

# Properties of the eruptive Class 0 variable V723 Carinae

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## ABSTRACT

We present multi-epoch near-IR photometry and low-resolution spectroscopy of the young variable V723 Carinae associated with the Trumpler14/CarI photodissociation region. The observations were performed with the Baade 6.5m Magellan Telescope at Las Campanas Observatory. The photometry in the  $H$  and  $K$  bands, spanning from 1993 to 2014, shows large erratic variations in timescales of years ( $\delta K \sim 2$  magnitudes) after its first detected outburst ( $\Delta K > 4$  magnitudes) which occurred between 1993 and 2003. Spitzer photometry at three epochs suggests that this variability is also present at longer wavelengths. The 2012-2013 1.9 – 2.5  $\mu\text{m}$  spectra show the series of  $\text{H}_2$  emission lines and variable CO-bands in emission. Evidence of an  $\text{H}_2$ -emitting high-velocity jet extending 5000 AU from the star is found in the observed spectra. The quasi-simultaneous 2008-2010 1.6 – 500  $\mu\text{m}$  SED of V723 Carinae (using archive Spitzer and Herschel images) implies a total luminosity of  $3750 L_\odot$  for the system, with a  $1000M_\odot$  Class 0 stellar object at the centre of a  $500M_\odot$  20 K dust envelope and a very compact accreting disk. This may be the youngest, most massive, eruptive protostar discovered to date.