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Development of ultra-slow negative muon production

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Ultra-slow negative muon production is under development in J-PARC.

It may explore new fields in material science, such as surface science, precise depth analysis of sample materials after re-acceleration, and 2 or 3 dimensional scanning of samples after re-acceleration and focusing. It may also contribute to explore new fields in Particle physics. Production of both the negative and positive ultra-slow muons will make it possible to generate undiscovered true-muoniums and re-acceleration and focusing them may introduce muon collider.

Though the ultra-slow positive muon beams are already offered or under development, the study of ultra-slow negative muon production is not intensively done because capture by nuclear makes it difficult.

We will present about our ultra-slow negative muon production and the current status of the development.

Primary authors: PANT, Amba Datt (IMSS, KEK, Japan); NATORI, Hiroaki (KEK); Dr ISHIDA, Katsuhiko (Riken); Dr OKUTSU, Kenichi (Tohoku Univ.); Dr TAMPO, Motonobu (KEK); STRASSER, Patrick (KEK); Dr OKADA, Shinji (Chubu Univ.); Mr DOIUCHI, Syogo (KEK); Dr YAMASHITA, Takuma (Tohoku Univ.); Prof. MIYAKE, Yasuhiro (KEK); Prof. KINO, Yasushi (Tohoku Univ.); Dr TOYAMA, Yuichi (Chubu Univ.); Prof. NAGATANI, Yukinori (KEK)

Presenter: NATORI, Hiroaki (KEK)

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