

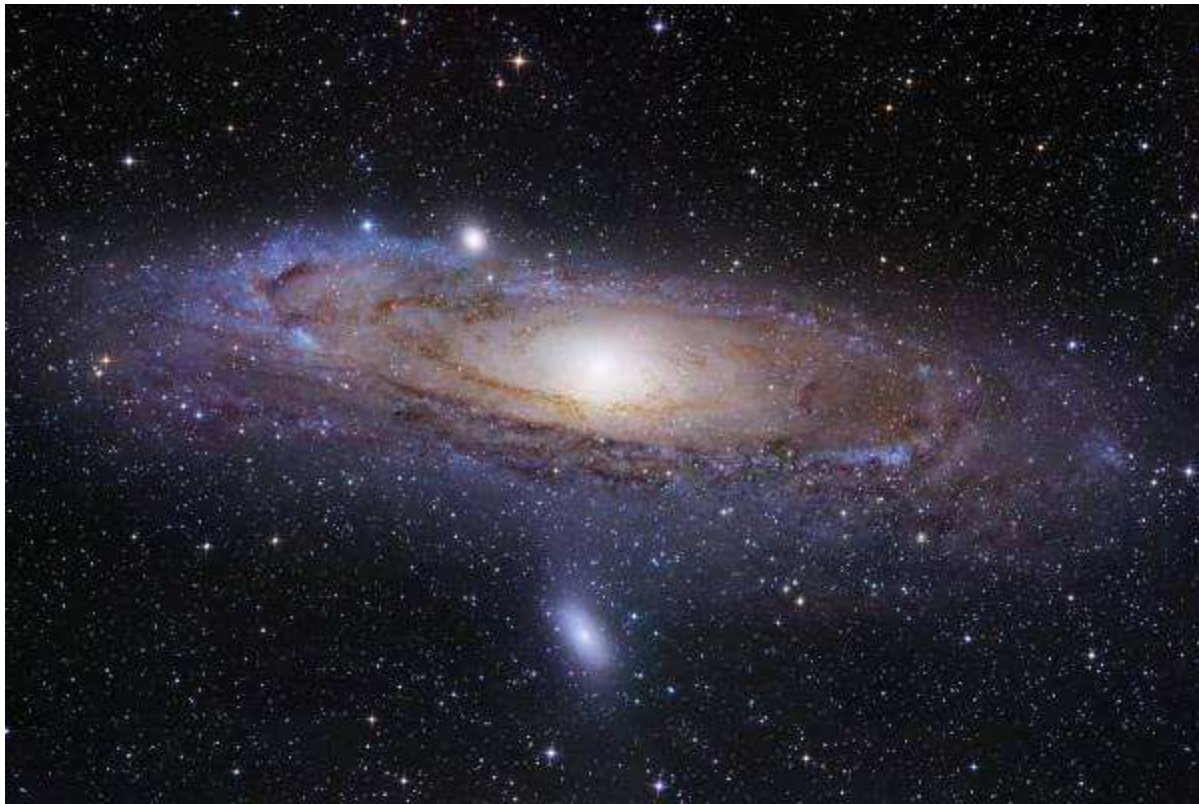
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Scientists find universe is twice as bright as previously recognised

by Rich Bowden - May 15 2008, 21:01



Scientists have revealed that dust obscures around half the light from the Universe. Image: Andromeda Galaxy. Credit: Robert Gendler

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An international team of scientists have discovered that dust is obscuring at least half the light generated from the Universe.

According to Dr Simon Driver from the School of Physics and Astronomy at the [University of St Andrews](#), only half the energy emitted by stars ever reaches our telescopes.

"For nearly two decades we've argued about whether the light that we see from distant galaxies tells the whole story or not, said Dr Driver who is lead author of the study. "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 long known that dust particles block light from reaching us, they have been unsure as to how much light this obscures. Now using a 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 Planck Institute for Nuclear Physics](#), the team were able to deduce the exact amount of light obscured by the dust.

The model passed the key test of whether the energy of the absorbed starlight equated to that detected from the dust as it glows from re-emitting the energy.

"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. With the new calibrated model in hand we can now calculate precisely the fraction of starlight blocked by the dust."



Image: Dusty Galaxy NGC253. Credit: R. Jay GaBany, cosmotography.com

The Universe is currently generating energy, via nuclear fusion in the cores of stars, at a 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, said Dr Driver in a statement. "Balancing the cosmic energy budget is an important step forward."

The team's findings have been published in *Astrophysical Journal*.

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