Young Neutron Stars and Their Wind Nebulae

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[Contributed talk, 15min.]

Abstract

While the Crab Pulsar and its nebula have long been viewed as the canonical example of a young neutron star feeding a synchrotron nebula through a pulsar-induced wind, considerable variety exists among the cousins of this well-studied system. However, recent high resolution X-ray observations have begun to reveal some of the common traits in this family, including new evidence of jets, pulsar wind termination shocks, and rapid pulsations. These observations provide our first look into the cores of these objects, and allow us to infer birth properties of the neutron stars, the nature of the pulsar winds, and the structure of the extended synchrotron nebulae. Here I review recent Chandra observations of several plerionic and composite supernova remnants, including G21.5-0.9, 3C58, and G292.0+1.8, and discuss the physical characteristics which are being probed on angular scales ranging from the sub-arcsecond to the several arcmin realm.

CATEGORY: SUPERNOVAE, SUPERNOVA REMNANTS AND ISOLATED NEUTRON STARS