THE ROLE OF MAGNETIC STELLAR WIND AND MASS TRANSFER IN CLOE BINARIES OF THE EARLY SPECTRAL TYPE

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ABSTRACT. We suggest the results of calculations of mass transfer rate using orbital period changing and changing of orbital semi-major axis due to magnetic stellar wind and mass transfer in close binaries of early spectral type.

Key words: stars: contact early binary systems, magnetic stellar wind, mass transfer.

38 systems have changing orbital periods among 100 researched contact binaries of the early spectral type. Mass transfer from one component to other and mass loss by system total are the reasons of orbital period changing.

To know what parts magnetic stellar wind and mass transfer in tvjlution of close binaries systems with conservative mass transfer were studied. By the orbital period changing the rate of mass transfer was counted:

- for systems with loss orbital period (20 systems, a primary com-ponent loses mass) the mass changing rate is $M_1 = 10^{-7} - 10^{-6} M_\odot$/year;

for systems with increasing orbital period (18 systems, a secondary loses mass) the mass changing rate is $M_2 = 10^{-8} - 10^{-6} M_\odot$/year.

According Fedorova and Tutukov (1994) magnetic stellar wind take place and leads to the orbital period loss in several contact early binaries with less-massive secondaries with convective envelope.

Calculations shown, that the part of magnetic stellar wind into orbital semimajor axis loss makes up 1-10% from orbital semimajor axis loss due to mass transfer that is $10^{-6} - 10^{-7} R_\odot$ /year.

For systems with increasing orbital period magnetic stellar wind opposes for increasing of orbital semimajor axis and period due to mass loss of a secondary.component

The results of calculations may be used by study of evolution and connection of different types of close binaries, for example semi-detached systems R CMa-type, W UMa-type, contact early binaries, especially less-massive.

References

Fedorova , Tutukov :1994, *Astron. Zh.*,**71**, N3, 431