

**Coma Cluster of Galaxies**



## Coma Cluster of Galaxies

This image from NASA's Hubble Space Telescope shows hundreds of galaxies in an area of the sky as small as President Roosevelt's eye on a dime held at arm's length. The brightest galaxy in the field, called NGC 4881, lies in the outskirts of a really large cluster of galaxies called the Coma Cluster.

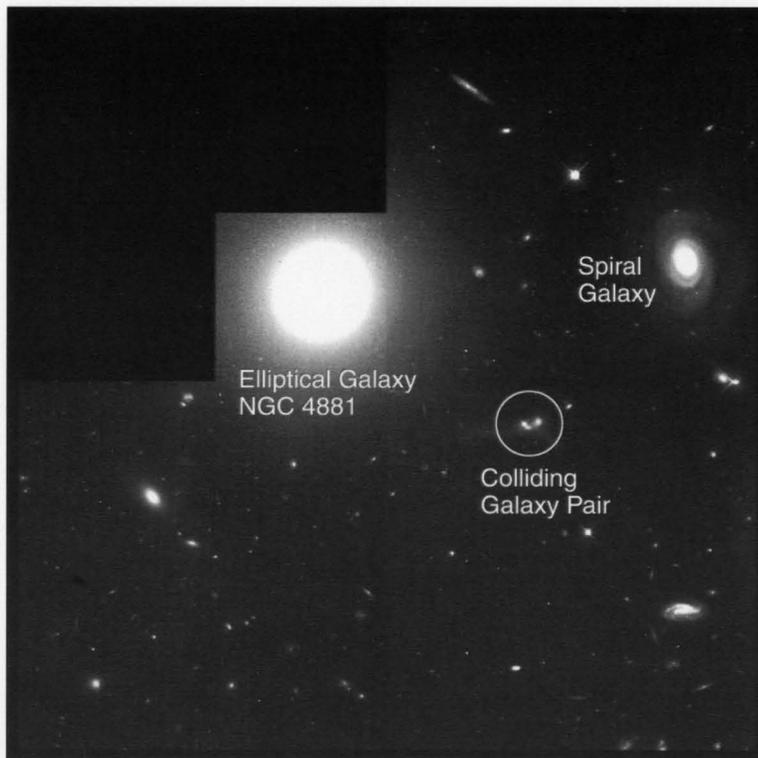
## Galaxy Clusters

Galaxies, themselves giant assemblies of stars, dust and gas, are collected in clusters containing dozens to thousands of members. Our Milky Way Galaxy is a member of a small cluster of 40 galaxies. The Coma Cluster contains 1,000 large and thousands of smaller galaxies packed closely together. Its members are mostly elliptical galaxies, spherically shaped galaxies without the spiral arms that characterize the Milky Way.

## How Big is the Universe?

Scientists study a distant cluster of galaxies to look for distance indicators or mile posts within them. In this case, the scientists are using giant star clusters in the bright galaxy to gauge the distance to the galaxy cluster. These star clusters are good mile posts because scientists know how bright on average they really are. Comparing their apparent brightness with their true brightness reveals their distance. Based on preliminary calculations, the Coma Cluster of galaxies is more than 300 million light years away.

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## About the Image

This image was taken by the Wide Field & Planetary Camera 2 on NASA's Hubble Space Telescope on March 4, 1994. It is a combination of 16 exposures, each lasting 15 minutes. The mile post star clusters are barely visible points of light in this reproduction. Most of the smaller galaxies, including the two colliding galaxies seen at "4 o'clock" with respect to the brightest galaxy NGC 4881, are not in the Coma Cluster but much further away.

## Definitions

**Galaxy:** a large assembly of gas, dust and millions or billions of stars; seen in different shapes including pinwheel-shaped spirals, smooth round ellipticals, and irregulars, having neither spiral arms nor round shape.

**Galaxy Clusters:** a collection of dozens to thousand of galaxies.

**Light Year:** the distance light travels in one year; at 186,000 miles per second, that is 5 trillion 900 billion miles in a year.

## Fast Facts

### Age

Galaxies in a cluster are probably 15 billion years old.

### Location

The galaxy cluster is seen in the direction of the northern hemisphere constellation Coma Berenices (Berenice's Hair).

### Distance from Earth

300 million light years

### Size

Galaxy NGC 4881 is 300,000 light years in diameter, three times larger than the Milky Way. It would take 1,000 Hubble images like this one to map the entire galaxy cluster.

## Electronic Addresses

You can get images and other information about the Hubble Space Telescope using the Internet.

Using ftp or gopher, connect to <ftp.stsci.edu> and find files and directories in /pubinfo.

Using the World Wide Web (Mosaic, NetScape, Lynx, and other browsers), use URL <http://www.stsci.edu/public.html> and follow links from there.