

Construction of a new multi-channel μ SR spectrometer at RIKEN-RAL

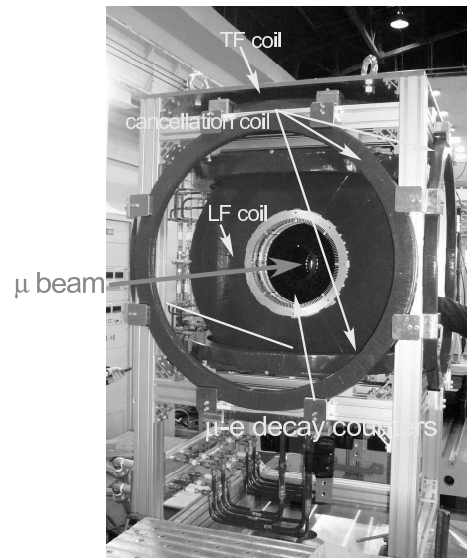
D. Tomono¹, Y. Hirayama^{1,2}, K. Ishida¹, M. Iwasaki^{1,2}, T. Kawamata¹,
T. Matsuzaki¹ and I. Watanabe¹

¹RIKEN Nishina Center, RIKEN, 2-1 Hirosawa, Wako, Saitama 351-0198, Japan

²Tokyo Institute of Technology, 2-12-1 Ookayama, Meguro, Tokyo 152-8551, Japan

A new spectrometer have been constructed for advanced μ SR studies at the RIKEN-RAL muon facility. With an upgrade of the ISIS proton accelerator, approximately 3×10^6 muons/sec will be available. Although such an intense pulsed muon beam allows us to accumulate the events about 1.5 times higher than previous beam rate, it causes severe distortion in observed asymmetry spectrum due to pile-up of signals in μ -e decay counters.

In the new spectrometer, one key component are a new counter system including read-out devices with wavelength shifter fibers and multianode photomultiplier tubes [1]. They enables us to increase counter segments in a limited space between the magnets and then, pile-up signals decreases by reducing instantaneous positron rate per counter. Their development have been done before construction of magnets and their performance have been already confirmed by using the muon beam. Other key components of Helmholtz magnets, counter mount and data acquisition system have been underway parallel to this development.



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In this presentation, the counter design, the first result of beam test, detail specification and plans toward the first beam at the RIKEN-RAL Port-4 area will be reported.

[1] D. Tomono et al., Nucl. Instrum. Meth. A, submitted