

W133a Possible regular phenomena in EXO 2030+375

Eva Laplace (University of Tübingen; RIKEN), Tatehiro Mihara, Toshihiro Takagi, Kazuo Makishima (RIKEN), Yuki Moritani (Kavli IPMU; Hiroshima University), Motoki Nakajima (Nihon University), Andrea Santangelo (University of Tübingen)

The X-ray source EXO 2030+375 (spin period: 42 s; orbital period: 46.021 d) is known for being the Be X-ray binary system showing the largest number of recurring low-luminosity X-ray outbursts (type I) every orbital period. Recently, however, its behaviour started to change: the X-ray flux decreased significantly and some expected type I outbursts were not detected, while the spin frequency reached a plateau (Fuerst et al. 2016). In addition, the equivalent width of the H α line reached an unprecedented high value (Steele 2016). We report a striking similarity with events which occurred 20 years ago, just before the source showed a sudden shift of the orbital phase of the outburst peak (orbital phase jump) in 1995 (Wilson et al. 2002). Moreover, we investigate the relation between these events and the long high-luminosity outbursts (type II), which were observed in 1985 (Parmar et al. 1985) and 2006 (Corbet & Levine 2006). The existence of an underlying periodicity between an orbital phase jump and/or type II outbursts is considered. We discuss possible models explaining the observed changes. If our view is correct, we should experience another orbital phase jump in December 2016/January 2017.