



Book Fair – Guest of Honour 2024 Italy

20 October 2024, h 11:00 a.m.

**Physikalischer Verein Frankfurt
Robert-Mayer-Str. 2
60325 - Frankfurt am Main**



Modern Science dialogues: a talk with Guido TONELLI and Luciano REZZOLLA

“Time, matter, black holes: discoveries and new questions”

Introduction and moderation: Paolo FERRI - (Event in English)

Abstract

Since the beginning of the last century our understanding of time and matter has rapidly evolved. Starting with the first models of the atom and its constituents, and using increasingly larger and more powerful accelerators, physics has delved deeper and deeper into the microscopic world, from subatomic particles to quarks, thus leading to the development of the Standard Model of elementary particles and the discovery of the Higgs boson. At the same time, thanks to new powerful telescopes, on Earth and in space, and to the recent development of gravitational-waves detectors, astrophysics has allowed us to probe the depths of the universe where extreme objects, such as neutron stars and black holes, amaze us with their incredible properties. At these two extremes scales – microscopic and macroscopic – and in regimes so much different from our everyday perception, the study of matter and gravity can guide us to understand the fundamental properties of the physical world.

Guido Tonelli e Luciano Rezzolla, both Italian world-class scientists, but also popular-science authors, with a large experience in explaining the new discoveries and challenges of contemporary science, will be interviewed by physicist and author Paolo Ferri, who will lead the audience into the progress that has been made in the understanding of the mystery of the constituents of the universe.

Short CV Authors and Moderator

Guido TONELLI, a physicist at CERN in Geneva and professor at the University of Pisa, was awarded the international Fundamental Physics Prize (2013), the Enrico Fermi Prize of the Italian Physical Society (2013) and the Medal of Honour of the President of the Republic (2014)

for being "the latest example of a tradition of excellence that began with Galileo Galilei and continued through scientists such as Enrico Fermi, Bruno Pontecorvo and Carlo Rubbia".

He published in German by C.H. Beck Verlag the books: *Genesis. Die Geschichte des Universums in sieben Tagen*, „*Chronos. Eine physikalische Reise zu den Ursprüngen der Zeit*“ (2022) and in September 2024 his new essay “ *Die Illusion der Materie - Was die moderne Physik über unsere Welt verrät*“.

Luciano REZZOLLA was born in Milan and teaches theoretical physics at the J.W. Goethe University in Frankfurt and is Director at the Institute for Theoretical Physics. He played a leading role in the first photographic image of a black hole, which was presented in 2020. His main field of study is the physics and astrophysics of compact objects such as black holes and neutron stars. He has received the Frankfurt Physics Science Prize (2019) and the Einstein Medal (2020). His book ‘*Die unwiderstehliche Anziehung der Schwerkraft Eine Entdeckungsreise zu den schwarzen Löchern*“ (2021) was published in German by C.H. Beck.

Paolo FERRI, born in Milan, studied Theoretical Physics and worked for almost four decades for the European Space Agency, initially as astrophysicist, then in the field of space mission operations. He has published in Italy three books on space exploration: *Il cacciatore di comete* (Laterza, 2020); *Il lato oscuro del Sole* (Laterza 2022) and *Le sfide di Marte* (R Cortina 2023).

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