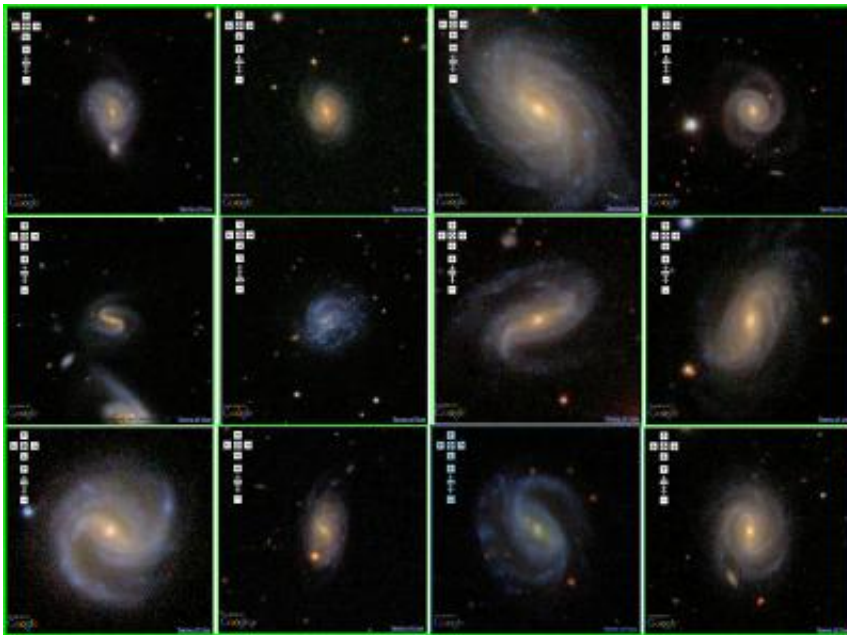


Scientists study the 'galaxy zoo' using Google Maps and thousands of volunteers

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The images provide examples of barred galaxies with spiral arms. In the first row, the arms are connected to the ring around the bar. In the second row, the arms are connected at the end of the bar and the third row shows a mixture of the two. Credit: Ben Hoyle et al./Galaxy Zoo.

The reddest galaxies with the largest central bulb show the largest bars -gigantic central columns of stars and dark matter-, according to a scientific study that used Google Maps to observe the sky. A group of volunteers of more than 200,000 participants of the galaxy classification project Galaxy Zoo contributed to this research.

More than two thirds of spiral galaxies, including our own Milky Way, display a central bar that can extend for thousands of light years. These colossal elongated structures are made up of collections of stars and dark matter which are held together by gravity.

Now a team of researchers from Europe and the USA have measured the bar length of some 5000 galaxies with the help of [amateur astronomers](#). The most precise results (those obtained for 3150 galaxies) have been published in the [Monthly Notices of the Royal Astronomical Society](#) journal.

The study comes under the Galaxy Zoo project, a [citizen science](#) initiative in which more than 200,000 volunteers assisted in classifying a million galaxies through images provided by the Sloan Digital Sky Survey astronomical catalogue. As for the bars, 150 amateur astronomers have recorded their observations on a webpage specifically created for this purpose. The page is currently still active despite being closed to any further data entry.

Ben Hoyle, researcher at the Institute of Cosmos Sciences (University of Barcelona, Spain) and coordinator of the study, stresses to SINC that "this webpage combines Galaxy Zoo classifications with [Google Maps](#) technology." More precisely, the team has used the [Google](#) Maps Sky interface which allows to see the sky, especially the galaxies, as seen from the Earth's surface.

"In this way we have compiled some 16,000 measurements of the bars of 5000 galaxies, which is a sample a hundred times greater than previous ones. We have also come to many different conclusions, such as the fact that redder galaxies, which are stopping [star formation](#), have longer bars," says Hoyle.

In the electromagnetic spectrum, the colour red comes from older,

cooler stars whereas the colour blue is linked to hotter and younger stars. The study also reveals that the bars tend to be redder than the rest of the galaxy, which indicates that they have an older stellar population.

Other conclusions indicate that those galaxies with a larger bulb (a central agglomeration of stars) have longer bars. In addition, barred galaxies are more likely to display spiral arms than unbarred galaxies.

More information: [Doi: 10.1111/j.1365-2966.2011.18979.x](https://doi.org/10.1111/j.1365-2966.2011.18979.x)

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