

GOTO065054+593624

A 8.5 mag amplitude dwarf nova identified in real time via [Kilonova Seekers](#)

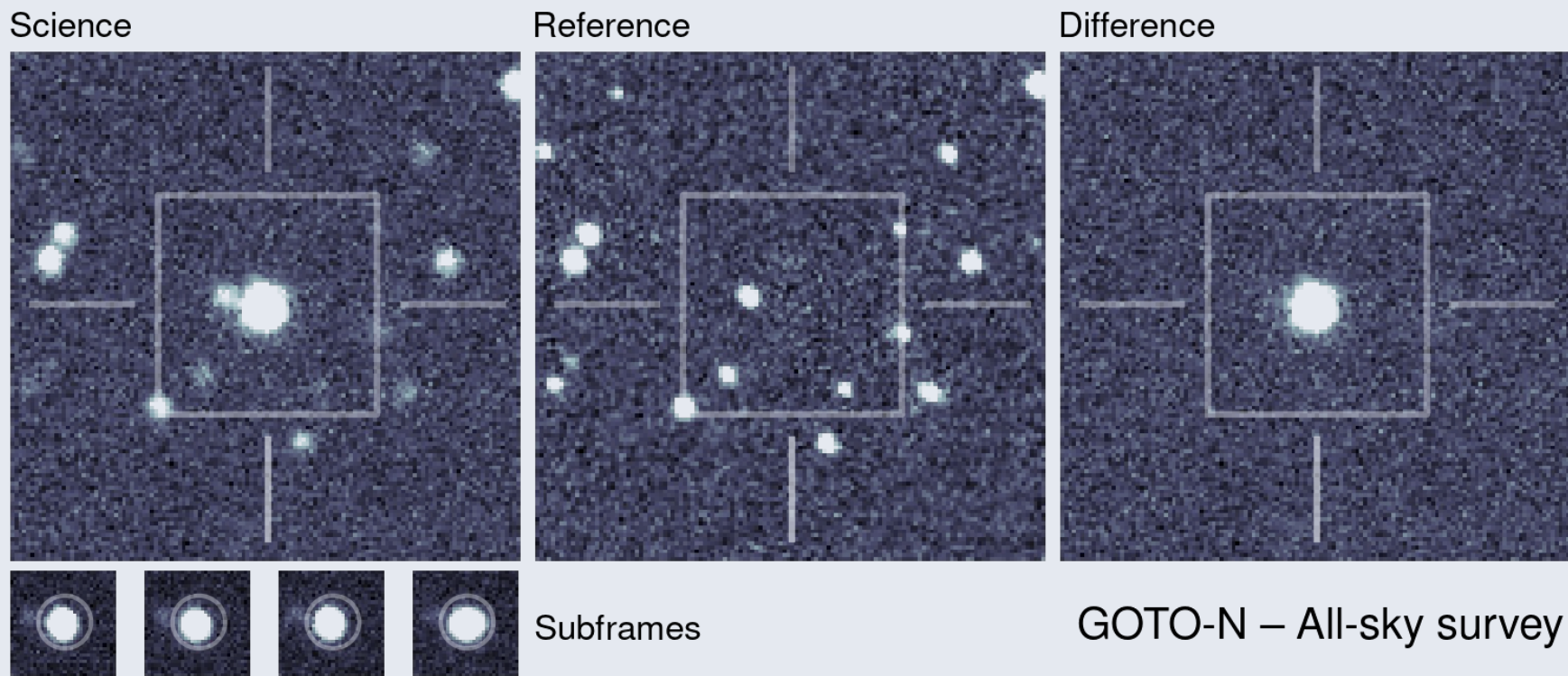
T. L. Killestein (University of Warwick/University of Turku) for [GOTO](#) and [Kilonova Seekers](#)



Scan the QR code to read the paper!

Discovery of GOTO0650

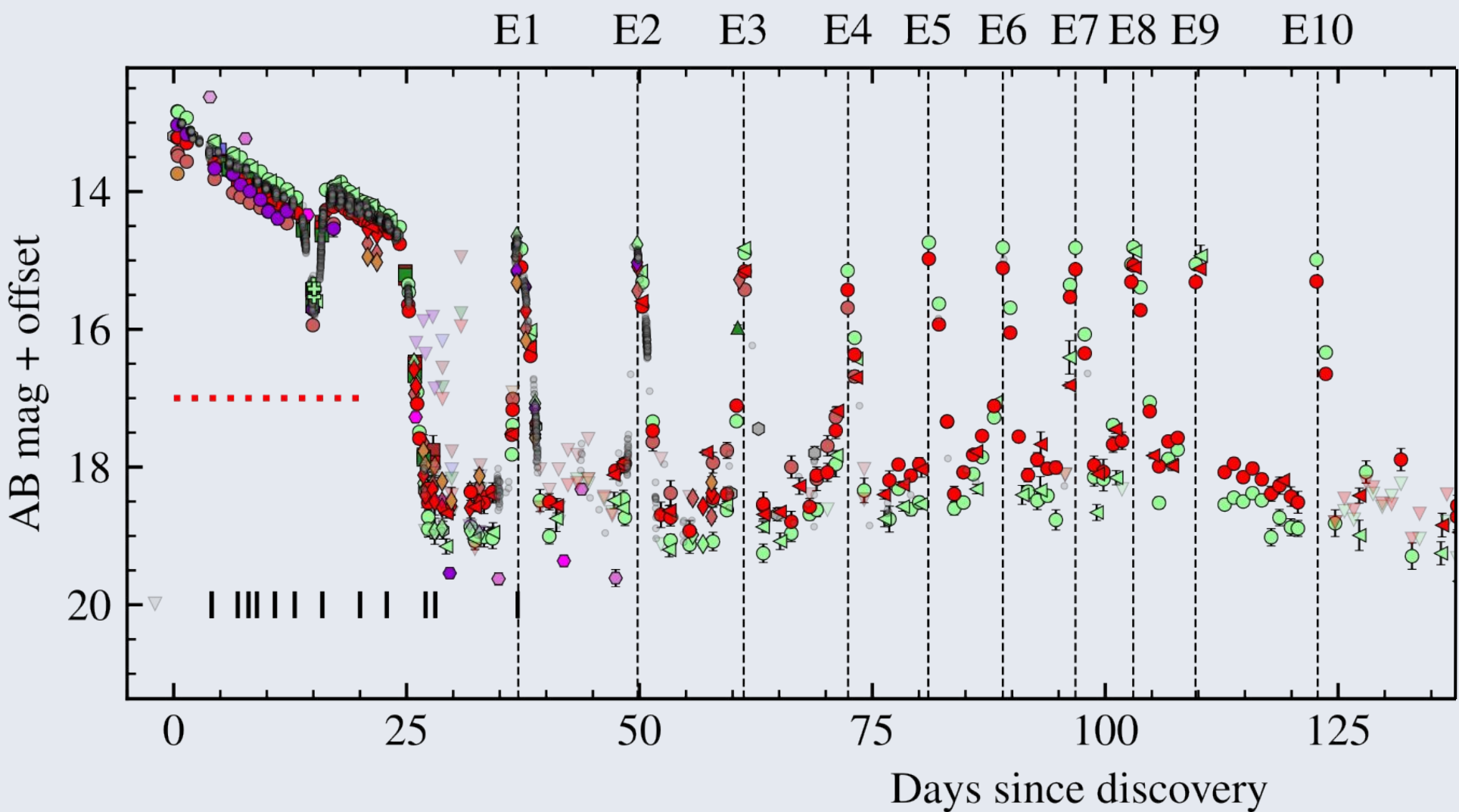
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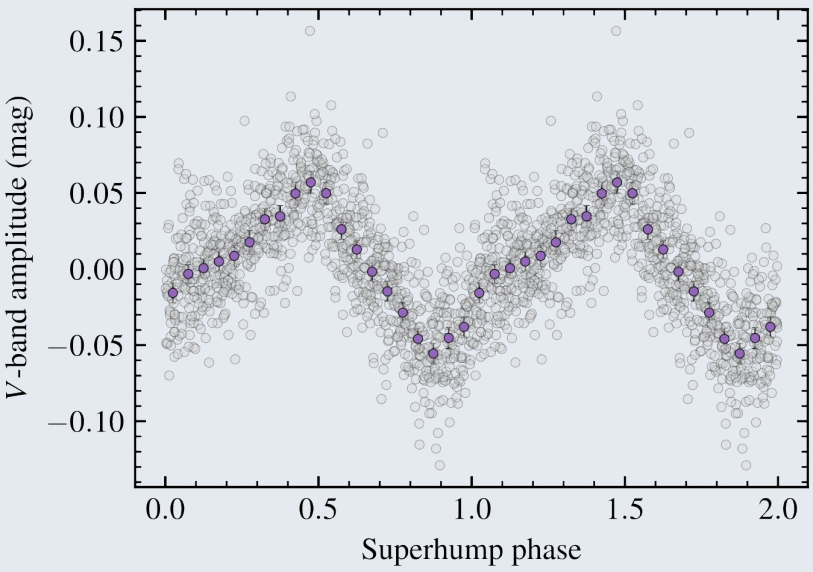
Kilonova Seekers ([Killestein and Kelsey et al. 2024](#)) alerted to an 8.5 mag outburst on a faint blue source identified in Legacy Surveys imaging.

An intensive follow-up campaign was triggered including Swift, Einstein Probe, LCO 0.4m, LT, NOT, and AAVSO observers.

Light curve evolution



We obtained an extensive photometric series of GOTO0650, showing **10 echo outbursts**, complex colour changes, and a prominent early-time dip, similar to AL Com.



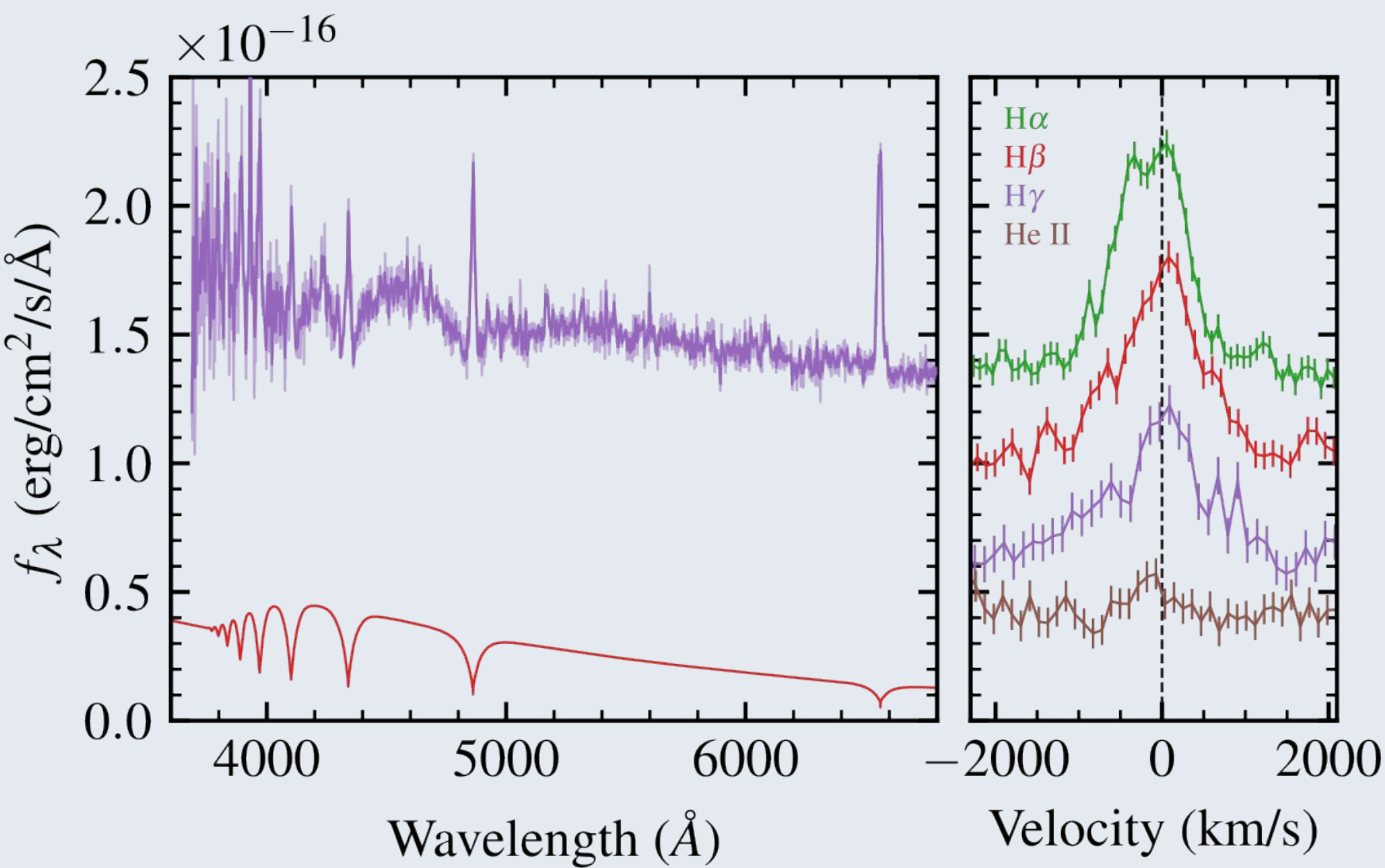
Through an [AAVSO Alert Notice](#), citizen scientists made high-cadence observations which revealed **ordinary superhumps**. These had a period of 91 min, implying an orbital period of 90.4/88.5 min depending if pre/post period maximum following Kato and Osaki (2015)

Spectroscopy

We obtained a dense spectral series for GOTO0650 from +4d post-outburst with NOT and LT

High state: blue continuum with Balmer absorption, Na D, weak He.

Low state: narrow double-peaked Balmer + He II emission, superimposed on flat continuum with Balmer absorption (WD features)

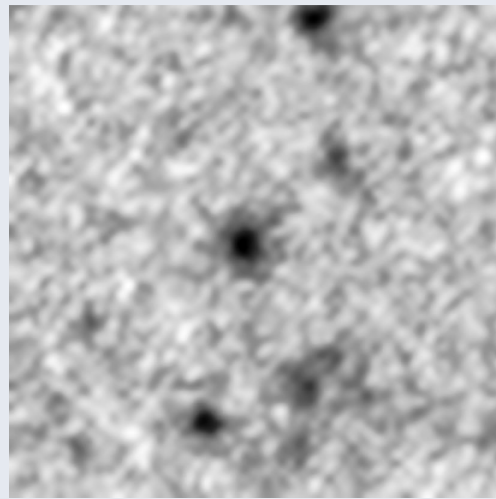


Conclusions

GOTO0650 is a new **WZ Sge-like dwarf nova** with a highly complete dataset and a historic outburst detected in DASCH photographic plates (right)

The inferred orbital period and pre-outburst SED point towards it being a candidate period bounce system, with further spectroscopic observations being crucial to confirm this.

MJD 33703.06



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