



**Chandra X-ray
Observatory Center**

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GOODS-S 29323: One of two distant supermassive black hole "seed" candidates.
(Credit: X-ray: NASA/CXC/Scuola Normale Superiore/Pacucci, F. et al, Optical: NASA/STScI; Illustration: NASA/CXC/M.Weiss)

Caption: Using data from three of NASA's Great Observatories, scientists have found the best evidence to date that supermassive black holes in the early Universe were produced by the direct collapse of a gas cloud. If confirmed, this result could lead to new insight into how black holes were formed and grew billions of years ago. This artist's illustration depicts a possible "seed" for the formation of a supermassive black hole. The inset boxes contain Hubble (right) and Chandra (left) images of one of two candidate seeds, where the properties in the data matched those predicted by sophisticated models produced by researchers of the direct collapse mechanism.

Scale: Image is about 15 arcsec across (about 212,000 light years)

Chandra X-ray Observatory ACIS Image

CXC operated for NASA by the Smithsonian Astrophysical Observatory