V Serb. Conf. on Spectral Line Shapes in Astrophysics
Vršac, 6-10. June, 2005.
Program and Abstracts

Poster paper

A STUDY OF CLOSE BINARY SYSTEM EE CET

G. DJURAŠEVIĆ[1], D. DIMITROV, B. ARBUTINA, B. ALBAYRAK and S.O. SELAM
[1] *Astronomical Observatory, Volgina 7, 11160 Belgrade, Serbia*
E–mail: gdjurasevic@aob.bg.ac.yu

Variability of the combined light of close binary EE Cet in the visual/spectroscopic triple system ADS 2163 was discovered by the Hipparcos satellite. New photoelectric BV light curves of EE Cet were obtained at the Rozhen National Astronomical Observatory, Bulgaria. We have combined this photometric with earlier spectroscopic observations to derive the physical parameters of the system. Due to the proximity of the visual companion, the light curves were contaminated by the third light. Spectroscopic observations, which were able to separate EE Cet from its companion, found that spectral type of the system is F8 V (T = 6095K) and mass ratio is $q = \mathcal{M}_2/\mathcal{M}_1 = 0.315$. Our analysis show that EE Cet is a high-overcontact system ($f_{\rm over} \sim 32\%$), with orbital inclination $i \approx 79^\circ$, component masses $\mathcal{M}_1 = 1.37$, $\mathcal{M}_2 = 0.43\ \mathcal{M}_\odot$ and mean radii $\mathcal{R}_1 = 1.35$, $\mathcal{R}_2 = 0.82\ \mathcal{R}_\odot$. Future photometric observations, able to separate EE Cet from its companion, would put even more tight constraints on properties and parameters of this close binary system.

Poster paper

LINE-DRIVEN WINDS NEAR BHs

ANTON DORODNITSYN[1] and IGOR NOVIKOV
[1] *Space Research Institute, Profsoyuznaya st. 84/32, Moscow, Russia*
[2] *Niels Bohr Institute, Copenhagen*
E–mail: dora@mx.iki.rssi.ru

We propose a general physical mechanism which could contribute to the formation of fast line-driven outflows at the vicinity of strong gravitational field sources (BH's, NS's). We argue that the gradient of the gravitational potential plays the same role as the velocity gradient plays in Sobolev approximation. Both Doppler effect and gravitational redshifting are taken into account in Sobolev approximation. The radiation force becomes a function of the local velocity gradient and the gradient of the gravitational potential. The derived equation of motion has a critical point that is different from that of Castor, Abbott and Klein 1975 theory. A comparison with CAK theory is presented. It is shown that the developed theory predicts terminal velocities which can be as 50CAK theory. The developed theory can have an important contribution to the formation of radiation-driven jets/winds near compact objects.