

The outflowing corona in MAXI J1820+070

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A black hole X-ray binary (BHXR) produces hard X-ray radiation from its corona and disk when the accreted matter heats up. During an outburst, the disk and corona co-evolves with each other. However, such an evolution is still unclear in both its geometry and dynamics. Here we report the unusual decrease of the reflection fraction in MAXI J1820+070, which is the ratio of the coronal intensity illuminating the disk to the coronal intensity reaching the observer, as the corona is observed to contract during the decay phase. In the scenario of outflowing corona, the decrease of the reflection fraction is a signature of the corona's bulk velocity. Our findings suggest that as the corona is observed to get closer to the black hole, the coronal material might be outflowing faster.

Topic

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