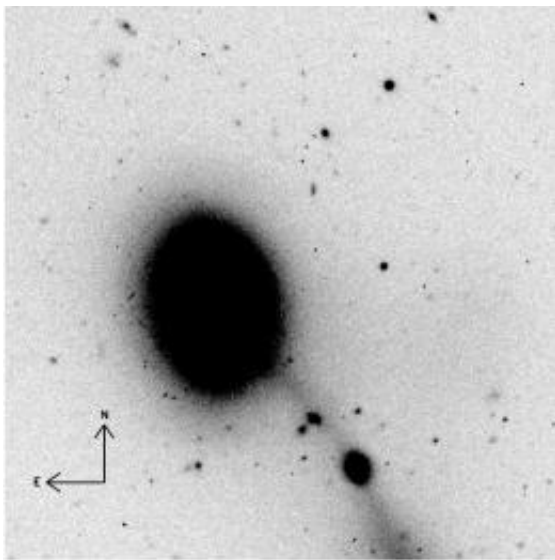


Astronomers find 'smoking gun' of compact galaxy formation

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A CFHT/Megacam image of the newly forming cE and its host galaxy (III Zw 069). The image is about 160,000 light years on each side. The streams of stars can be seen being stripped from the cE as it interacts with its more massive neighbour. Credit: Avon Huxor

(PhysOrg.com) -- A team at Bristol University have found irrevocable evidence that explains how an unusual type of galaxy, so-called compact ellipticals (cEs), are formed and have discovered two examples in which they see the process of formation in action. Team leader Dr. Avon Huxor presented their work on Wednesday 20 April at the Royal Astronomical Society's National Astronomy Meeting in Llandudno, Wales.

Compact elliptical [galaxies](#) are small in size and with high brightness. There are two main theories as to how these are formed. The most popular scenario involves the stripping of a more massive galaxy, leaving a smaller remnant galaxy behind. The other scenario argues that cE galaxies are the smallest members of the standard class of [elliptical galaxies](#).

Until now, the evidence supporting the stripping scenario has been circumstantial. The astronomers used the Sloan [Digital Sky Survey](#) (SDSS), one of the largest and deepest surveys of galaxies ever undertaken, to discover two cEs where they observed the process of stripping taking place. These images showed streams of stars being ripped from the cE galaxies, and leaving small bright remnants behind. In a serendipitous find, the scientists also discovered one of the cEs in high-quality archival data from the 4-meter Canada-France-Hawaii Telescope (CFHT).

"The stripping process is expected to be short-lived, in astronomical terms," explained Professor Steve Phillipps, a co-author of the study, "but by studying the many galaxies in the SDSS we have had the opportunity to find a couple in which this stripping has been caught in the act - we have found the 'smoking gun'."

Both of the cEs were found in small groups of galaxies. These are very different from the big galaxy cluster environments in which previous researchers had looked for them. It may be that the cEs found in galaxy clusters were actually formed in small groups that later came together to become a [galaxy cluster](#).

However lead author Dr. Huxor expressed a note of caution, "Although these cEs show that stripping is certainly one way in which these galaxies form, it does not exclude other mechanisms". An analysis of the many cE candidates found in the Bristol study will show what alternatives

might also exist.

Provided by Royal Astronomical Society

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