Contribution ID: **5** Type: **Poster**

Long-Term Spectral Evolution of an Anomalous X-ray Pulsar: XTE J1810-197

In this work, we study the long-term spectral evolution of the first transient anomalous X-ray pulsar XTE J1810−197 which was discovered in 2003, when its X-ray luminosity increased ≈100 fold. We fit the spectral data from all archival X-ray observations using a two-component blackbody model, where the cool component is most likely originating from the whole surface of the neutron star and the hot component is from a much smaller hot spot. We investigate the long-term evolution of the surface emission characteristics via tracing its surface temperature and apparent emitting area. We also explore the characteristics of an absorption line detected around 1.1 keV by fitting the data with an asymmetric Gaussian model.

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Track Classification: HAP Workshop