



# PHYSIKALISCHES KOLLOQUIUM

des Fachbereichs Physik  
der Johann Wolfgang Goethe-Universität Frankfurt

Mittwoch, den 25.01.2023, 16 Uhr c.t.  
Großer Hörsaal, Raum \_0.111,  
Max-von-Laue-Str. 1



*Antrittsvorlesung*

**Dr. Chuan Zhang**

*GSI Helmholtz-Zentrum für Schwerionenforschung*

## **" Behind Efficient & Brilliant Radio-Frequency Quadrupole Accelerators "**

High power linear accelerators have been developed as essential tools for modern scientific research. Increasing the beam intensity, often leads to challenges from space charge effects, which are most pronounced in the RFQ (Radio-Frequency Quadrupole) accelerators due to the low beam velocity. This inaugural lecture will introduce the basic principle of RFQ accelerators and novel design approaches using dedicated emittance transfers along the RFQ.

These approaches can achieve not only efficient machines but also brilliant beams. Using examples of real RFQs developed for some recent projects, the beam physics behind these two new approaches as well as two well-known methods will be discussed.

Die Dozenten der Physik

local host: Prof. Dr. Holger Podlech | [h.podlech@iap.uni-frankfurt.de](mailto:h.podlech@iap.uni-frankfurt.de)