



Royal  
Astronomical  
Society

**RAS Gold Medal in Astronomy**  
**Professor George Efstathiou**

The 2022 Gold Medal in Astronomy is awarded to Professor George Efstathiou.

George Efstathiou is amongst the most distinguished cosmologists of his generation, one of the architects of the standard model of cosmology, “Lambda cold dark matter” (LCDM). He has made transformational contributions in computer simulations of the formation of structure in the universe, galaxy surveys and the analysis of the cosmic microwave background (CMB) radiation. Professor Efstathiou was one of the first to use computer simulations to calculate the non-linear evolution of the primordial perturbations from which cosmic structure grows. He pioneered techniques now in widespread use. With Davis, Frenk and White, he carried out the first cosmological simulations of the cold dark matter model, including LCDM. Professor Efstathiou has been involved in many galaxy surveys, culminating in the “2-degree-field galaxy redshift survey” (2dFGRS) which first detected ‘baryon acoustic oscillations’. Through his analysis of the APM survey, he inferred the existence of dark energy, years before the discovery of the accelerated expansion of the universe. Working with Dick Bond, building upon work by Jim Peebles, Professor Efstathiou worked out how primordial fluctuations in a CDM universe would be reflected in the temperature structure of the CMB. The calculations were dramatically confirmed with the discovery of the predicted pattern of hot and cold spots by the COBE satellite. Professor Efstathiou is one the main participants in the Planck satellite mission which has carried out the most detailed analysis to date of the CMB, leading to the determination of the fundamental cosmological parameters with a precision of order one percent.

For these reasons, Professor George Efstathiou is awarded the 2022 Gold Medal in Astronomy.

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