

FAR INFRARED OBSERVATIONS ON THE PECULIAR VARIABLE
STAR R AQUARI^{*}

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SUMMARY. First results on the peculiar Mira variable star R Aquarii obtained by the Infrared Astronomical Satellite (IRAS) in the far-infrared region (12-100 microns) are presented. A simple radiative transfer model for plane, isothermal and homogeneous layer is given to interpret the far-infrared excess radiation in terms of circumstellar dust emission. A two dust shell model with silicate grains is proposed to explain the observed fluxes. This model explains as well the low-resolution spectra (LRS) in the 8-20 micron region from IRAS. The equivalent sizes of the emitting regions (shells) in R Aquarii are found to be 0.1 arc sec and 3 arc sec at temperatures of 800 ± 80 K and 87 ± 8 K respectively. Silicate grains of size 1 micron seem to be compatible with the observations. There is no clear indication for the presence of an isolated dust cloud in R Aquarii to support the eclipsing-cloud hypothesis for explaining the minima observed at 44 yr interval.

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