Hubbles spies the beautiful galaxy IC 335

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Credit: ESA/Hubble and NASA

This new NASA/ESA Hubble Space Telescope image shows the galaxy IC 335 in front of a backdrop of distant galaxies. IC 335 is part of a galaxy group containing three other galaxies, and located in the Fornax Galaxy Cluster 60 million light-years away.

As seen in this image, the disk of IC 335 appears edge-on from the vantage point of Earth. This makes it harder for astronomers to classify it, as most of the characteristics of a galaxy's morphology—the arms of a spiral or the bar across the center—are only visible on its face. Still, the 45 000 light-year-long galaxy could be classified as an S0 type.

These lenticular galaxies are an intermediate state in galaxy morphological classification schemes between true spiral and elliptical galaxies. They have a thin stellar disk and a bulge, like spiral galaxies, but in contrast to typical spiral galaxies they have used up most of the interstellar medium. Only a few new stars can be created out of the material that is left and the star formation rate is very low. Hence, the population of stars in S0 galaxies consists mainly of aging stars, very similar to the star population in elliptical galaxies.

As S0 galaxies have only ill-defined spiral arms they are easily mistaken for elliptical galaxies if they are seen inclined face-on or edge-on as IC 335 here. And indeed, despite the morphological differences between S0 and elliptical class galaxies, they share some common characteristics, like typical sizes and spectral features.

Both classes are also deemed "early-type" galaxies, because they are evolving passively. However, while elliptical galaxies may be passively evolving when we observe them, they have usually had violent interactions with other galaxies in their past. In contrast, S0 galaxies are either aging and fading spiral galaxies, which never had any interactions with other galaxies, or they are the aging result of a single merger between two spiral galaxies in the past. The exact nature of these galaxies is still a matter of debate.

Provided by NASA

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