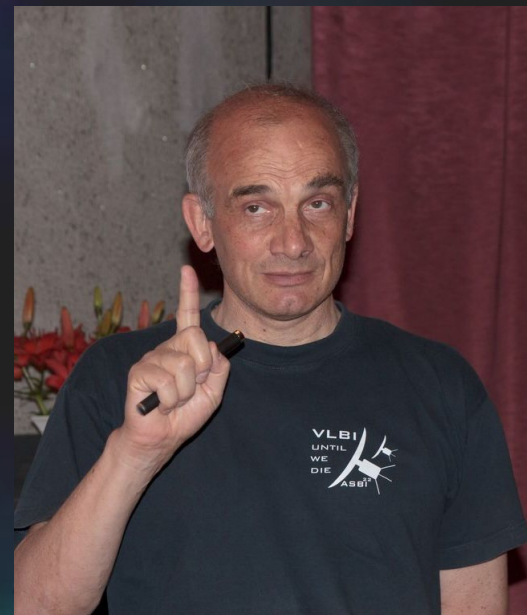


Multi-messaging prelude: on the synergy between gravitational wave and VLBI studies of supermassive black hole binaries

Leonid Gurvits

Joint Institute for VLBI ERIC, The Netherlands

Professor Leonid Gurvits, Senior Scientist Emeritus, specializes in VLBI studies of extragalactic radio sources and their cosmological applications. He has been involved in various capacities in several Space VLBI projects, including the Japanese-led VSOP and Russia-led RadioAstron missions. Leonid Gurvits has been the Principal Investigator of the VLBI Tracking Experiment with the ESA's Huygens Probe on Titan and Planetary Radio Interferometry and Doppler Experiment (PRIDE) of the ESA's Jupiter Icy Moons explorer (JUICE). He is currently involved in science working teams of several next generation spaceborne VLBI missions, the ESA's gravitational wave Laser Interferometer Space Antenna (LISA) mission and the Square Kilometre Array (SKA) project. Leonid Gurvits worked at the Joint



Institute for VLBI in Europe as a Head of Space Science and Innovative Applications department through 2022. He is currently Professor Emeritus of the Faculty of Aerospace Engineering of the Delft University of Technology. Academician of the International Academy of Astronautics. Since September 2024, Leonid Gurvits is a Visiting Professor at the Shanghai Astronomical Observatory under the Chinese Academy of Sciences President's International Fellowship Initiative.

Formation of super-massive black hole binaries (SMBHB) is deemed to be inevitable in various cosmological models. Their search poses one of the most challenging problems of modern observational astrophysics. Direct detections of the components of SMBHB at the sub-parsec scales, which correspond to the late stages of inspiralling, remain beyond reach for today's observing techniques at all domains of the electromagnetic spectrum. The estimates presented in this work provide inputs into design studies of future mm/sub-mm VLBI systems with spaceborne radio telescopes. Such the systems will allow us to resolve images of binary SMBHBs at the microarcsecond angular scales, principally unachievable with the Earth-based observational facilities.

时间： 2025年3月26日 (星期三) 10:00

地点： 北京师范大学物理楼402