

Cygnus Loop

Observation plan

We are planning to observe three pointings in northeastern regions — the P7 and NE rims — of the Cygnus Loop. Two of the three pointings are used to derive a radial variation of the P7 rim (hereafter, P7out and P7in); the remaining single pointing is for an observation of the brightest position in the NE rim, where no CX is expected. To have good statistics, we will limit position angles so that the outermost edge of the Resolve FoV is along the shock fronts. The position P7in should be adjacent to that of P7out. Exposure times are 50, 30, and 20 ks for P7out, P7in, and NE, respectively.

Immediate objectives

- [1] Search for evidence of charge exchange X-ray (CX) emission to understand the SNR shock physics.
- [2] Search for evidence of resonance scattering (RS) to constrain a line-of-sight plasma depth and/or turbulent velocity.
- [3] Measure absolute abundances of elements (C, N, ..., and Fe) to reveal the metallicity of ISM (or CSM) around the Cygnus Loop particularly in relation to a so-called “low-abundance problem”.