



# X-RAY ASTRONOMY 2019

*Current Challenges and New Frontiers in the Next Decade*

8-13 September 2019  
CNR/INAF Research Area, Bologna, Italy

Contribution ID: 317

Type: **Poster**

## Deep X-ray Spectral Imaging of the Bow-shock Nebula associated with PSR B1929+10

*Friday, 13 September 2019 15:08 (1 minute)*

We have studied the X-ray bow-shock nebula powered by the old non-recycled pulsar PSR B1929+10 with XMM-Newton data of an effective exposure ~310 ks, which provides the deepest investigation of this system so far. We found the X-ray tail has a length of ~8 arcmin, which is a factor of two longer than that reported in previous study. Evidence for spectral hardening along the tail has been found which suggests certain acceleration processes occur along the nebular emission. With multi-epoch data with a time span > 15 years, we have also placed constraints on the spatial and spectral variabilities of the nebula.

### Topic

Compact and diffuse sources in galaxies and in the Galactic Center

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**Session Classification:** POSTER SESSION