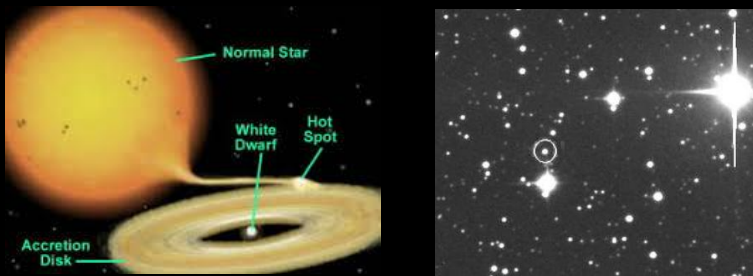


LONG-TERM LIGHT CURVE OF V425 CAS

Abstract:

Several studies and astronomical databases like Wenzel (1987), AAVSO, ASAS - SN, ZTF, TESS provide photometric data for V425 Cas. We use some of these databases together with our own data collected at NAO Rozhen, AO Belogradchik and AS Vidojevica to present complete light curve from 1964 to 2026. There are almost no published data from 2006 to 2015 and our observations show none missed low brightness states in the period 2003 - 2025.



Standart model of nonmagnetic Cataclysmic Variable and field of V425 Cas

About V425 Cas:

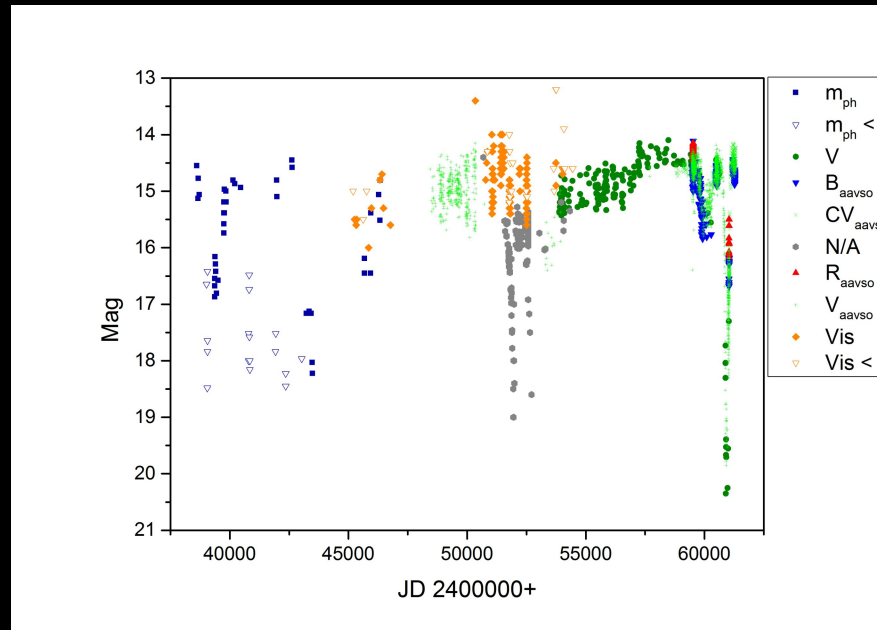
- Novalike CV, VY Scl type; detected by Hoffmeister, 1966
- $P_{orb} = 3.59 \text{ h}$ (0.14964 d – Shafter & Ulrich, 1982)
- $q = 0.36$
- $M_{wd} = 0.86 \pm 0.32 M_{\odot}$; $M_{rd} = 0.31 M_{\odot}$
- $V \sim 14.5 - 20.5 \text{ mag}$
- $D = 928 \pm 16 \text{ pc}$

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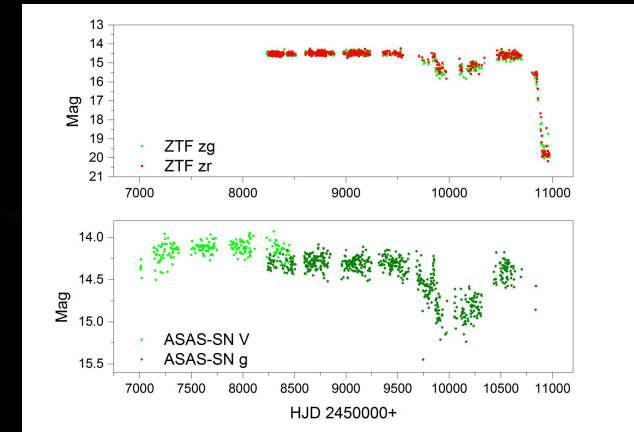
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Long-term light curve of V425 Cas from 1964 to 2026

Long-term light curve of V425 Cas consists archive data from Wenzel (1987), AAVSO database and our observation in V band. According to Wenzel, from 1935 to 1951 and from 1956 to 1964 the system had a lower brightness. Although data prior to 1991 are scarce, V425 Cas likely exhibits a long-term variability cycle lasting 20–25 years. Our observations in the last deep minimum in 2025 show 6 mag amplitude in the V light curve, similar to other VY Scl stars.



ZTF (Zwicky Transient Facility) and ASAS-SN (All Sky Automated Survey for SuperNovae) cover less than 10 years long set of observations

Conclusions

- Long-term behaviour of CVs is important for study of the magnetic properties of the secondaries – fully convective red dwarfs
- Our data supplied the “gap” in the published observations in 2006 – 2016: there is not a “missed” low state of V425 Cas
- Data are heterogeneous and not enough for the period analysis, but evoke to a 20–25 yrs long cycle, similar to another member of VY Scl type variable – TT Ari