

IS A STELLAR WIND INHERENT IN WR-STARS THROUGHOUT THE WHOLE OF THEIR EVOLUTION?

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In addition to certain manifestation of a stellar wind during steady states of WR-stars that we have heard here about I have two notes on their extremal stages of evolution which may be also connected to such a hydrodynamical event.

The first note. There is a peculiar object HM Sge that had brightened for several magnitudes during several months. It has a strong emission spectrum that is similar to a planetary nebula spectrum in general, and it was suggested that we register a planetary nebula birth. However, in Crimea we have found that a total width of H-alfa emission line is ~ 2000 Km/sec and a central part of its profile is asymmetric significantly. These features exclude a genetic relationship between HM Sge and Planetary nebulae.

The high velocity found is inherent in WR-stars, and it was supposed that HM Sge may be related to these objects. However, HM Sge does not display a H/He anomaly that is inherent in WR-stars.

The solution of the HM Sge's enigma may be the following. We are observing the WR-star birth when an emitting gas is not yet the outflowed layers of a stellar atmosphere of a hydrogen depleted composition but a placenta nebula of a WR-star; this young star of high luminosity excites and drives the gas of the placenta nebula. During three years we observe the systematic increase in the excitation level of the HM Sge spectrum. But if the model is correct, we shall - years or decades later - an increasing of helium line intensities relatively to hydrogen line ones.

The second note. Investigations of filamentary nebulae carried out by Dr Lozinskaya from Sternberg Institute, Moscow, have shown that not all such objects may be interpreted as supernova remnants. For example, the nebulae NGC 6888 and Simeiz 22 are certainly not SN remnants. The most probably these nebulae and several similar objects are formed as a result of hydrodynamical interaction between interstellar medium and WR stellar winds.

Thus, one may suppose that we see WR wind manifestations throughout the whole evolution of these stars and therefore can estimate integral effects of this hydrodynamical event.