

16th Madan Lal Mehta Lecture by

Prof. Joseph Silk

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Johns Hopkins University

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Venue - AG66

Black Holes in the Cosmos

Supermassive black holes lurk in the very centers of galaxies. The Milky Way has a central black hole of four million solar masses. Today it is quiescent. But millions of years ago it was active. Traces of exploded debris are seen around our galactic centre that arose in a violent explosion some tens of millions of years ago. Most galaxies have massive central black holes, in some cases weighing billions of solar masses. These were the sites of the most energetic phenomena in the Universe, that astronomers recognise as quasars. Such immensely luminous objects in the nuclei of galaxies were active when the universe was young. Even dwarf galaxies have central massive black holes. How did supermassive black holes form? The ultimate window on building massive black holes is gravity waves, and I will describe experiments that are being planned to search for traces of the formation of such black holes.



Joseph Silk (Institut d'astrophysique de Paris and Johns Hopkins University, USA) was the Savilian Chair of Astronomy at the University of Oxford, and Chair of Astronomy at Berkeley. Prof Silk did his Mathematical Tripos at the University of Cambridge and then his PhD from Harvard in 1968. Prof Silk has pioneered many areas in cosmology and astrophysics, especially on the physics of CMB, the formation of galaxies, the baryonic processes affecting structure formation, and dark matter from different perspectives. The fundamental process of 'Silk damping' in CMB anisotropies bears his name. He is a member of the American Physical Society, the American Academy of Arts and Sciences, the Royal Society, and the US National Academy of Sciences. His many awards and honors include the Gold Medal of the Royal Astronomical Society (2008), the Balzan Prize (2011), the Henry Norris Russel lectureship (2018), and the Gruber Prize in Cosmology (2019).

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