evans, T. 1990, MNRAS 243, 336
Morris, M. 1987, PASP 99, 1115
Willems, F. J. and de Jong, T. 1986, ApJ 309, L39