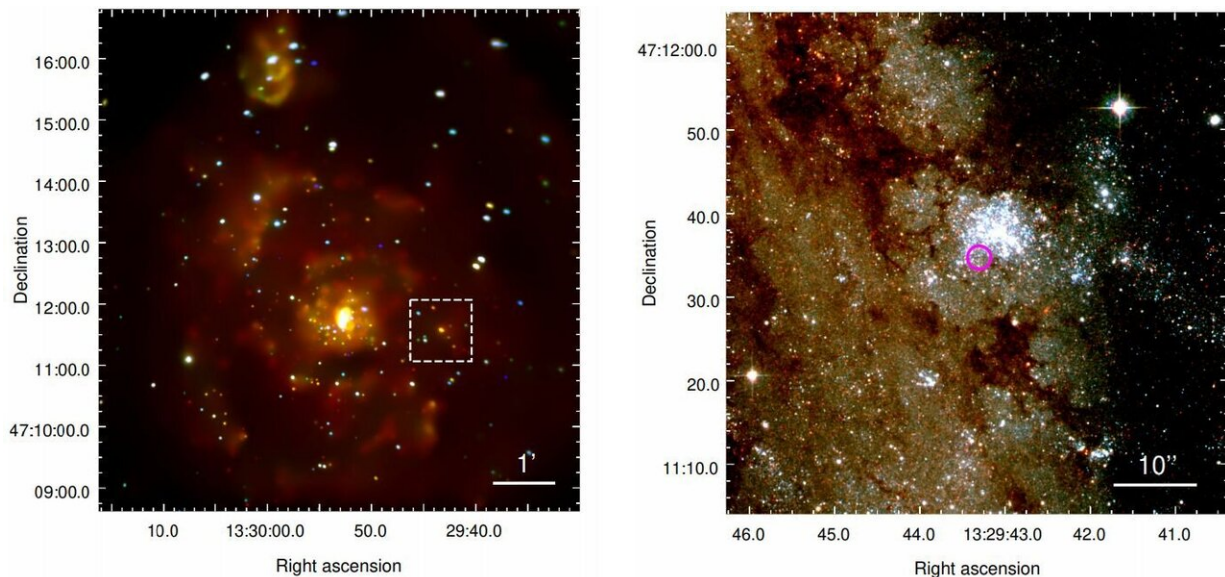


# First candidate for an extragalactic planet identified

September 25 2020, by Bob Yirka



Left: false RGB stacked Chandra/ACIS-S image of the Whirlpool Galaxy, M 51 (total exposure of  $\approx 850$  ks). Colored points are XRSs: Red is 0.3-1 keV; green is 1-2 keV; blue is 2-7 keV. M 51-ULS1 is the orange source at the center of the  $60'' \times 60''$  dashed white box. Diffuse emission is from hot gas. Right: HST image of the area defined by the white box in the top image. Red is the F814W band; green is F555W; blue is F435W. The magenta circle marks the X-ray position of M 51-ULS, which lies at the edge of a young star cluster. The source is located at right ascension and declination 13:29:43.30, +47:11:34.7, respectively. Credit: arXiv:2009.08987 [astro-ph.HE]

A team of researchers from the U.S. and China has found the first

evidence for a candidate planet in another galaxy. In their paper uploaded to the arXiv preprint server, the team describes their work studying the possible planet and what they have found so far.

Space scientists have found evidence of many planets beyond our [solar system](#); exoplanet discoveries now number in the thousands. But so far, all exoplanets have been discovered within the Milky Way galaxy. These discoveries have led scientists to believe that there are likely billions of [planets](#) in the Milky Way. But thus far, it has not been possible to identify a planet that exists in another galaxy. In this new effort, the researchers believe they have found such a candidate. If it is confirmed, it will be named M51-ULS-1b. The planet candidate lies in the M51 Whirlpool Galaxy and is approximately 23 million light years away. M51 lies relatively close to Ursa Major.

In most cases, identifying a planet at such a distance would be extremely difficult, if not impossible. But in this case, the work was made easier due to a host of unique candidate attributes. First, the object lies within a binary system that has either a black hole or neutron star at its center, which happens to be in the process of consuming another star. In so doing, it is emitting a huge X-ray signal, which caught the attention of the researchers. Such sources are rare in the night sky. Another factor in the discovery was that the source of the X-rays has proven to be very small—so small that an object passing between it and researchers here on Earth would temporarily block the X-rays. And that is what the researchers observed—a possible planetary transit that lasted for approximately three hours.

Thus far, the researchers have ruled out the possibility of another star blocking the X-rays, noting that the [binary system](#) is too young for that possibility. They also have ruled out the possibility of material being pulled into the source of the emissions as a reason for the dimming. The light characteristics were not right for such an event.

More study of the system is required before the object can be confirmed as a planet, but if that happens, the researchers suggest it will likely be approximately the size of Saturn.

**More information:** M51-ULS-1b: The First Candidate for a Planet in an External Galaxy, arXiv:2009.08987 [astro-ph.HE]  
[arxiv.org/abs/2009.08987](https://arxiv.org/abs/2009.08987)

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