ΣΕΜΙΝΑΡΙΑ
Τμ. ΦΥΣΙΚΗΣ

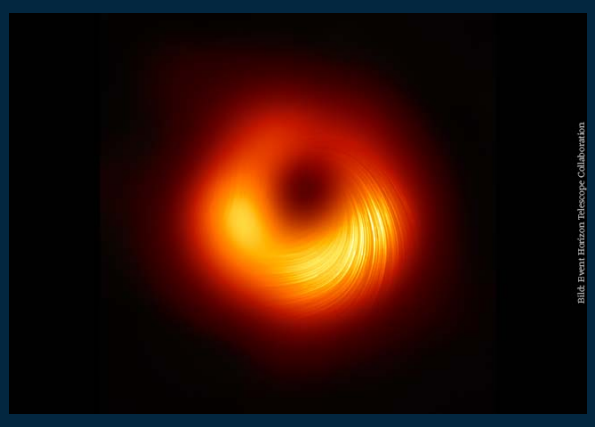
Παρασκευή
17 Μαΐου 2024
18:00

ΣΘΕ, 1ος όροφος
Αίθουσα Α31

Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης
ΤΜΗΜΑ ΦΥΣΙΚΗΣ

ΑΡΙΣΤΟΤΕΛΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΕΣΣΑΛΟΝΙΚΗΣ

M87* and Sgr A*: Imaging Supermassive Black Holes



Prof. Dr. Luciano Rezzolla

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I will briefly discuss how the first images of the supermassive black holes M87* and Sgr A* were obtained by the EHT collaboration. In particular, I will describe the theoretical aspects that have allowed us to model the dynamics of the plasma accreting onto the black hole and how such dynamics was used to generate synthetic black-hole images. I will also illustrate how the comparison between the theoretical images and the observations on a broad range of frequencies has allowed us to deduce the presence of supermassive black holes and to extract information about the accretion process. Finally, I will describe the lessons we have learned about strong-field gravity and alternatives to black holes.

Prof. Luciano Rezzolla is the Chair of Theoretical Astrophysics at the Institute for Theoretical Physics at Goethe University Frankfurt, Germany. His main research topics are astrophysical compact objects such as black holes and neutron stars, which he investigates by means of numerical simulations on supercomputers. He is a member of the Executive Board of the Event Horizon Telescope Collaboration (EHTC).
He has written more than 300 articles, a well-known textbook ("Relativistic Hydrodynamics") and a public-outreach book ("The Irresistible Attraction of Gravity") that has been translated in several languages. He has received numerous prizes including the Karl Schwarzschild Prize, the Frankfurt Physics Prize, the Golden Seal of the University of Bari, the 2020 Breakthrough Prize for Fundamental Physics (with EHTC) and the Einstein Medal (with EHTC). Since 2019 he is the Andrews Professor in Astronomy at Trinity College, Dublin. He has received an ERC Synergy Grant (2014) and an ERC Advanced Grant (2021).