1. Record Nr. UNINA9910427676903321 Autore Kimura Mariko Titolo Observational and theoretical studies on Dwarf-nova Outbursts // Mariko Kimura Pubbl/distr/stampa Singapore:,: Springer,, [2020] ©2020 **ISBN** 981-15-8912-7 Edizione [1st ed. 2020.] Descrizione fisica 1 online resource (XXX, 179 p. 80 illus., 50 illus. in color.) Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-Collana 5053 821.009356 Disciplina Soggetti **Astrophysics** Astronomy Astronomy, Observations and Techniques Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto General introduction -- Unexpected Superoutburst and Rebrightening of AL Comae Berenices in 2015 -- Outburst Properties of Possible Candidates for Period Bouncers -- On the Nature of Long-Period DNe with Rare and Low-Amplitude Outbursts -- Thermal-viscous Instability in Tilted Accretion Disks: A Possible Application to IW And-type Dwarf Novae -- General Discussion -- Conclusions -- Appendix. Sommario/riassunto Accretion disks are ubiquitous in our universe, and produce intense brightening. How does the gas in the disk lose its angular momentum to release massive amounts of gravitational energy? This is one of the biggest open questions in astronomy. This book studies four types of newly detected outbursts in dwarf novae through optical observations and/or numerical simulations and puts forward physical interpretations of these outbursts on the basis of the disk instability model, the most plausible model for dwarf-nova outbursts. It demonstrates that the disk-instability model can explain rich variety in dwarf-nova outbursts if some new aspects are taken into account (e.g. the extremely slow growth of tidal instability and thermal instability in the disk misaligned

against the binary orbital plane). Moreover, it shares valuable insights on the evolution of binary systems by finding period bouncers and dwarf novae with F-type companion stars, which are rare objects.