



Sommerfeld Theory Colloquium

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LISA and the Earliest Massive Black Holes

The space-based gravitational wave detector LISA, a joint European-American project, will be able to detect mergers of massive black holes out to $z=15$ or earlier. It will therefore be able to determine the epoch of formation of the seeds that led to the massive black holes that inhabit the centers of most galaxies, including our own. Comparing LISA's observing capabilities with theoretical studies of black hole merger and growth shows that LISA will be able to discriminate between models where the massive black holes start as very early Population III seeds, or start later from the collapse of massive gas clouds. It could also determine whether conventional cosmological scenarios suffice to explain the rapid early growth of massive black holes, or whether alternatively whether non-standard early density perturbations will be required. The talk will review LISA and its current status, and then focus on its capabilities for observing early black holes.

Wednesday, 9 February 2011, 10:30h, Room 348 / 349, Theresienstr. 37 / III

Prof. V. Mukhanov