PRIMORDIAL BLACK HOLES AND THE LEGACY OF STEPHEN HAWKING

Speaker: Bernard Carr
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Abstract:
There is now overwhelming evidence for black holes of around $10^{-100}M_\odot$ as the remnants of stellar collapse and supermassive black holes of around $10^6 - 10^{10}M_\odot$ at the centres of galaxies. However, black holes may also have formed in the early moments of the Big Bang, as first suggested by Stephen Hawking and could span a much broader mass range. Although there is no definite evidence for such primordial black holes, they have been a focus of intense study because they are the only ones which could be small enough for Hawking radiation to be important, those lighter than around $10^{15}g$ having evaporated by now. Larger (non-evaporating) primordial black holes could also be important, possibly providing the dark matter or the black-hole mergers detected by LIGO or some features of cosmic structure. The speaker was Stephen Hawking's PhD student at the time of his discovery of black hole radiation and will include some personal reminiscences.