New View: Universe Suddenly Twice as Bright

May 17, 2008

The universe is twice as bright as it appears, astronomers now suggest.
The light bulb went on when they calculated that dust blocks about the half the light emitted from stars and galaxies.

Astronomers have known about interstellar dust for a while, but they haven't been able to quantify just how much light it blocks. Now a team of researchers has studied a catalogue of galaxies and found that dust shields roughly 50 percent of their light.

"I was shocked by the sheer scale of the effect," said Simon Driver, an astronomer from the University of St. Andrews in Scotland who led the study. "Most people just kind of said, 'We suspect dust is a minor problem.' I spent much of my career working on deep images from Hubble and I've always ignored dust almost entirely."

The result will likely cause many astronomers to revise their calculations of the intrinsic brightness of many celestial objects, Driver said. Until now, many astronomers thought stars and galaxies were really about 10 percent brighter in optical light than they appeared because of dust. If the new findings are true, it turns out that objects in the sky are about twice as bright than they appear.

"This is a strong, clear-cut result," Driver told *SPACE.com*. "We've really got to take dust seriously and we've got to make large adjustments to our magnitude calculations." (A magnitude scale is used to define brightness of celestial objects.)

The astronomers detailed their findings in the May 10 issue of the *Astrophysical Journal Letters*.

Interstellar dust isn't exactly the same thing that coats our bookshelves and covers our TV screens. It's made up of lumps of carbon and silicates that form dust grains only a few thousandths of a millimeter long. It hangs out in galaxies, but generally steers clear of the space between them.

To calculate dust's effect, the researchers analyzed data from the Millennium Galaxy Catalogue, a collection of images of 10,000 galaxies compiled by Driver and his team using the Isaac Newton Telescope on La Palma and others.

They counted the number of galaxies in the catalogue that were directly facing us, and compared it to the number that were tilted 90 degrees away from us. Without dust, they reasoned, they should see just about equal numbers of galaxies in each orientation. But with dust, they would likely find fewer edge-on than face-on galaxies. Since dust lies in the disks of spiral galaxies, and not the dense central bulge, when we view galaxies from the side we are looking through thicker layers of dust, so we should see less light. In fact, the researchers counted about 70 percent fewer edge-on galaxies than face-on galaxies.

They used this discrepancy to quantify dust's effect by combing their counts with a model of dust distribution in galaxies developed by Cristina Popescu of the University of Central Lancashire and Richard Tuffs of the Max Plank Institute for Nuclear Physics.

"It's been a revelation to many people in the community, but there are small groups that had a suspicion this was coming," Driver said. "I wouldn't be surprised if there's a refinement of the result, but I think the result is basically here to stay."

The research was funded by the Science and Technology Facilities Council, the Australian Research Council, the Max-Planck Society and a Livesey award from the University of Central Lancashire.

Written by Byrappa · Filed Under SciTech

Comments

Got something to say?

Name (required)

Email Address (required)

Website

Speak your mind

Submit Comment

Login

Login:

Password:

Remember me

Login » Register

eNews & Updates

Sign up to receive the latest breaking news!

Enter your email address. JOIN

Site Sponsors

Recently Written

Equals in knockout clash

TWO MEN will sleep very differently the day before they come up against each other in the Delhi-Mohali IPL tie. For Virender...

May 17, 2008 |

Mars Colder Than Expected

Peering beneath the ice at the north pole of Mars has now revealed the red planet may be surprisingly colder than was thought. Any...

May 17, 2008 |

Astronomers baffled by weird, fast-spinning pulsar

WASHINGTON (Reuters) - Astronomers are baffled after finding an exotic type of star called a pulsar apparently locked in...

May 17, 2008 |

Tag Cloud

- Advertising Australia BCCI Barack Obama Bollywood Buddhism Business CPU Celebrities Celebrity China Cricket Crime Dalai Lama Democrats Economy Elections England Entertainment Environment Family Food Google Health Hillary Clinton ICL IPL IT India Internet Iraq Men Microsoft Movies Mystic Olympics Pakistan Politics Relationships Religion Sex Sports TV Test Tibet Twenty20 USA Women Yahoo 2008

Site Supporters

|