



Blow Your Mind...Not Your Budget

#1 Ranked Small Speakers

2006 "Editor's Choice"

www.orbaudio.com

(877) 672-2834



www.orbaudio.com

Feedback - Ads by Google

Advertisement



[Home](#) | [More News](#) - [Upcoming Events](#) - [Space Station](#) - [Get our Daily Newsletter](#) | [RSS/XML News Feeds Available](#)

Buy a - [SpaceRef Mug](#) - [Arthur Clarke Mars Greenhouse Mug](#) - [SpaceRef T-Shirt](#) - [NASA STS-124 Store](#)

Astronomers find that Universe shines twice as bright

Advertisement

PRESS RELEASE

Date Released: Thursday, May 15, 2008

Source: [Science and Technology Facilities Council](#)



Astronomers from UK Universities working with colleagues from Germany and Australia have calculated that the Universe is actually twice as bright as previously thought. In the latest Astrophysical Journal Letters (10th May), the

astronomers describe how dust is obscuring approximately half of the light that the Universe is currently generating.

Lead author Dr Simon Driver from the University of St Andrews said, "For nearly two decades we've argued about whether the light that we see from distant galaxies tells the whole story or not. It doesn't; in fact only half the energy produced by stars actually reaches our [telescopes](#) directly, the rest is blocked by dust grains."

While astronomers have known for some time that the Universe contains small grains of dust, they had not realised the extent to which this is restricting the amount of light that we can see. The dust absorbs starlight and re-emits it, making it glow. They knew that existing models were flawed, because the energy output from glowing dust appeared to be greater than the total energy produced by the stars!

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

The team combined an innovative new model of the dust distribution in galaxies developed by Dr Cristina Popescu of the University of Central Lancashire and Prof Richard Tuffs of the Max Plank Institute for Nuclear Physics, with data from the Millennium Galaxy Catalogue, a state-of-the-art high resolution catalogue of 10,000 galaxies assembled by Driver and his team using the Isaac Newton Telescope on La Palma among others.

Using the new model, the astronomers could calculate precisely the fraction of starlight blocked by the dust. The key test that the new model passed was whether the energy of the absorbed starlight equated to that detected from the glowing dust.

"The equation balanced perfectly", said Dr Cristina Popescu, "and for the first time we have a total understanding of the energy output of the Universe over a monumental wavelength range."

"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 Prof Richard Tuffs, "with the new calibrated model in hand we can now calculate precisely the fraction of starlight blocked by the dust."

The Universe is currently generating energy, via nuclear fusion in the cores of stars, at a whopping rate of 5 quadrillion Watts per cubic light year - about 300 times the average energy consumption of the Earth's population.

"For over 70 years an accurate description of how galaxies, the locations where matter is churned into energy, form and evolve has eluded us. Balancing the cosmic energy budget is an important step forward,"

[Space Universe Galaxy](#)

Thinking of buying? Compare 100s of retailers' prices at Shopping.com
uk.shopping.com

[ASTRO2000 Telescopes](#)

Buy Astro2000 telescopes and accessories. Very competitive !
www.Astro2000.co.uk

Ads by Google

Recent Press Releases

[NASA Briefings and TV Coverage Schedule for Phoenix Mars Landing](#)

[Wandering Poles Left Scars on Europa](#)

[NASA Satellite Finds Interior of Mars is Colder](#)

[Subcommittee Chairman Udall's Statement on the NASA Authorization Act of 2008](#)

[Interview: Frost and ice below the martian surface](#)

Remove the barriers to higher conversion rates, get a [website usability](#) analysis or study. Professional web design.

Tax debt is no fun. Learn how to [Reduce your IRS Tax Debt](#) now!

Bingo world tour - The most comprehensive guide to Play Online [Bingo Games](#)

the best [online casinos](#) guide on the internet offering higher payouts than any land based casino.

said Dr Driver.

After carefully measuring the brightness of thousands of disc-shaped galaxies with different orientations, the astronomers matched their observations to computer models of dusty galaxies. From this they were able to calibrate the models and, for the first time, determine how much light is obscured when a galaxy has a face-on orientation. This then allowed them to determine the absolute fraction of light that escapes in each direction from a galaxy.

While modern instruments allow astronomers to see further into space, they can't eliminate the obscuring effect from these tiny dust grains. "It is somewhat poetic that in order to discover the full glory of our Universe we first had to appreciate the very small" said Dr Alister Graham from the Swinburne University of Technology.

The work is set to continue but with a change of focus from the study of the Universe as a whole, to the study of individual galaxies. This requires two new facilities which are coming online this year. The first is the VISTA telescope, which will soon commence operations in Chile and the second is the Herschel satellite due for launch later in the year.

"VISTA will enable us to see right through the dust while Herschel will directly detect the dust glow" says Dr Liske of the European Southern Observatory.

UK astronomers enjoy full access to both of these facilities through the UK's membership, paid by the Science and Technology Facilities Council, of the European Southern Observatory and the European Space Agency which are responsible for operating these facilities.

"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.

This research has been funded by the Science and Technology Facilities Council (STFC), the Australian Research Council, the Max-Planck Society and a Livesey award from the University of Central Lancashire.

Note to Editors

The Millennium Galaxy Catalogue consists of data from the Anglo-Australian Telescope, The Australian National University's 2.3 m telescope at Siding Spring Observatory, the Isaac Newton Telescope and the Telescopio Nazionale Galileo at the Spanish Observatorio del Roque de Los Muchachos, La Palma, of the Instituto de Astrofisica de Canarias, and also from the Gemini and ESO New Technology Telescopes in Chile.

Authors: Simon Driver (University of St Andrews, Scotland), Cristina Popescu (University of Central Lancashire, England), Richard Tuffs (Max-Planck Institute fur Nuclear Physics, Germany), Alister Graham (Swinburne University of Technology, Australia), Jochen Liske (European Southern Observatory, Germany), Ivan Baldry (Liverpool John Moores University, England).

Images

High resolution images showing galaxies known to contain dust obscuring the stars are available from <http://astronomy.swin.edu.au/~agraham/dust/dust.html>

Press Office Contacts

STFC
Press Office
Julia Maddock
Tel +44 1793 442094
Mobile +44 7901 514 975
Julia.maddock@stfc.ac.uk

Press Office,
University of St Andrews
Fiona Armstrong,
Press Officer
Tel 01334 462530 / 462529,
email fa12@st-andrews.ac.uk

Swinburne University Media Contact
Crystal Ladiges
Tel +61 3 9214 5064 or
+61 0416 174 880

Science Contacts

Dr Simon Driver
University of St Andrews
Work 01334-461680
Mobile: 07919305906
spd3@st-andrews.ac.uk

Dr Cristina Popescu

University of Central Lancashire
Tel 01772 893 551
cpopescu@uclan.ac.uk

Dr Ivan Baldry
Liverpool John Moores University
ikb@astro.livjm.ac.uk

Dr Richard Tuffs Max Plank Institute for Nuclear Physics
Richard.Tuffs@mpi-hd.mpg.de

Dr Alister Graham
Swinburne University of Technology
agraham@astro.swin.edu.au
Tel :+61 3 9214 8784

Dr Jochen Liske
ESO
Tel +49 89 32006582
jliske@eso.org

Science and Technology Facilities Council

The Science and Technology Facilities Council ensures the UK retains its leading place on the world stage by delivering world-class science; accessing and hosting international facilities; developing innovative technologies; and increasing the socio-economic impact of its research through effective knowledge exchange partnerships.

The Council has a broad science portfolio including Astronomy, Particle Physics, Particle Astrophysics, Nuclear Physics, Space Science, Synchrotron Radiation, Neutron Sources and High Power Lasers. In addition the Council manages and operates three internationally renowned laboratories:

- The Rutherford Appleton Laboratory, Oxfordshire
- The Daresbury Laboratory, Cheshire
- The UK Astronomy Technology Centre, Edinburgh

The Council gives researchers access to world-class facilities and funds the UK membership of international bodies such as the European Laboratory for Particle Physics (CERN), the Institute Laue Langevin (ILL), European Synchrotron Radiation Facility (ESRF), the European organisation for Astronomical Research in the Southern Hemisphere (ESO) and the European Space Agency (ESA). It also contributes money for the UK telescopes overseas on La Palma, Hawaii, Australia and in Chile, and the MERLIN/VLBI National Facility, which includes the Lovell Telescope at Jodrell Bank Observatory.

The Council distributes public money from the Government to support scientific research. Between 2007 and 2008 we will invest approximately 678 million pounds.

 Send to a friend

[Mercury](#) - [Venus](#) - [The Moon](#) - [Mars](#) - [Jupiter](#) - [Saturn](#) - [Pluto](#)

Looking for new bingo players, join [Bingo.com](#), the worlds largest bingo hall. Play FREE Bingo now.

Thousands of [jobs](#) available everyday from major job boards.

Search SpaceRef News

News from [Commercial Space Watch](#)

- [NASA KSC Solicitation: Demolition of the Fixed Service Structure and Rotating Service Structure at Launch Complex 39](#)

- [NASA LARC Solicitation: NASA Electronic Professional Development Project](#)

- [NASA ARC Solicitation: Microsatellite Deployment Systems Engineering Design and Development Support](#)

- [NASA GSFC Solicitation: New Frontiers Program](#)

- [NASA ARC Solicitation: Coarse Sun Sensors](#)

- [NASA GRC NRA For Fundamental Research and Development of Battery Cell Components](#)

- [Letter From Aerospace and Technology Company Leaders to Congressional Leaders Regarding NASA's FY 2009 Budget](#)

- [U.S. Air Force Awards United Launch Alliance SBIRS GEO-2 Satellite Launch](#)

- [Development Work for Industry in NASA Wind Tunnels](#)
- [NASA's Insulation Material Named NASA Government Invention of 2007](#)
- [VIASPACE Subsidiary Receives Contract From NASA's Jet Propulsion Lab](#)
- [Boeing's 1st Wideband Global SATCOM Satellite Now Operational](#)
- [Raytheon Reaches Key Milestone on NASA Glory Space Program](#)
- [Wyle Targets New Customers for Expanded Human Health and Performance Capabilities and Services](#)
- [NASA Deputy Administrator Shana Dale's Blog: Information Technology Update](#)
- [DVD Ripper and Video Converter](#). It can convert between DVD MPEG AVI WMV MP4 iPod 3GP MP3 WMA and so on.
- Dieses Portal stellt Ihnen die besten online [Casino Bonus](#) und Pokerräume im Internet vor.
- Play free [bingo games](#) and black out bingo.
- 220Marketing specializes in providing [mortgage marketing](#) for mortgage companies and managers.
- Take your time to tour our site and check out all the fun games we operate. In addition to the 20 [online bingo](#) rooms we operate, we also have online keno.

Copyright © 1999-2008 [SpaceRef Interactive Inc.](#) All rights reserved. [Privacy Policy](#)