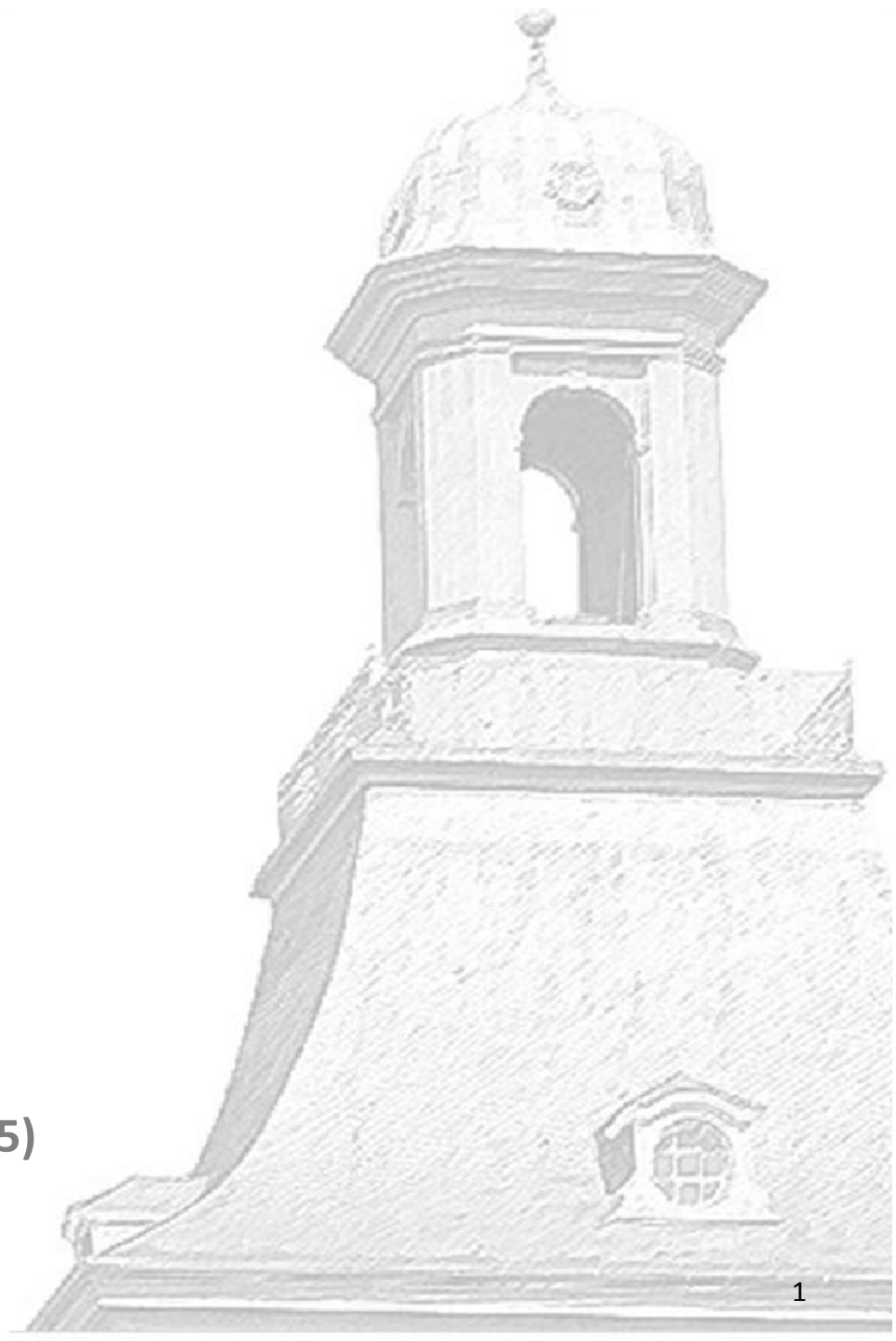


# Bonn

AIDA 2020 Kick-off (Jun 4, 2015)  
Norbert Wermes (UBonn)



# Current foci on new pixel R&D interesting for ATLAS ITK

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- 65 nm IC design, RD53
- CMOS Pixel Sensors
- 3D integration and TSVs
  
- new module concepts
- high BW test systems
  
- serial powering
  
- Test beam infrastructure @ ELSA 3.5 GeV e-accelerator (Bonn)

## Center for Detector Research Bonn



- construction started
- ready 2017

# CMOS Sensor Developments

- Fully depleted MAPS based on high resistive substrate CMOS sensors → **DMAPS**
- Technology evaluation (started 2012)
  - DMAPS test chips implemented with **5 different CMOS technologies**
- Applications
  - Low mass pixel vertex detectors
  - ATLAS hybrid pixel detectors with active CMOS sensors (**CPIX Demonstrator**)
  - ATLAS **Fully Monolithic Pixel Sensors**
  - Photon imaging (X-ray spectroscopy, X-FEL, etc)
- Funding established

# Resources

- Scientists
  - H.Krüger, F.Hüggling, L.Gonella, N.Wermes
- PhD Students
  - T.Hirono, T.Obermann, J.Janssen, D. Pohl
- 3 Master students
- 3+2 Chip designers
  - T. Hemperek, I. Kishishita, P. Rymaszewski + new
- 2 Technicians

# contribution for WP6

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- sensor design
  - so far (2013/2014) submitted
    - Tower Jazz (w/ Strasbourg)
    - Lfoundry (w/ CPPM, KIT)
    - ESPROS
    - XFAB
    - Toshiba
  - in preparation/planning
    - LF demonstrator (150 nm, w/ CPPM)
    - XFAB demonstrator (pending)
    - LF fully monolithic (w/ SLAC)
    - ESPROS 150 nm (tbd)
- sensor characterizations (in LAB and test beams)
  - currently characterized
    - AMS180 – V2 & V4
    - LF
    - Toshiba
- TCAD simulations