

[구ST-05] Mass transfer with Asymmetric Light Curve of Contact and Near-Contact Binaries

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We have analyzed times of minima for of 6 binary systems. Three binary systems show period decrease at rate $3.19 \times 10^{-5} \text{ yr}^{-1}$ for SV Cen, $1.35 \times 10^{-7} \text{ yr}^{-1}$ for RT Scl and $1.14 \times 10^{-7} \text{ yr}^{-1}$ for AD Phe. Two systems show period increase $5.696 \times 10^{-8} \text{ yr}^{-1}$ for SX Aur and $6.93 \times 10^{-8} \text{ yr}^{-1}$ for GO Cyg. One system shows cyclic period variation. We estimated the mass transfer rate for 5 binary systems. Four systems show asymmetric light curves. Two asymmetric light curves (SV Cen and RT Scl) are due to hot spot caused by mass transfer. And two asymmetric light curves (AD Phe and TY Boo) are due to cool spot caused by magnetic activities on the cooler component. We also obtain absolute dimensions from photometric solution and spectroscopic solution by analyzing their light curves and radial velocity curves, which are collected from literatures, using 2007 version Wilson and Deviney computer code.

[표ST-06] Explicit matrix elements for Raman scattering blueward of H gamma

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We present the explicit expressions for the matrix elements associated with the interaction of photons with atomic hydrogen. These expressions are applied to compute the scattering cross section for the Raman scattering operating blueward of Lyman epsilon and H gamma. A brief discussion that re relevant to some symbiotic stars and young planetary nebulae is also presented.