Chandra observations of the Composite-type Oxygen-rich SNR MSH 11-54

S. Safi-Harb, M. E. Gonzalez (*University of Manitoba*)

Abstract

MSH 11-54 (G292.0+1.8) has been classified as an Oxygen-rich Supernova Remnant (SNR) with an unusual central bar-like feature in X-rays, and a centrally filled morphology in the radio and hard X-ray energies, hinting at the presence of a pulsar (Torii, Tsunemi, and Slane 1998). We present archival observations of this composite-type SNR obtained with the CHANDRA X-ray observatory. The ~8-arcminute diameter SNR falls nicely on the S3 (back-illuminated chip) of ACIS. The broadband (0.3-10 keV) image of MSH 11-54 has a strikingly similar morphology to the SNR Cas A, and reveals a network of arcsecond-scale filaments and knots, dominated by line emission. Our spatially resolved spectroscopy reveals a multi-temperature plasma that hasn't fully reached ionization equilibrium, and indicates a young age for the remnant. We will present a color-coded and lines images, tracing the distribution of the X-ray emitting ejecta and the non-thermal emission from the SNR. At the soft energies (below 4 keV), the SNR is dominated by line emission from O, Ne, Mg, Si, and S. The hard band image ($E > 4$keV) reveals a nebula surrounding a putative pulsar, adding a new candidate to the growing list of PSRs/SNRs associations.

CATEGORY: SUPERNOVAE, SUPERNOVA REMNANTS AND ISOLATED NEUTRON STARS