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STS-120 day 2 highlights



Flight Day 2 of Discovery's mission focused on heat shield inspections. This movie shows the day's highlights.

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STS-120 day 1 highlights



The highlights from shuttle Discovery's launch day are packaged into this movie.

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STS-118: Highlights



The STS-118 crew, including Barbara Morgan, narrates its mission highlights film and answers questions in this post-flight presentation.

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STS-120: Rollout to pad



Space shuttle

Astronomers double brightness of the Universe

BY DR EMILY BALDWIN
ASTRONOMY NOW

Posted: May 16, 2008

Astronomers have turned up the brightness of the Universe in a discovery showing that interstellar dust is obscuring roughly half of the light that the Universe is currently generating.

Astronomers have known for some time that the Universe contains small grains of dust that absorb starlight and re-emits it, making it glow, but they had not anticipated the extent to which this is restricting the amount of light that we can see. They knew, however, that existing models were flawed, because the energy output from glowing dust appeared to be greater than the total energy produced by the stars, defying simple laws of physics.

"You can't get more energy out than you put in so we knew something was very wrong," says Dr Simon Driver from the University of St Andrews. "Even so, the scale of the dust problem has come as a shock as it appears that galaxies generate twice as much starlight as previously thought."



The Andromeda galaxy is known to contain large quantities of dust that obscures our vision of some of its stars. Image: Robert Gendler.

The research team combined an innovative new model of the dust distribution in galaxies developed by Dr Cristina Popescu of the University of Central Lancashire and Professor Richard Tuffs of the Max Planck Institute for Nuclear Physics, with data from the Millennium Galaxy Catalogue, a state-of-the-art

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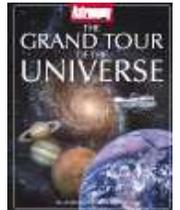
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Infinity Rising

This special publication features the



photography of British astro-imager Nik Szymanek and covers a range of photographic methods from basic to advanced. Beautiful pictures of the night sky can be obtained with a simple camera and tripod before tackling more

Discovery rolls out of the Vehicle Assembly Building and travels to launch pad 39A for its STS-120 mission.

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Dawn leaves Earth



NASA's Dawn space probe launches aboard a Delta 2-Heavy rocket from Cape Canaveral to explore two worlds in the asteroid belt.

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high resolution catalogue of 10,000 galaxies assembled by Driver and his team using the Isaac Newton Telescope on La Palma among others, to calibrate their observations with computer models of dusty galaxies. For the first time, the astronomers were able to determine how much light is obscured when a galaxy has a face-on orientation, which allowed them to determine the absolute fraction of light that escapes in each direction from a galaxy.

“The results demonstrate very clearly that interstellar dust grains have a devastating effect on our measurements of the energy output from even nearby galaxies” says Professor Tuffs, “With the new calibrated model in hand we can now calculate precisely the fraction of starlight blocked by the dust.”

The results imply that galaxies are chewing up their gas twice as fast as astronomers previously believed, and that the total mass of stars in the Universe has been underestimated by 20%, although such a small chunk is not thought to make a huge impact on the total matter budget of the Universe.

“Although the Universe appears to be squandering its resources twice as fast as we previously thought, there’s still plenty of juice in the tank for now,” says Dr Ivan Baldry of Liverpool John Moores University.

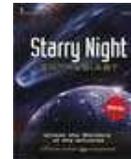
The work is set to continue with an in depth study of individual galaxies, making use of two new facilities that go online this year. The VISTA telescope, located in Chile, will enable the astronomers to see right through the dust, and the Herschel satellite will directly detect the dust glow.

difficult projects, such as guided astrophotography through the telescope and CCD imaging.

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