



## Institute colloquium

# The formation and growth of massive black holes

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Host: Tamas Hausel

Black holes as massive as several billion solar masses appeared within a billion years after the Big Bang. The origin of these objects remains a mystery. I will present three competing state-of-the art ideas on how such massive black holes may have formed in the early universe from stellar black hole remnants, via rapid gas accretion, or via successive mergers. I will then discuss the role of circumbinary gas in mergers between black holes: for facilitating (or not) the early shrinking of their orbit, producing unique observational signatures, and impacting low-frequency gravitational wave emission. Upcoming observations with the recently launched James Webb Space Telescope (JWST) and with the space-based Laser Interferometer Space Antenna (LISA) will help us understand the origin of massive black holes, including the details of their mergers.

**Monday, May 16, 2022 04:00pm - 05:00pm**

Raiffeisen Lecture Hall



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

Please find a schedule of the ISTA Shuttle on our webpage:

<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.