

WHO IS WHO IN ALGOL-LAND ? - PART II -

W. PACKET and J.P. DE GREVE
Astrophysical Institute, V.U.B.
Pleinlaan 2
B-1050 Brussels
Belgium

(Not reviewed)

ABSTRACT. In part I (De Greve and Packet) we have investigated the occurrence of reversed phases of mass-transfer during Case A evolution in close binaries. If the initial period of a system is shorter than 1 - 2 days (Early Case A) the reversed phase starts before core hydrogen exhaustion of the gainer (part I). This type of evolution is characterized by at least two phases of slow mass-transfer.

We have computed the evolution of four Early Case A systems with initial masses of the loser equal to 3 M_{\odot} and 5 M_{\odot} . These four systems start mass-exchange when X_c of the primary has decreased to 0.525 (75% of its initial value). They all experience two phases of slow mass-transfer.

We find that both phases have about the same duration for all systems. The mass ratios are clearly distinct, being closer to unity during the first phase. In the Hertzsprung-Russell, mass-radius and mass-luminosity diagrams both components remain close to the main-sequence band during slow mass-transfer. Evolution as an Algol is ended when both components overflow their outer critical surface after a second reversal of the mass-transfer.

Observed Algol systems evolving in Early Case A are scarce. A search through the catalogue by Giuricin et al. gives us the following candidates: X Tri, SX Aur and V Pup. Based on their mass ratios, SX Aur can tentatively be assigned to the first phase of slow mass transfer and X Tri to the second phase. For V Pup (which is more massive) this choice can not be made with certainty.

REFERENCES.

Giuricin, G., Mardirossian, F., Mezzetti, M.: 1983, *Astrophys. J. Suppl. Ser.* 52, 35

Space Science Reviews 50 (1989), 339.

© 1989 by Kluwer Academic Publishers. Printed in Belgium.