

Hubble captures gravity-lensed quasar

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Credit: ESA/Hubble & NASA, T. Treu Acknowledgment: J. Schmidt

Clustered at the center of this image are six luminous spots of light, four of them forming a circle around a central pair. Appearances can be deceiving, however, as this formation is not composed of six individual galaxies, but only three: to be precise, a pair of galaxies and one distant quasar. Hubble data also indicates that there is a seventh spot of light in the very center, which is a rare fifth image of the distant quasar. This rare phenomenon is caused by the presence of two galaxies in the

foreground that act as a lens.

These [galaxies](#) were imaged in spectacular detail by Hubble's Wide Field Camera 3 (WFC3), which was installed on Hubble in 2009 during Hubble Servicing Mission 4, Hubble's final servicing mission. The WFC3 was intended to operate until 2014, but 12 years after it was installed it continues to provide both top-quality data and fantastic images, such as this one.

The central pair of galaxies in this image are genuinely two separate galaxies. The four bright points circling them, and the fainter one in the very center, are actually five separate images of a single quasar (known as 2M1310-1714), an extremely luminous but distant object. The reason behind this "seeing quintuple" effect is a phenomenon known as [gravitational lensing](#). Gravitational lensing occurs when a celestial object with an enormous amount of mass—such as a pair of galaxies—causes the fabric of space to warp such that the light traveling through that space from a distant object is bent and magnified sufficiently that humans here on Earth can observe multiple magnified images of the far-away source. The quasar in this image actually lies further away from Earth than the pair of galaxies. The [light](#) from the quasar has been bent around the galaxy pair because of their enormous mass, giving the incredible appearance that the galaxy pair are surrounded by four quasars —whereas in reality, a single quasar lies far beyond them.

Provided by ESA/Hubble Information Centre

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