

Determining the nature of faint X-ray sources from the ASCA Galactic center survey

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Abstract

© 2015, Pleiades Publishing, Inc. We present the results of the the identification of six objects from the ASCA Galactic center and Galactic plane surveys: AX J173548-3207, AX J173628-3141, AX J1739.5-2910, AX J1740.4-2856, AX J1740.5-2937, and AX J1743.9-2846. Chandra, XMM-Newton, and XRT/Swift X-ray data have been used to improve the positions of the optical counterparts to these sources. Thereafter, we have carried out a series of spectroscopic observations of the established optical counterparts at the RTT-150 telescope. Analysis of X-ray and optical spectra as well as photometric measurements in a wide wavelength range based on optical and infrared catalogs has allowed the nature of the program sources to be determined. Two X-ray objects have been detected in the error circle of AX J173628-3141: one is a coronally active G star and the other may be a symbiotic star, a red giant with an accreting white dwarf. Three sources (AX J1739.5-2910, AX J1740.5-2937, AX J1743.9-2846) have turned out to be active G-K stars, presumably RS CVn objects, one (AX J1740.4-2856) is an M dwarf, and another one (AX J173548-3207) most likely a low-mass X-ray binary in its low state. The distances and corresponding luminosities of the sources in the soft X-ray band (0.5–10 keV) have been estimated; analysis of deep INTEGRAL Galactic center observations has not revealed a statistically significant flux at energies >20 keV from any of them.

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Keywords

active stars, ASCA observatory, Galaxy, X-ray sources