



# PHYSIKALISCHES KOLLOQUIUM

des Fachbereichs Physik  
der Goethe-Universität Frankfurt am Main

**Mittwoch, den 15.12.2021, 16 Uhr c.t.**  
**Großer Hörsaal, Raum \_0.111, Max-von-Laue-Str. 1**

— — — in PRÄSENZ\* — — —

PD Dr. Giuliano Franchetti

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## Challenges and perspectives of large accelerators



From the invention of the cyclotron by Ernest Lawrence, the development of particle accelerators has been characterized by the constant increase of size and energy. The art of delivering particle beams has required mastering all the physical effects originating in the beam itself and from its surroundings. The post-LHC era foresees even larger accelerators and even higher energies with new beam physics challenges. This presentation will review the main beam physics limitations and will discuss novel challenges as the interplay of the particle beams with vacuum neutral molecules equipped with dipole moments. The quest for precision in storage rings will also be discussed for the emerging interest in the possible use of storage rings as gravitational antennas.

Die Dozenten der Physik

local host: Prof. Dr. Uli Ratzinger, [u.ratzinger@iap.uni-frankfurt.de](mailto:u.ratzinger@iap.uni-frankfurt.de)

\* Teilnehmen dürfen ausschließlich Angehörige der Universität unter 3G Bedingungen