A SPECTROGRAPHIC STUDY OF THE INTERACTING ECLIPSING BINARY RY SCUTI: AN EPISODE IN THE RAPID MASS LOSS STAGE OR A PROTOPLANETARY NEBULA ?

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RY Scuti, the 11-day [Fe III] eclipsing binary, has been reinvestigated on the basis of spectroscopic material secured at the European Southern Observatory (ESO), La Silla, Chile, and at the Cerro Tololo Interamerican Observatory (CTIO), Chile, that cover the regions 3400-5150 Å and 5700-6700 Å, and worked out with the measuring and computing facilities at the ESO Headquarters, Garching bei München, Germany. Ultraviolet observations taken with the IUE satellite were also analyzed.

The spectrum of RY Sct is very complex and unusually peculiar, being characterized by several sets of emission as well as of absorption features. Among the emissions there is a set of lines that is characteristic of planetary nebulae.

The system is found to be formed by a B0 V component and a companion that appears to be surrounded by an opaque envelope that emits in He II 4686.

In regard to the extended circumbinary envelope we would bring out

1) that there are regions of diluted radiation that yield velocities of -60, -150 and -170 km s^{-1};

2) that the regions of formation of the resonance lines of Si IV and C IV appear to be characterized by velocities of the order of -1200 and -600 km s^{-1}, respectively;

3) that the lines that conform the "nebular spectrum" suggest that further out there is a triple nebulosity surrounding the system, that is defined by $N_e \sim 10^3$ and $T_e \sim 15000$-20000°K and yields velocities of -18, + 9 and +48 km s^{-1}, respectively.

The paper in full will be published elsewhere.

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