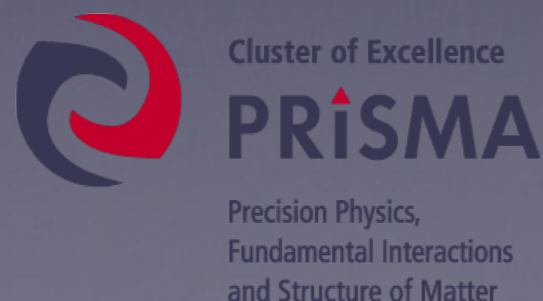
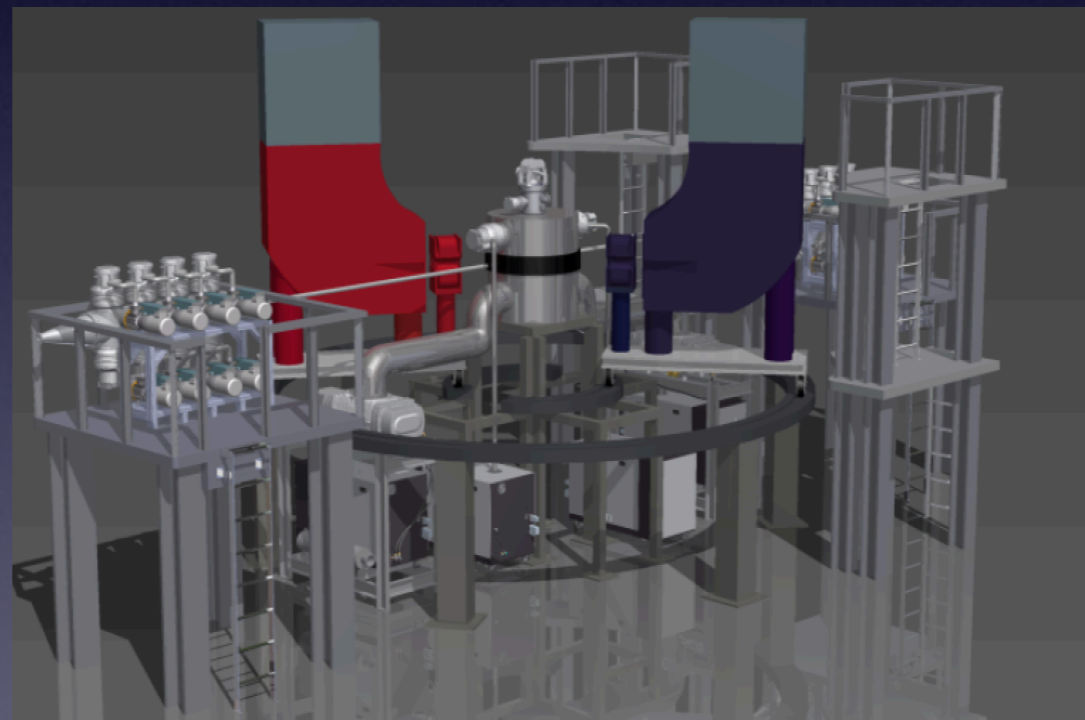




1st MAGIX Collaboration Meeting

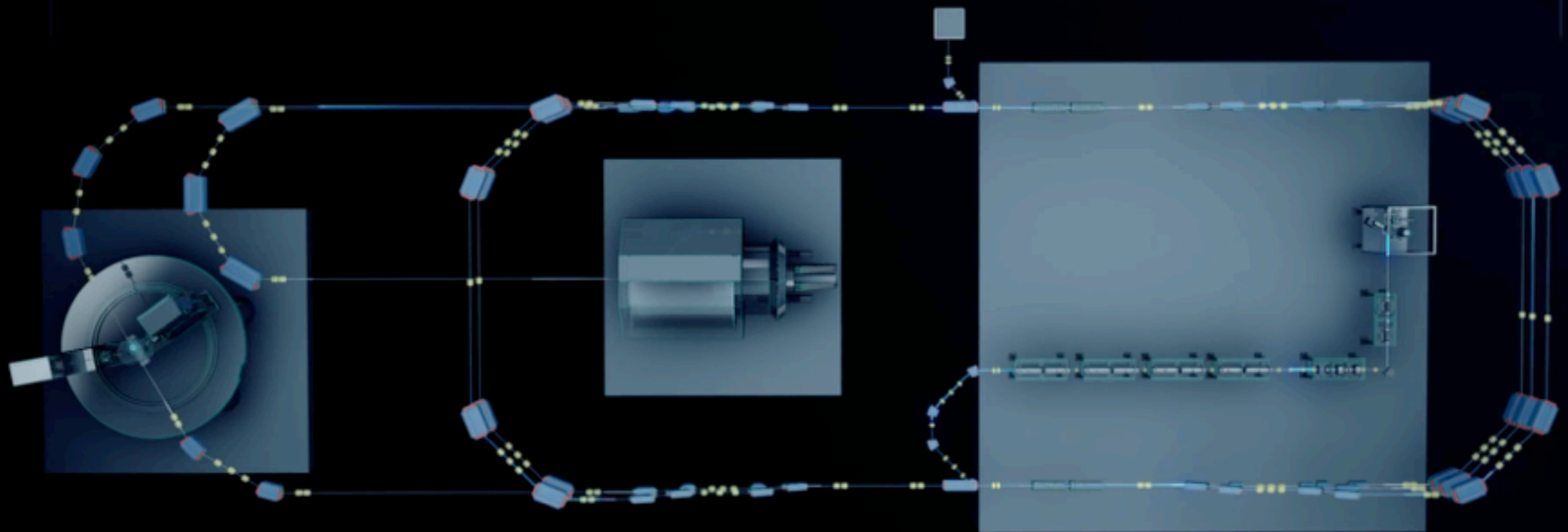


Achim Denig
JGU Mainz
February 15 - 17, 2017



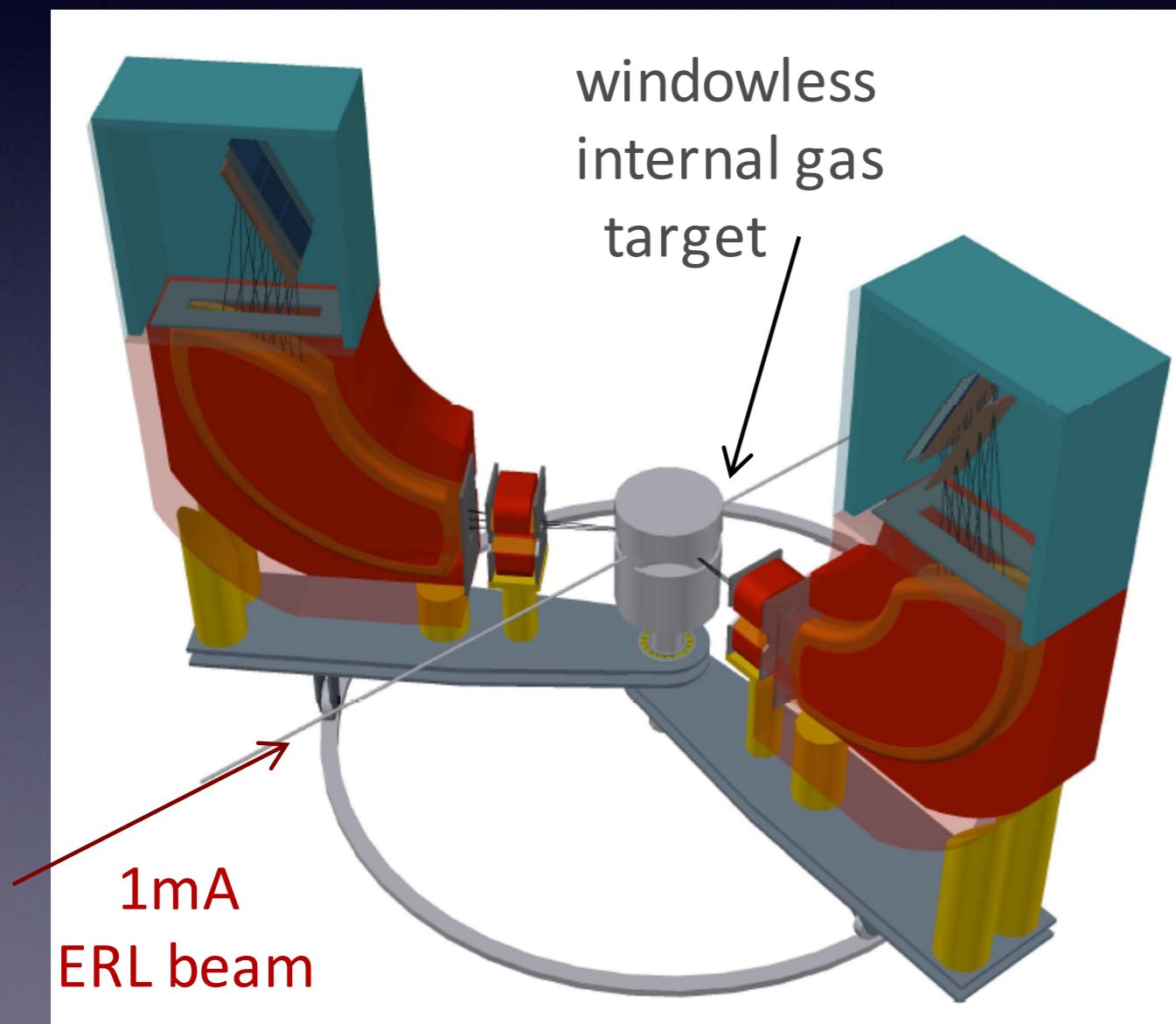
MESA Accelerator

ERL mode: $E_{\max} = 105 \text{ MeV}$, $I_{\max} > 1 \text{ mA}$



MAGIX

Combine high-intensity ERL beam with light gas target —> low multiple scattering at high intensities



High resolution spectrometers MAGIX:
double arm
compact design
momentum resolution: $\Delta p/p < 10^{-4}$
acceptance: ± 50 mrad
GEM-based focal plane detectors
Gas Jet or polarized T-shaped target

Physics Program (Harald)

Experiments in the fields of:

- Electromagnetic Form Factors of the Nucleons
(proton radius puzzle)
- Nucleon Polarizabilities
- Few Body Physics
- Nuclear Reactions with astrophysical Relevance
- Searches for Particles of the Dark Sector
-


Precision, Precision, Precision,

LEPP Workshop (04/16)

New Vistas in Low-Energy Precision Physics (LEPP)

4-7 April 2016
Kupferbergterrasse Mainz
Europe/Berlin timezone

- Overview
- Scientific Programme
- Timetable
- Contribution List
- Participant List
- Accommodation
- Travel
- Venue & Social Events



Conclusions

- Very active program with MAMI-C (SFB1044)
 - Nucleon FF (proton radius puzzle)
 - Few-body systems
 - Nucleon polarizabilities
- PV experiments with MESA (P2, neutron skin)
- Impressive technological developments for MAGIX spectrometer
 - Spectrometer design
 - Gas Target
 - Detectors
- Need impetus for development of experimental program with MAGIX
- Look forward to follow-up workshops focused on MAGIX

from Kees de Jagers
summary talk @ LEPP

MAGIX Challenges

- Magnet-optical design of Spectrometers
- Stable operation of Gas Target, monitoring
- Target densities of $\sim 10^{19}/\text{cm}^2$
- Large-area GEM detectors (120 x 30 cm²)
- 50 μm spatial resolution
 - > requirement of having thin GEM foils
- Extremely high rates: detector & DAQ stability
- Additional detectors: luminosity, proton recoil,
- Radiative corrections
- MESA Physics Book
-

Conclusions

- MESA accelerator funded by PRISMA Cluster of Excellence, expected to be ready by 2020
- MAGIX construction funded by major equipment contribution of the CFP Research Building (§91b)
- Needs a TDR for MAGIX by 2018 (also needed for P2)
- MAGIX plays a major role in the application for PRISMA+ (pre-proposal to be submitted in April 2017)

A lot of work ahead of us

—> need regular meetings of this kind with monitoring of progress

Agenda

Wednesday: Overview + Physics
Thursday: Target + GEM - Detectors
Friday: Computing + MESA Accelerator