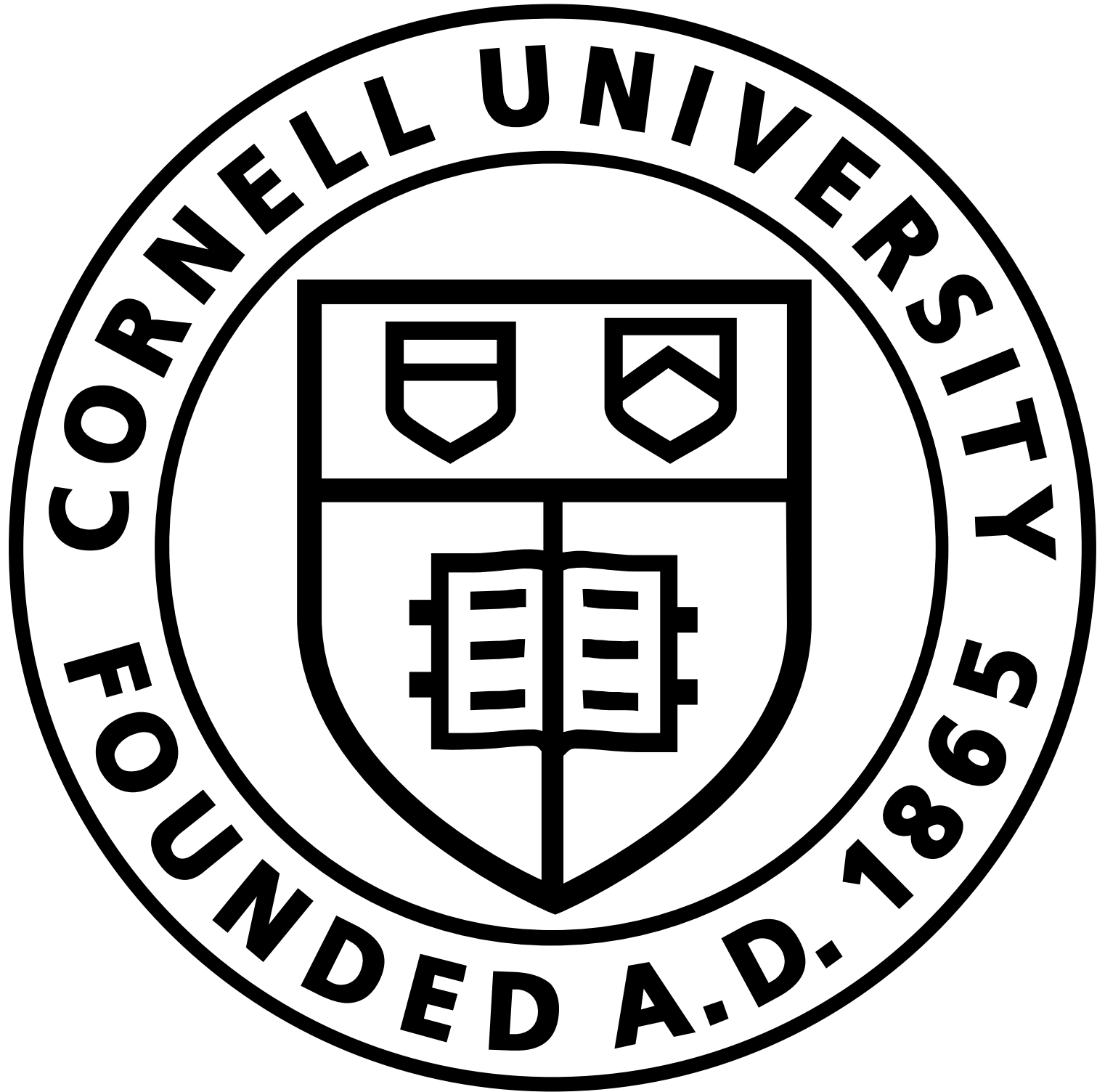


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# The supersoft X-ray transient ASASSN-16oh as a thermonuclear runaway without mass ejection

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The supersoft X-ray and optical transient ASASSN-16oh has been interpreted by Maccarone et al. (2019) as having been induced by an accretion event on a massive white dwarf, resembling a dwarf nova super-outburst. These authors argued that the supersoft X-ray spectrum had a different origin than in an atmosphere heated by shell nuclear burning, because no mass was ejected. We find instead that the event's timescale and other characteristics are typical of non-mass ejecting thermonuclear runaways, as already predicted by Shara et al. (1977) and the extensive grid of nova models by Yaron et al. (2005). We suggest that the low X-ray and bolometric luminosity in comparison to the predictions of the models of nuclear burning are due to an optically thick accretion disk, hiding most of the white dwarf surface. If this is the case, we calculated that the optical transient can be explained as a non-ejective thermonuclear event on a WD of  $\sim 1.1 M_{\odot}$  accreting at the rate of  $\sim 3.5 \times 10^{-7} M_{\odot} \text{yr}^{-1}$ . We make predictions that should prove whether the nature of the transient event was due to thermonuclear burning or to accretion; observational proof should be obtained in the next few years, because a new outburst should occur within  $\sim 10$ -15 years of the event.

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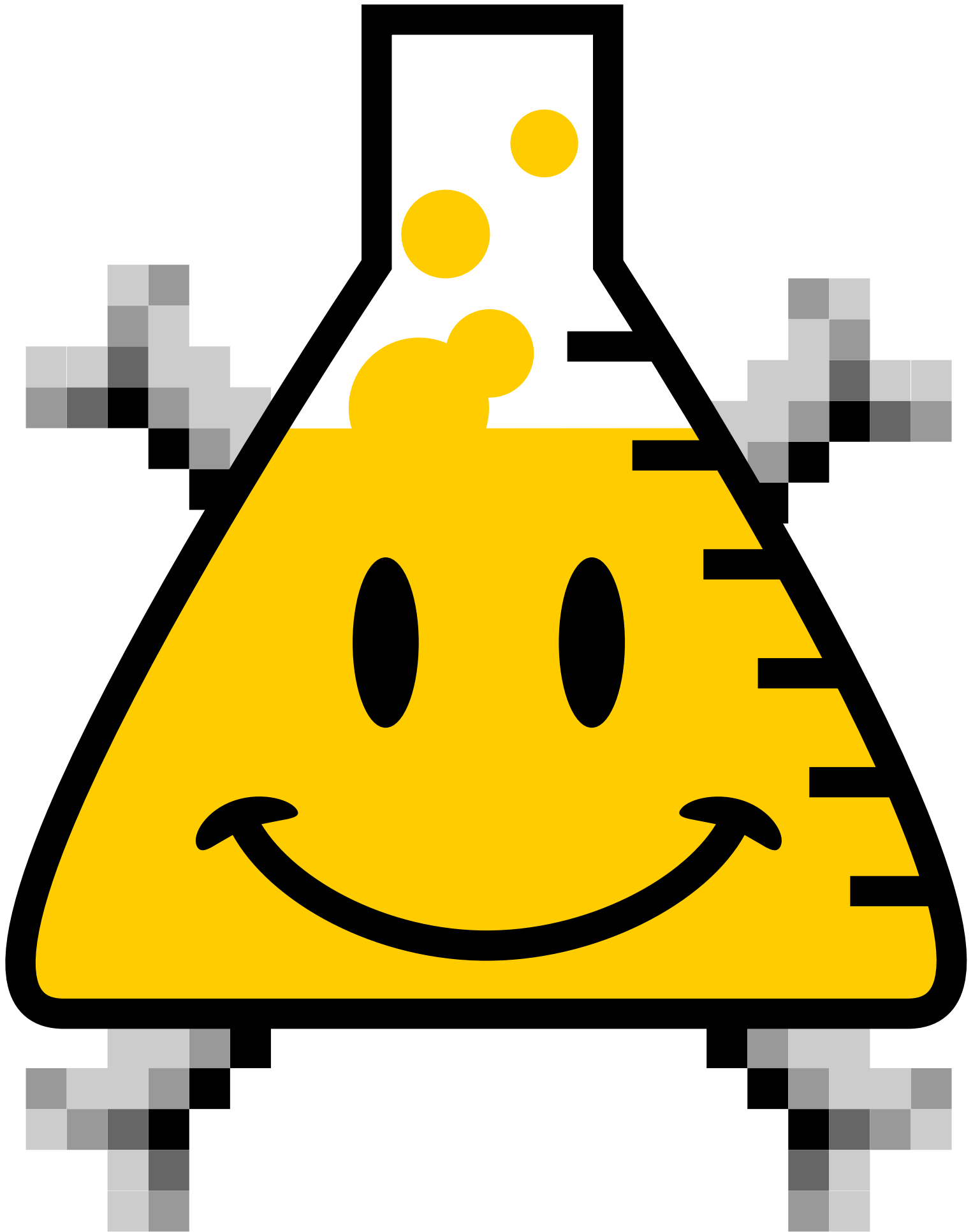
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