# Her X-1; 1656+354

| | | |
|---|---|---|
| **Coordinates :** | $RA$ | $DEC$ |
| | $74.458^{\circ}$ | $35.343^{\circ}$ |
| | $16^{\circ}\ 57'\ 49.8"$ | $+35^{\circ}\ 20'\ 33"$. |
| **Galactic Coordinates :** | $GLON$ | $GLAT$ |
| | $58.2^{\circ}$ | $+37.5^{\circ}$ |
| **Searched by astrosat :** | $Yes$ | |
| **Position derived from obs :** | $Optical$ | |
| **Type of the source :** | $X-Ray\ Pulsar$ | |
| **Optical counterpart :** | $HZ\ Her$ | |
| **Distance to source center :** | $0.52\,arcsec$ | |
| **Date of observations :** | 2018/09/17, 2018/09/21, 2020/02/20 | |
| **Time of Observations :** | 8 : 09 : 52, 22 : 36 : 42, 23 : 33 : 48 | |
| **Observation IDs :** | $A04\_230T01\_9000002374$ | |
| | $T02\_092T01\_9000002384$ | |
| | $T03\_180T01\_9000003524$ | |
| **Telescopes used to observe :** | $laxpc1$, $laxpc2$, $uvit1$ | |

# Paper Published

**Title**: Time evolution of cyclotron line of Her X-1: a detailed statistical analysis including new AstroSat data

**Authors**: Bala, S., Bhattacharya, D., Staubert, R., and Maitra, C.

**Keywords**: stars: neutron, stars: pulsars: individual: Her X-1, X-rays: binaries, Astrophysics - High Energy Astrophysical Phenomena

**Abstract**: The cyclotron line feature in the X-ray spectrum of the accretion-powered pulsar Her X-1 has been observed and monitored for over three decades. The line energy exhibited a slow secular decline over the period 1995-2014, with a possible (not confirmed) indication of a reversal thereafter. Recent works have shown that the temporal evolution of the line energy may be modelled as a flattening after an earlier decrease until MJD 55400 ($\pm$200). In this work, we present the results of AstroSat observations in the context of earlier data and offer a common interpretation through a detailed study of temporal and flux dependence. We find that the variation of the line energy does not support an upward trend but is consistent with the reported flattening after an earlier decrease until MJD $54487^{+515}_{-469}$ .

**URL**: `https://ui.adsabs.harvard.edu/abs/2020MNRAS.497.1029B">2020MNRAS.497.1029B`