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## Study of High-Mass X-Ray Binary Pulsar SMC X-2 during the 2015 Outburst

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SMC X-2 is one of the high-mass X-ray binary (HMXB) pulsar in the Small Magellanic Cloud (SMC). After a long interval of 15 years, the source was observed in its third outburst in September 2015. The source reached a very high X-ray luminosity of  $\sim 5 \times 10^{38}$  erg s<sup>-1</sup> at the peak of the outburst. The luminosity of the source slowly decayed over the course of a month. We will present results from analysing three XMM-Newton observations of SMC X-2. The bright outburst allowed us to perform a detailed spectral and temporal study of the data. The neutron star showed clear pulsation with a characteristic spin period of  $P_{\text{pulsar}} \sim 2.37$  seconds. The spectra were primarily modelled using a very hard powerlaw with a high-energy cutoff and a thermal component to model the soft excess. The powerlaw component became relatively soft with the progression of the outburst. Emission lines from Fe K $\alpha$  and highly ionized N and O were observed in all three observations. We will discuss our results' implications and the pulsar's emission properties during the outburst.

### Presentation Type

Oral

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