PSO 167-13: A Distant Heavily Obscured Supermassive Black Hole

Distance estimate: 12.9 billion light years ($z=6.515$)

Scale: Large image is about 13.3 arcmin (14.5 million light years) across. Inset images are about 5 arcseconds (91,000 light years) across.

- The X-rays are likely from PSO167-13, a quasar at a distance of 12.9 billion light years.

- Chandra observations of PSO167-13 detected no low-energy (0.5 – 2 keV) X-rays, indicating that the quasar is highly obscured by gas and dust.

- PSO 167-13 is the first highly obscured quasar detected at such large distances, corresponding to an age of only 850 million years, or 6.5% of the estimated age of the universe.

- A plausible explanation for the obscuration is that PSO167-13 is a supermassive black hole rapidly accreting material from a surrounding cloud of dust and gas.

Credits: X-ray:NASA/CXC/Pontificia Catholic Univ. of Chile/F. Vito; Radio: ALMA (ESO/NAOJ/NRAO); Optical: PanSTARRS

Instrument: ACIS


CXC Operated for NASA by the Smithsonian Astrophysical Observatory