



Toshimi SUDA

Tohoku University

IJC colloquium

Vendredi 21 juin 2024

10h30

Café accueil à 10h

Auditorium Pierre Lehmann-bât. 200

Electron scattering from protons and exotic nuclei - ULQ2 and SCRIT -

Electron scattering is the gold standard for probing nuclear structures, consistently playing an essential role in revealing the internal structures of atomic nuclei. Moreover, electron scattering on protons, covering an extremely low momentum transfer region, is essential for precise determination of the proton charge radius.

I will give first a general overview of the goals and techniques of electron scattering. To date, electron scattering has primarily been applied to stable nuclei. Recently we have successfully achieved a ground-breaking milestone: the world's first electron scattering for an online-produced radioactive isotope at the SCRIT electron scattering facility of RIKEN RIBF in Japan. I will present the details of the SCRIT facility, in addition to recent achievements, and outline many research possibilities awaiting exploration.

Targeting a precise determination of the proton charge radius, a series of low-energy electron-scattering measurements covering the lowest-ever momentum transfer, Q^2 , is underway at the ULQ2 facility of Tohoku University at Sendai. I will briefly overview the current status of proton-size studies worldwide and present the ULQ2 project including very recent achievements.

Toshimi SUDA

received his Ph.D. from Tohoku University in 1988. As a Humboldt Fellow at TU Darmstadt, Germany, he conducted research on high-energy electron scattering at Mainz University. In 1999, he joined RIKEN as a vice chief scientist for the construction of the Radioactive Isotope Beam Factory (RIBF). He has been a professor at Tohoku University since 2010, and from 2021 to 2023, he served as the Director at the Research Center for Electron-Photon Science.

Currently, he leads two electron-scattering projects in Japan: the ULQ2 (Ultra-Low Q^2) project at Tohoku University, which focuses on precisely determining the proton charge radius through lowest-ever energy electron scattering, and the SCRIT (Self-Configuring Radioactive Isotope Target) project at RIKEN, which applies electron scattering, for the first time, to the study of the internal structures of short-lived exotic nuclei.

Contacts:

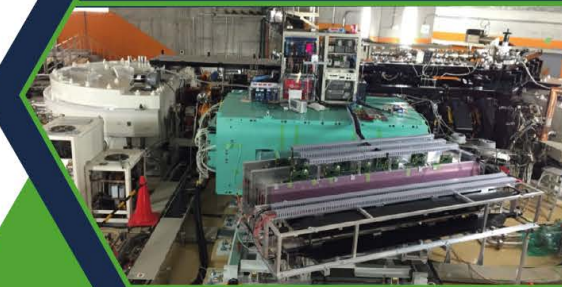
lydia.fayard@ijclab.in2p3.fr

yorick.blumenfeld@ijclab.in2p3.fr

www.ijclab.in2p3.fr/ijcolloquium



ULQ2
beam line and twin spectrometers
at Tohoku University



SCRIT electron scattering
facility at RIKEN RI Beam
Factory

