異分野基礎科学研究所

量子宇宙研究コアセミナー開催のお知らせ

“μTRISTAN”

日　時　：　2022年7月6日（水）15：30～16：30

会　場　：　異分野基礎科学研究所棟１階１１０室

講　師　：　北野　龍一郎　氏

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【講演要旨】

The ultra-cold muon technology developed for the muon g−2 experiment at J-PARC provides a low emittance μ+ beam which can be accelerated and used for realistic collider experiments. We consider the possibility of new collider experiments by accelerating the μ+ beam up to 1 TeV. Allowing the μ+ beam to collide with a high intensity e− beam at the TRISTAN energy, 30 GeV, in the storage ring with the same size as TRISTAN (the circumference of 3 km), one can realize a collider experiment with the center-of-mass energy of 346GeV, which allows productions of the Higgs bosons through the vector boson fusion processes. We estimate the deliverable luminosity with existing accelerator technologies to be at the level of 5×10^35/cm^2/s, with which the collider can be a good Higgs boson factory. The μ+μ+ colliders up to $\sqrt{s}$=2 TeV are also possible by using the same storage ring. They have a capability of producing the superpartner of the muon up to TeV masses.

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