

Photometric Analysis of W UMa type Binary SS Arietis

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The *BVR* CCD observations of W UMa type eclipsing binary SS Ari were made on ten nights from November 1996 to December 1996 at Sobaeksan Astronomy Observatory in Korea. New light curves were made and eight new times of minimum lights were derived. The analysis of times of minima of SS Ari shows the sinusoidal period change mixed with an upward parabolic variation. The upward parabolic *O-C* diagram corresponds to a secular period increase, usually interpreted as mass transfer from the less to the more massive components. The cyclic period change has a period of about 64^y and an amplitude of about $0^d.083$. The period variation has been discussed in terms of two potential mechanisms : (1) the light-time effect due to a hypothetical third body and (2) deformations in the convective envelope of a magnetically active component. The light curves were analyzed by the revised 1992 version of the Wilson-Devinney binary model. New photometric solutions of SS Ari show good agreements with the results by Lu (1991). The asymmetries of the light curves can be well explained by a hot spot rather than a cool one, implying that the deduced hot spot could be produced by mass transfer process as suggested by our analysis of the period changes.