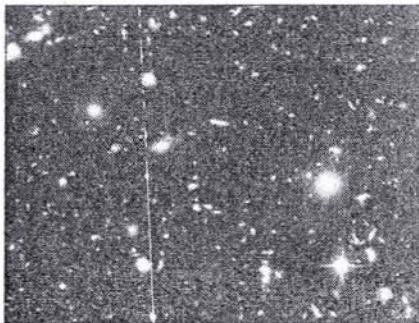


Galaxies can also be awake or asleep

Astronomers probing the distant universe have stumbled upon galaxies that are either awake or asleep, actively forming stars or not forming any new stars at all. They deciphered the galaxies' dual behaviour is based on the colour of the light they emit and the physics of star formation.

For instance, active, wakeful galaxies appear bluer, while the light emitted by passive, sleepy galaxies tends toward the redder end of the spectrum. This is true of even very young galaxies as far away as 12 billion light years, meaning galaxies have behaved this way for more than 85 percent of the history of the universe, reports the "Astrophysical Journal."

"The fact that we see such young galaxies in the distant universe that have already shut off is remarkable," said Yale



University graduate student Kate Whitaker, who led the study. In order to determine whether the galaxies were asleep or awake, Whitaker and her colleagues fabricated a new set of filters, each one sensitive to different wavelengths of light, which they used on a four-metre Kitt Peak

telescope in Arizona.

They spent 75 nights peering into the distant universe and collecting light from 40,000 galaxies ranging in distance from the nearby universe out to 12 billion light years away, according to a Yale statement. The resulting survey is the deepest and most complete ever made at those distances and wavelengths of light.

The researchers found that there are many more active galaxies than passive ones, which agrees with the current thinking that galaxies start out actively forming stars before eventually shutting down. Whether the sleeping galaxies have completely shut down remains an open question, Whitaker said. However, the new study suggests the active galaxies are forming stars at rates about 50 times greater than their sleepy counterparts. *IAN5*