

REMARKS ON THE EVOLUTIONARY STATUS OF CATAclySMIC VARIABLES

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The basic binary parameters (masses, system dimensions) of all cataclysmic variables are essentially identical, but there is a great variety in the outburst behaviour. Since there is no evident physical reason for this, it is suggested that nova and dwarf nova variability are periodically repeating states of activity of the same binary. After the nova eruption first follows a postnova state (very low disc mass), later the dwarf nova states BV Pup, U Gem and Z Cam (slowly increasing disc mass and outburst frequency, finally standstills), and finally the UX UMa state (permanent standstill) which is terminated by a new nova outburst. The mass of the disc increases continuously during this cycle. Also the mean mass transfer and accretion rates vary slowly from 10^{18} g s^{-1} at beginning and end of the cycle to 10^{16} g s^{-1} at mid-cycle, as a U Gem star. The nova outburst is understood in terms of a thermonuclear runaway near the surface of the white dwarf, the dwarf nova outburst is due to intermittent accretion of gas which was accumulated in the outer disc during quiescence (several arguments in favor of this model are given). The time interval between consecutive nova outbursts is of the order of 10^5 years. The secular evolution of a cataclysmic binary is characterized by a period decrease from 10^h to 1^h5 in a time scale of 10^{10} years. The star probably passes the period gaps in the ultra-short period domain in form of no-contact configurations.

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