

Cygnus X-1: Still a 'Star' After All Those Years

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Credits: NASA/CXC

Since its discovery 45 years ago, Cygnus X-1 has been one of the most intensively studied cosmic X-ray sources. About a decade after its discovery, Cygnus X-1 secured a place in the history of astronomy when a combination of X-ray and optical observations led to the conclusion that it was a black hole, the first such identification.

The Cygnus X-1 system consists of a black hole with a mass about 10 times that of the Sun in a close orbit with a blue supergiant star with a mass of about 20 Suns. Gas flowing away from the supergiant in a fast

stellar wind is focused by the black hole, and some of this gas forms a disk that spirals into the black hole. The gravitational energy release by this infalling gas powers the X-ray emission from Cygnus X-1.

Although more than a thousand scientific articles have been published on Cygnus X-1, its status as a bright and nearby black hole continues to attract the interest of scientists seeking to understand the nature of [black holes](#) and how they affect their environment. Observations with Chandra and ESA's [XMM-Newton](#) are especially valuable for studying the property of the stellar wind that fuels Cygnus X-1, and determining its rate of spin.

This latter research has revealed that Cygnus X-1 is spinning very slowly. This puzzling result could indicate that Cygnus X-1 may have formed in an unusual type of [supernova](#) that somehow prevented the newly formed black hole from acquiring as much spin as other stellar black holes.

Provided by JPL/NASA ([news](#) : [web](#))

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