DESY
Physics Seminar

Precision physics at low-energy high-intensity electron accelerators.

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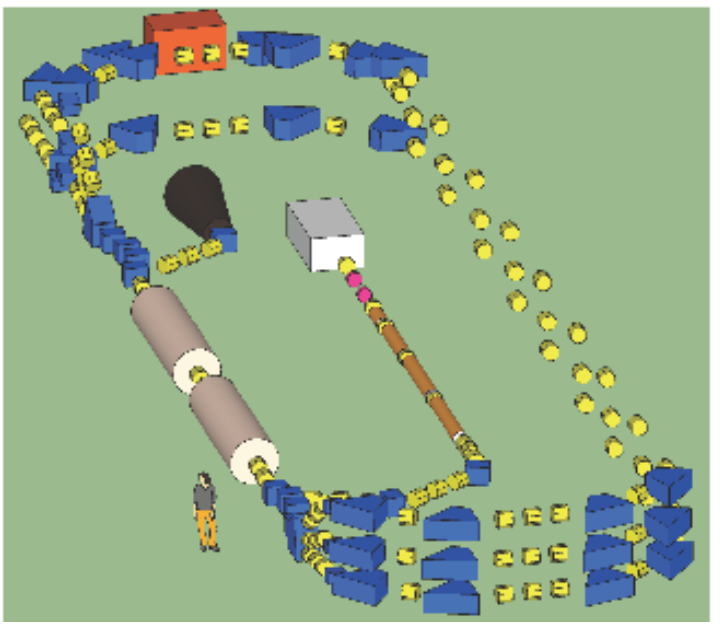
Tuesday, 11 December 2012, 16:45 h
Buildg. 2a / Sem.R. 2

We report in this seminar on experiments foreseen at the future MESA accelerator, which is the major infrastructure initiative of the PRISMA cluster of excellence at Johannes Gutenberg University of Mainz. MESA is a low-energy high-intensity electron accelerator for particle physics at the precision and intensity frontier.
We discuss a new measurement of the electroweak mixing angle $sin^2\ \Theta_W$, which will be performed at MESA via parity-violating electron-proton scattering. Precision measurements of this kind have the potential to test New Physics models up to the several TeV mass scale and are highly complementary to direct searches at the LHC.
Furthermore, searches for so-called dark photons, which are hypothetical extra-U(1) gauge bosons of the dark sector with weak coupling to Standard Model (SM) matter will be discussed as well. Dark photons have been found to give an explanation to a surprisingly large number of 'puzzles', ranging from $(g\text{-}2)_\mu$ to Dark Matter. We discuss recent results on dark photon searches from the Mainz Microtron MAMI as well as on future searches with MESA.



- **Coffee, tea and cookies will be served at 16:30h**
- **After the seminar there is a chance for private discussions with the speaker over wine and pretzels**

Accelerators | Photon Science | Particle Physics

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