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LISA and the origins of supermassive black holes

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Massive black holes (MBHs) inhabit galactic centres, and power luminous quasars as those observed when the Universe was less than a billion of years old.

Their origins are a mystery, and the recent detection by LIGO/Virgo of a black hole of about 150 solar masses has revitalized the questions of as to whether there is a continuum between 'stellar' and 'massive' black holes, and what the seeds of MBHs are. With LISA in synergy with third generation ground-based interferometers as the Einstein Telescope we foresee the possibility of discovering avenues of their formation with observations deep into the distant Universe.

I will cover three main themes: the channels of black hole seed formation, the journey from seeds to MBHs, and the diagnostics on the origins in the realm of the nascent gravitational wave astrophysics.

Presenter: Prof. COLPI, Monica

Session Classification: Gravitational Waves