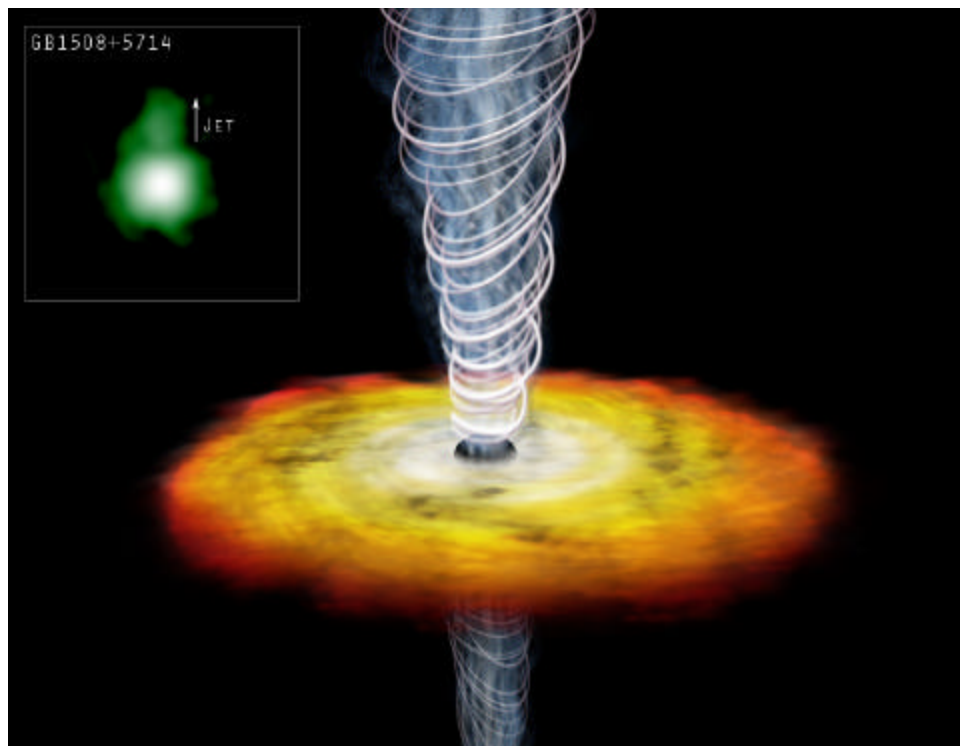




Chandra Science Highlight

GB1508+5714: A Quasar 12 Billion Light Years from Earth



Chandra X-ray Observatory ACIS image.

Chandra's image reveals a jet of high-energy particles that extends more than 100,000 light years from a central supermassive black hole

powering the quasar.

- The jet is associated with a quasar having a redshift $z=4.3$ (corresponding to a lookback time of 12.3 billion light years), making it the most-distant jet yet detected.
- The X-rays from the jet are likely produced when high-energy electrons scatter cosmic microwave photons into the X-ray band.
- The deduced intensity of the background radiation at 1.4 billion years after the Big Bang is consistent with the predictions of the standard Big Bang model.
- The jet's brightness also implies that enormous amounts of energy were deposited in the outer regions of the host galaxy of the quasar at a very early stage.

References: A. Siemiginowska et al. 2003 *Astrophys. Journal Letters* (in press); also astro-ph/0310241
W. Yuan et al; 2003 *Monthly Notices Roy. Astron. Soc.* (in press); astro-ph/0309318

*Credit: Image: NASA/CXC/A. Siemiginowska et al.;
Illustration: CXC/M. Weiss*