

THE  KAVLI PRIZE

# KAVLI PRIZE IN ASTROPHYSICS 2020

*The Norwegian Academy of Science and Letters has decided to award  
the Kavli Prize in Astrophysics for 2020 to*

## ANDREW FABIAN

University of Cambridge, UK

*“for his groundbreaking research in the field of observational X-ray astronomy, covering a wide range of topics from gas flows in clusters of galaxies to supermassive black holes at the heart of galaxies”*

The 2020 Kavli Prize in Astrophysics is awarded to Andrew Fabian for his groundbreaking research in the field of observational X-ray astronomy, covering a wide range of topics from gas flows in clusters of galaxies to supermassive black holes at the heart of galaxies.

X-ray astronomy has opened up access to the extremely hot and energetic components of the Universe. In the current cosmological paradigm, the universe is a living ecosystem, in which flows of gas into galaxies and black holes at their centers, and the subsequent release of energy back into the galaxies and their surroundings all play vital roles. X-ray observations have provided stunning evidence for these processes at work, unveiling how the major constituents of such an ecosystem can profoundly influence their overall evolution.

**Andrew Fabian**, one of the most prolific and influential astronomers of our time, has been a leading figure in several major research areas in X-ray astronomy. On large scales, he played a vital role in revealing the mystery of and solution to the prodigious heating and cooling mechanisms operating on inter-galactic gas in clusters of galaxies. On small scales, he predicted and co-discovered high velocity X-ray spectral emission from around black holes, which allowed Fabian and his collaborators to develop a powerful method for measuring black-hole spins. These very spinning black holes may provide the energy to heat the inter-galactic gas and affect the evolution of the constituent galaxies. Fabian's breadth of knowledge and insights on vastly different scales have provided key physical understanding of how those disparate phenomena are interconnected.



**Andrew Fabian**  
University of Cambridge, UK.  
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