NASA TELESCOPE REVEALS NEARBY GALAXY'S INVISIBLE ARMS

Press release images (3): GALEX-2005-04

1. Hello to Arms

+Hi-res JPEG +Hi-res TIFF

This image highlights the hidden spiral arms (blue) that were discovered around the nearby galaxy NGC 4625 by the ultraviolet eyes of NASA's Galaxy Evolution Explorer.

The image is composed of ultraviolet and visible-light data, from the Galaxy Evolution Explorer and the California Institute of Technology's Digitized Sky Survey, respectively. Near-ultraviolet light is colored green; far-ultraviolet light is colored blue; and optical light is colored red.

As the image demonstrates, the lengthy spiral arms are nearly invisible when viewed in optical light while bright in ultraviolet. This is because they are bustling with hot, newborn stars that radiate primarily ultraviolet light.

The youthful arms are also very long, stretching out to a distance four times the size of the galaxy's core. They are part of the largest ultraviolet galactic disk discovered so far.

Located 31 million light-years away in the constellation Canes Venatici, NGC 4625 is the closest galaxy ever seen with such a young halo of arms. It is slightly smaller than our Milky Way, both in size and mass. However, the fact that this galaxy's disk is forming stars very actively suggests that it might evolve into a more massive and mature galaxy resembling our own.

The armless companion galaxy seen below NGC 4625 is called NGC 4618. Astronomers do not know why it lacks arms but speculate that it may have triggered the development of arms in NGC 4625.

Image credit: NASA/JPL-Caltech/Carnegie Observatories/DSS

2. Galactic Halos of Hydrogen

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This image shows two companion galaxies, NGC 4625 (top) and NGC 4618 (bottom), and their surrounding cocoons of cool hydrogen gas (purple). The huge set of spiral arms on NGC 4625 (blue) was discovered by the ultraviolet eyes of NASA's Galaxy Evolution Explorer. Though these arms are nearly invisible when viewed in optical light, they glow brightly in ultraviolet. This is because they are bustling with hot, newborn stars that radiate primarily ultraviolet light.

The vibrant spiral arms are also quite lengthy, stretching out to a distance four times the size of the galaxy's core. They are part of the largest ultraviolet galactic disk discovered so far.

Astronomers do not know why NGC 4625 grew arms while NGC 4618 did not. The purple nebulosity shown here illustrates that hydrogen gas - an ingredient of star formation - is diffusely distributed around both galaxies. This means that other unknown factors led to the development of the arms of NGC 4625.

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The image is composed of ultraviolet, visible-light and radio data, from the Galaxy Evolution Explorer, the California Institute of Technology's Digitized Sky Survey, and the Westerbork Synthesis Radio Telescope, the Netherlands, respectively. Near-ultraviolet light is colored green; far-ultraviolet light is colored blue; and optical light is colored red. Radio emissions are colored purple.

Image credit: NASA/JPL-Caltech/Carnegie Observatories/WSRT

3. Look at my Arms!

+Hi-res JPEG +Hi-res TIFF

This image shows the hidden spiral arms that were discovered around the galaxy called NGC 4625 (top) by the ultraviolet eyes of NASA's Galaxy Evolution Explorer. An armless companion galaxy called NGC 4618 is pictured below.

Though the lengthy spiral arms are nearly invisible when viewed in optical light, they glow brightly in ultraviolet. This is because they are bustling with hot, newborn stars that radiate primarily ultraviolet light.

The youthful arms are also very long, stretching out to a distance four times the size of the galaxy's core. They are part of the largest ultraviolet galactic disk discovered so far.

Located 31 million light-years away in the constellation Canes Venatici, NGC 4625 is the closest galaxy ever seen with such a young halo of arms. It is slightly smaller than our Milky Way, both in size and mass. However, the fact that this galaxy's disk is forming stars very actively suggests that it might evolve into a more massive and mature galaxy resembling our own.

Astronomers do not know why NGC 4618 lacks arms but speculate that it may have triggered the development of arms in NGC 4625.

Image credit: NASA/JPL-Caltech/Carnegie Observatories