

## Development of a novel muon beam line for next generation precision experiments

*Tuesday 10 September 2013 18:00 (3 hours)*

Several next generation precision measurements like muonium ( $\text{Mu}=\mu^+e^-$ ) spectroscopy,  $(g-2)_\mu$ , searches for  $\text{Mu}-\overline{\text{Mu}}$  oscillations and muon ( $\mu^+$ ) electric dipole moment can be conceived with improved  $\mu^+$  and Mu beams.

The principle of the novel  $\mu^+$  beam line proposed in PRL [\textbf{97}](#), 194801 (2006) is to stop a standard  $\mu^+$  beam in He gas at cryogenic temperatures, and to compress the  $\mu^+$  swarm using electric and magnetic fields and gradients of gas densities. Results of the longitudinal compression measured at  $\pi\text{E1}$  beam line of PSI together with the proposed test of transverse compression will be presented.

**Primary author:** Mr KHAW, Kim Siang (ETH Zurich)

**Co-authors:** Dr ANTOGNINI, Aldo (ETH Zurich); Mr EGGENBERGER, Andreas (ETH Zurich); PAPA, Angela (Paul Scherrer Institut); Dr TAQQU, David (Swiss federal institute of technology, Zurich); Mr PIEGSA, Florian (ETH Zurich); Mr WICHMANN, Gunther (ETH Zurich); KIRCH, Klaus (Paul Scherrer Institut); Dr BAO, Yu (University of California, Riverside)

**Presenter:** Mr KHAW, Kim Siang (ETH Zurich)

**Session Classification:** Poster, BBQ & Drinks