



# 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: 101

Type: **Poster**

## An XMM-Newton study of the hot gas in Early type galaxies

*Friday, 13 September 2019 16:30 (2 minutes)*

The distribution of hot ISM in early type galaxies (ETGs) bear the imprint of its formation and evolutionary history. The high sensitivity and large field of view of XMM-Newton has made it possible to investigate this diffuse emission in the galaxy outskirts, which is critical in understanding the interaction of this hot gas with the surrounding medium (e.g., by ram pressure stripping) and neighbouring galaxies (e.g., sloshing, merging), by measuring its spectral properties and mass profile on a larger scale.

I will be presenting an overview of the X-ray Galaxy Atlas project, where we systematically analysed the archival XMM-Newton observations of 50 ETGs and produced spatially resolved 2D spectral maps (temperature, density, pressure, entropy, abundances), with the aim of studying the distribution of the hot gas in these ETGs. These 2D spectral maps are more useful in revealing unique features in the distribution of hot gas, which may be not visible in 1D radial profiles or 2D surface brightness maps.

These results will be used complementary with the existing products from the Chandra Galaxy Atlas (<http://cxc.cfa.harvard.edu/GalaxyAtlas>) to investigate both small scale and large scale structures in the distribution of the hot gas in ETGs.

### Topic

Compact and diffuse sources in galaxies and in the Galactic Center

### Affiliation

Center for Astrophysics | Harvard and Smithsonian

**Primary author:** ISLAM, Nazma (Center for Astrophysics, Harvard and Smithsonian)

**Co-author:** KIM, Dong-Woo (Center for Astrophysics | Harvard & Smithsonian)

**Presenter:** ISLAM, Nazma (Center for Astrophysics, Harvard and Smithsonian)

**Session Classification:** POSTER SESSION