A precessing warped accretion disk around the X-ray pulsar Her X-1

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ABSTRACT: We have performed an analysis and interpretation of the X-ray light curve of the accreting neutron star Her X-1 obtained with the ASM RXTE over the period 1996 February to 2004 September. The averaged X-ray light curves are constructed by means of adding up light curves corresponding to different 35 day cycles. A numerical model is introduced to explain the properties of the averaged light curves. We argue that a change of the tilt of the accretion disk over the 35 d period is necessary to account for the observed features and show that our numerical model can explain such a behavior of the disk and reproduce the details of the light curve.