

ON THE INFRARED EXCESS OF ALPHA LYRAE*

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SUMMARY. Recent measurements in far-infrared (12-200 μm) by IRAS (Aumann et al, 1984) and KAO (Harper et al, 1984) have shown evidence of infrared excess in the AO star Alpha Lyrae. This excess in the infrared radiation was interpreted as due to circumstellar dust constituted by grains much larger ($\geq 10 \mu\text{m}$) than those of interstellar origin. However, there appears to be a difficulty in interpreting these observations in terms of a single or a combination of several temperatures of dust. We have formulated a simple model to explain the far-infrared data in 12-200 μm region available with IRAS and KAO observations in terms of multiple dust shells of different temperatures. We have shown that dust grains of size $\sim 10 \mu\text{m}$ can explain the excess emission in the entire region 12-200 μm with temperatures of $130 \pm 15 \text{ K}$ and $40 \pm 5 \text{ K}$. The far-infrared fluxes seem to vary as $\lambda^{-\beta}$ with $\beta = 3.0-3.8$, in quite contrast with small sized grains. This work lends further support to the interpretation of far-infrared excess in α Lyrae as emission from circumstellar shell with large ($\sim 10 \mu\text{m}$) size grains. Our calculations show, however, that grains of size larger than $10 \mu\text{m}$ cannot explain the fluxes.

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