Origin of enigmatic diffuse X-ray emission in the Carina nebula

We present Suzaku mapping observations of enigmatic diffuse X-ray emission in the Carina nebula. This region is one of the representative massive star forming regions and known to have soft diffuse plasma extended over the whole nebula (~40 pc x 40 pc). Its spectrum is represented by a two temperature thin-thermal plasma model with kT of 0.2 and 0.6 keV. The total plasma energy is estimated as ~10^50 ergs. Since discovery of this X-ray emission in 1980’s, the origin of the diffuse X-ray emission has been unclear. Using good energy resolution CCD spectra of Suzaku, we constrained the origin of the diffuse X-ray emission as type-II supernovae and/or stellar wind bubbles, while type-Ia supernovae can be rejected from chemical abundance. We will show our Suzaku results and describe future prospects with high resolution spectroscopy using XARM and Athena.