

Numerical Simulation Of X-Ray Nova Light Curves

K. Malanchev^{1,2}

¹ Sternberg Astronomical Institute
nikolai.shakura@gmail.com

² Lomonosov Moscow State
University

The phenomenon of X-ray Nova is related to nonstationary disk accretion in close binary star systems. Optical star accrete matter to a compact object (a black hole or a neutron star). We study accretion in close binary systems with low-mass donors and black holes. Some of X-ray light curves (flux–time dependency) of such systems show fast rise and exponential decay of X-ray luminosity. Almost all of such light curves have a secondary peak of luminosity that appears 30–100 days after the maximum of X-ray luminosity. We assume that the nature of the secondary growth of luminosity is in an additional mass injection to the accretion disk from the donor star. We make 2D numerical simulation of the nonstationary accretion disk, fit both optical and X-ray light curves of the famous X-ray Nova A0620–00, and find the parameters of this system.