



UNIVERSITÀ
DEGLI STUDI
DI TRIESTE



Dipartimento di
Fisica
Dipartimento d'Eccellenza 2023-2027



Istituto Nazionale di Fisica Nucleare
SEZIONE DI TRIESTE

Seminar

Kodai Matsuoka

KEK and Nagoya University

Thursday, May 14 14:00 – lecture room A, building F, Physics Dept. – via Valerio 2 – Trieste

The SuperKEKB/Belle II project – Pioneering the luminosity frontier to explore physics beyond the TeV scale

With no consensus on the next guiding principles in particle physics, discovering new particles or phenomena is crucial to opening the door to a new era of physics. Through precision measurements that exploit its unique experimental features, the Belle II experiment holds significant discovery potential at energy scales beyond the TeV range — directly unreachable with current accelerator technology. We are reporting world-leading results in a variety of physics topics, including heavy-flavor quarks and leptons, dark sector, and hadrons. These measurements rely on the vast datasets provided by the SuperKEKB electron-positron collider, operating at center-of-mass energies near 10.58 GeV. SuperKEKB has achieved the world's highest luminosity, owing to the novel "nano-beam" collision scheme and other new technologies, and continues to enhance the luminosity, serving also as a demonstrator for a future Higgs factory. Furthermore, major upgrades of the accelerator and detector planned for the long shutdown starting in 2032 will extend the Belle II physics reach. I look forward to sharing the excitement of this project and the anticipation of new discoveries.

Invited by: D. Tonelli