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# Universe twice as bright as was thought

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By Deborah Smith

The universe is twice as bright as was thought, with dust obscuring half the starlight we see, a new study shows.

"When we look out into deep space it is as though we are wearing cosmic sunglasses. We're only seeing half the show," said Australian astrophysicist, Alister Graham, of Swinburne University in Melbourne.

Dr Graham said astronomers knew that galaxies were filled with grains of silicate and graphite that could absorb the light generated by stars, but they had previously underestimated the impact of this dust.

To work out how much light was blocked, an international team, including Dr Graham, measured the brightness of thousands of disc-shaped galaxies with different orientations, and matched these results to computer models of dusty galaxies.

They discovered that only half of the visible starlight in the universe gets out, while a mere 10 per cent of the UV radiation escapes from galaxies.

"It is somewhat poetic that in order to discover the full glory of our Universe we first had to appreciate the very small," Dr Graham said.

Team leader, Simon Driver of the University of St Andrews in Scotland said they were able to confirm their findings, which are published in *Astrophysical Journal Letters*, using a novel approach. When the dust blocks the light, it is heated and glows, and this can be seen using infrared satellites. "The amount of energy which the Universe is releasing at these wavelengths exactly balanced our determination of how much UV and visible light is absorbed by the dust," Dr Driver said.

Dr Graham said the findings would have an impact on many areas of astronomy. "We are now able to better understand the effect that all of this dust is having on scientific observations."

The researchers observed more than 10,000 galaxies using telescopes operated by the Anglo-Australian Observatory and The Australian National University at Siding Spring Observatory, along with others in Spain and Chile.

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