

HARD X-RAY EMISSION FROM WHITE DWARFS

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Hard X-ray emission associated with white dwarfs (WDs) can be used to diagnose the presence of late-type binary companions, mass accretion from companions, or physical processes with unknown origins. Since our previous systematic searches for hard X-ray emission associated with WDs, the Galactic WD catalog has been augmented by >10,000 new WDs from the Sloan Digital Sky Survey and new X-ray point source catalogs from *XMM-Newton* and *ROSAT* have become available. Therefore, we have extended the search using the updated catalogs, and found 16 new cases of WDs associated with hard X-ray emission. The 33 WDs associated with hard X-ray emission, from the current and previous searches, can be divided into five categories: (1) binary WD with a coronal companion, (2) binary WD with mass transfer from a companion, (3) single hot WD with a hard X-ray component peaking near 1 keV in addition to a soft photospheric component, (4) two PG 1159 stars with very faint X-ray emission in the 0.9-2.0 keV band, and (5) two DA WDs whose photospheric emission component has a hard shoulder extending to 0.5-0.9 keV. The origin of the hard X-ray emission in the latter three categories is not yet known. Deeper X-ray observations with higher angular and spectral resolutions are needed to help us understand these WDs' hard X-ray emission.