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Universe is twice as bright as previously thought

From ANI

London, May 16: Astronomers from UK Universities working with colleagues from Germany and Australia have calculated that the Universe is actually twice as bright as previously thought.

The team of astronomers has come up with this theory after finding how dust is obscuring approximately half of the light that the Universe is currently generating.

"For nearly two decades we've argued about whether the light that we see from distant galaxies tells the whole story or not," said lead author Dr Simon Driver from the University of St Andrews.

"It doesn't; in fact only half the energy produced by stars actually reaches our telescopes directly, the rest is blocked by dust grains," he added.

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.

"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," said Dr Driver.

For their research, 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.

Using the new model, the astronomers could calculate precisely the fraction of starlight blocked by the dust.

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

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.

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