DUST SHELL AROUND V718 SCORPII

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(Not reviewed)

V718 Sco (HD 145718 = SAO 184232) is an eclipsing-binary system with an orbital period of about 200^d, depth of primary minimum about 1^m4 and a primary component of spectral type A2 (Wood et al., 1980). Neither period nor eclipse depth are well determined and the system has not been observed photoelectrically. The IRAS point-source catalogue (Beichman et al., 1985) contains an object having a far-infrared excess at a position closely agreeing with that given for V718 Scorpii in the S.A.O. catalogue. The fluxes (in Janskys) at 12 μm, 25 μm, 60 μm and 100 μm are 5.73, 5.92, 4.91, 3.37 respectively and this distribution suggests that V718 Sco is surrounded by a dust envelope in which there is a temperature gradient. From the ratios of the fluxes, a dust temperature of about 140 K is found; the fluxes at 60 μm and 100 μm would suggest a lower temperature.

If the primary component is a main-sequence star, the distance of the system is about 500 parsecs. The total luminosity (L_{IR}) of the dust is estimated to be about 10 solar luminosities and the mass of the dust is estimated to be 0.2×10^{-4} solar masses. If the ratio of gas to dust (by mass) is the same as in the interstellar medium, the total mass of the shell is of the order of 10^{-2} solar masses.

The system could be either a pre-main-sequence binary or an evolved Algol system that has experienced mass-loss or mass-transfer. Spectroscopic and photometric observations of V718 Sco are needed.

REFERENCES

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