

Astronomy Letters 2015 vol.41 N5, pages 179-195

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

Lutovinov A., Revnivtsev M., Karasev D., Shimansky V., Burenin R., Bikmaev I., Vorob'ev V., Tsygankov S., Pavlinsky M.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

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.

<http://dx.doi.org/10.1134/S1063773715050060>

Keywords

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