

Chandra spectroscopy of thermal composite supernova remnant Kes 27

Y. Chen (1), F. D. Seward (2), M. Sun (2), and J.-T. Li (1)

(1) Nanjing University, (2) Harvard-Smithsonian Center for Astrophysics

We present a spatially resolved spectroscopic study of thermal composite supernova remnant Kes 27 with *Chandra* ACIS observation. The X-ray spectrum of Kes 27 is characterized by evident K lines from element species Mg, Si, S, Ar, and Ca. Most of the X-ray emitting regions are found to be silicon-enriched. Calcium is also overabundant in the remnant. The broadband and tri-color images of the remnant show two incomplete shell-like features in the northeastern half and brightness fading away with radius in the southwest. The X-ray intensity peak coincides with the radio bright region along the eastern border. The gas in the inner region is at higher temperature and emits brighter and harder emission than that in the outer. The gas in the remnant is generally close to ionization equilibrium. The overall morphology can be explained by the evolution of the remnant in an ambient medium with a density gradient from west to the east. We discuss the effect of reflected/reverse shock and cloud evaporation, the mechanisms that may cause the inner bright emission. There are no unresolved sources that might be a central compact object.