ASASSN-14li: Destroyed Star Rains onto Black Hole, Winds Blow it Back

The illustration shows a disk of stellar debris around the black hole in the upper left of the illustration, and a long tail of debris that has been flung away from the black hole. The Inset box shows the X-ray spectrum obtained with Chandra.

- Tidal disruption of a star by supermassive black hole can cause some stellar debris to be flung outward at high speed, while the rest falls toward the black hole producing an X-ray flare that can last several years.
- Chandra detected flows of hot, ionized gas in high-resolution spectra of a tidal disruption event.
- Variability in the absorption-dominated spectra indicates that the gas is relatively close to the black hole.
- Modest outflow speeds of a few 100 km/s are observed, indicating that the flow is below the escape speed, and is consistent with a rotating wind from the inner region of a nascent accretion disk.

Distance Estimate: 290 million light years


Instrument: HRC/Low Energy Transmission Grating Spectrometer

CXC Operated for NASA by the Smithsonian Astrophysical Observatory