

Swift Studies Gas-Churning Monster Black Holes

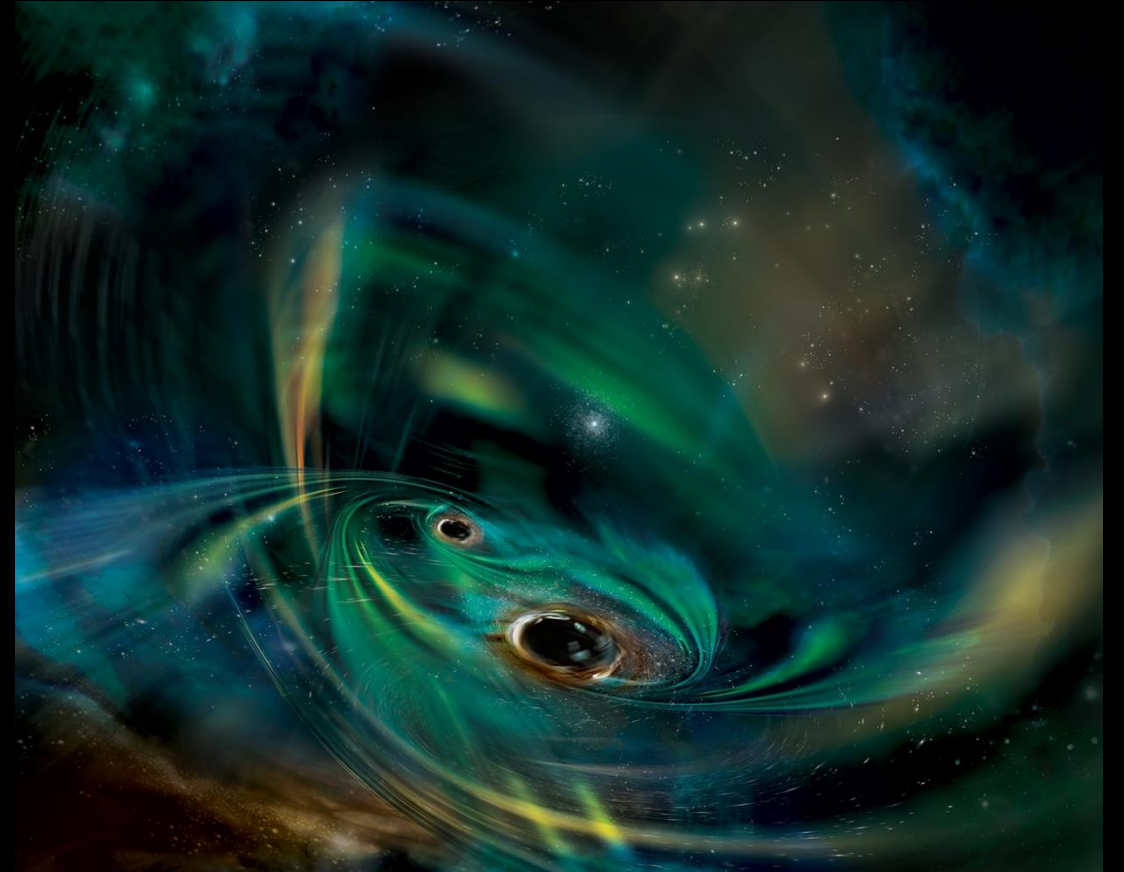


Scientists using observations from the NASA Goddard-managed Swift mission have discovered, for the first time, the signal from a pair of monster black holes disrupting a cloud of gas in the center of a galaxy.

The event, called AT 2021hdr, was first spotted by the Zwicky Transient Facility in March 2021. Swift has been collecting observations since November 2022.

Researchers think AT 2021 is the result of the tidal disruption of a gas cloud, one that was bigger than the black hole binary itself.

When the cloud encountered the black holes, gravity ripped it apart, forming filaments around the pair, and friction started to heat it. The gas got particularly dense and hot close to the black holes. As the binary orbits, the complex interplay of forces ejects some of the gas from the system on each rotation. These interactions produce the fluctuating light Swift and Zwicky observe.



A pair of monster black holes swirl in a cloud of gas in this artist's concept of AT 2021hdr. Credit: NASA/Aurore Simonnet (Sonoma State University)