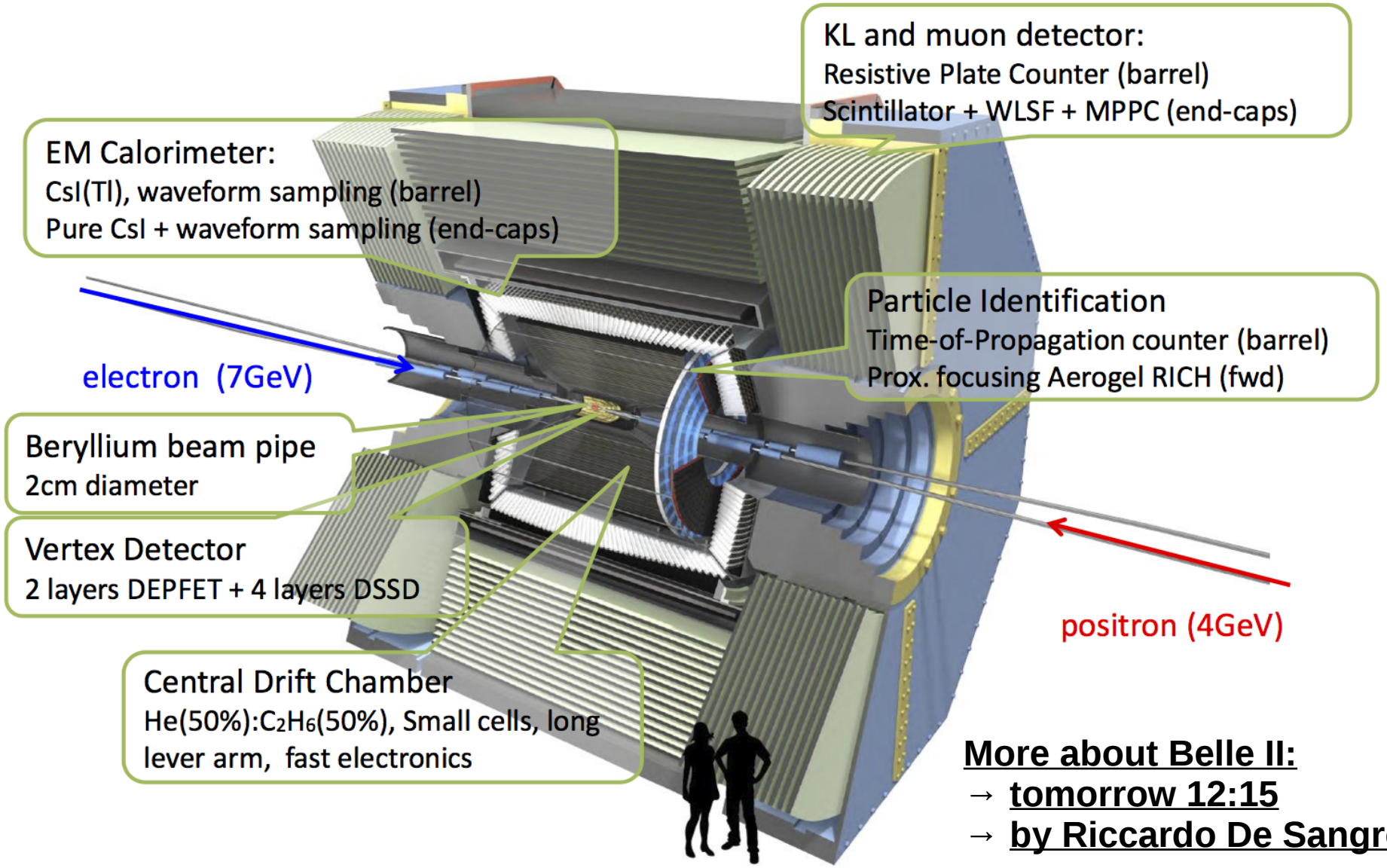
An ATCA-based readout system for the Belle II Pixel Detector

Belle II Detector



More about Belle II:
→ **tomorrow 12:15**
→ **by Riccardo De Sangro**

klemens.lautenbach@physik.uni-giessen.de

Belle II

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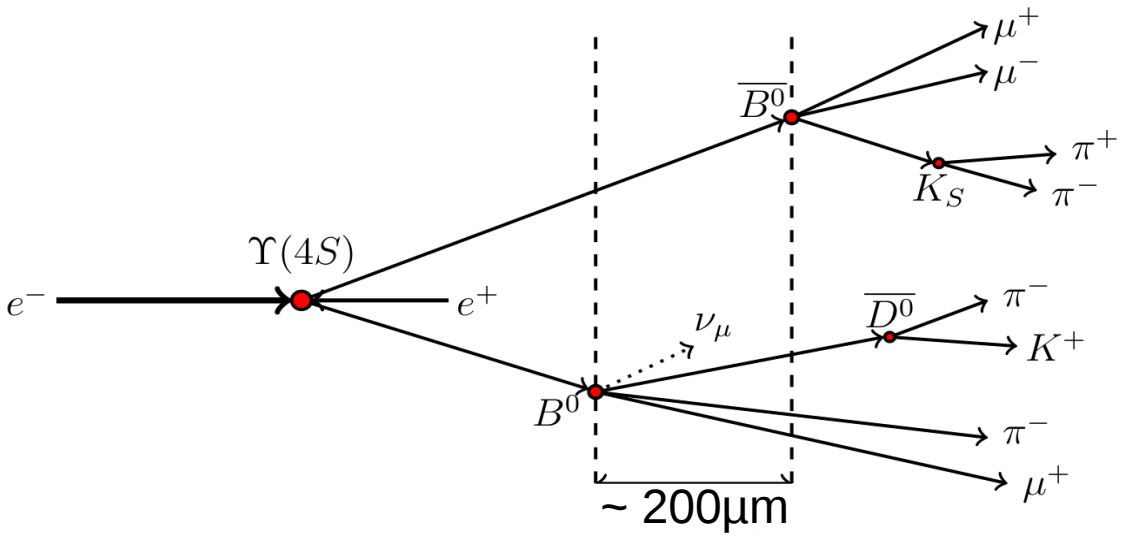
中国科学院高能物理研究所 Institute of High Energy Physics Chinese Academy of Sciences

An ATCA-based readout system for the Belle II Pixel Detector

CP violation meassurement scheme at Belle II



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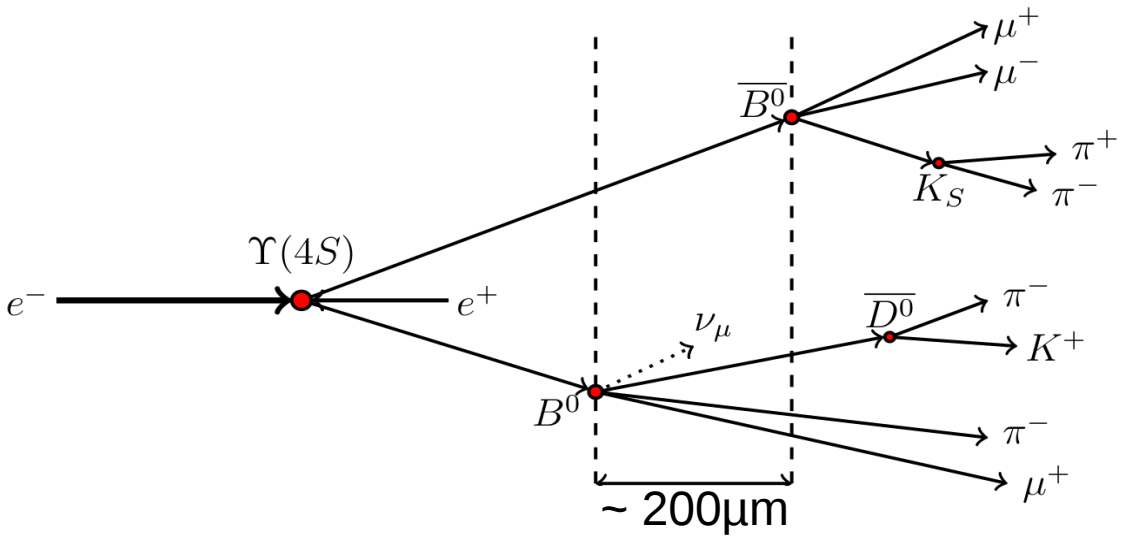
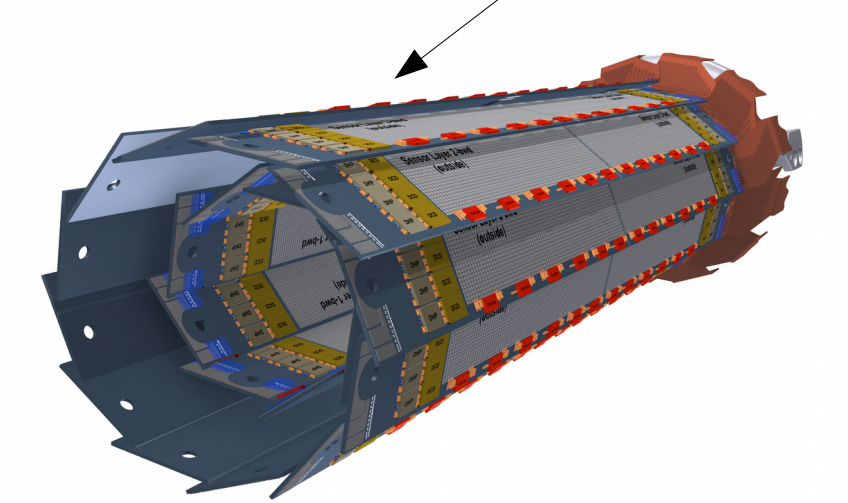


To resolve this
with high accuracy



Belle II Pixel Detector (PXD)

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Belle II

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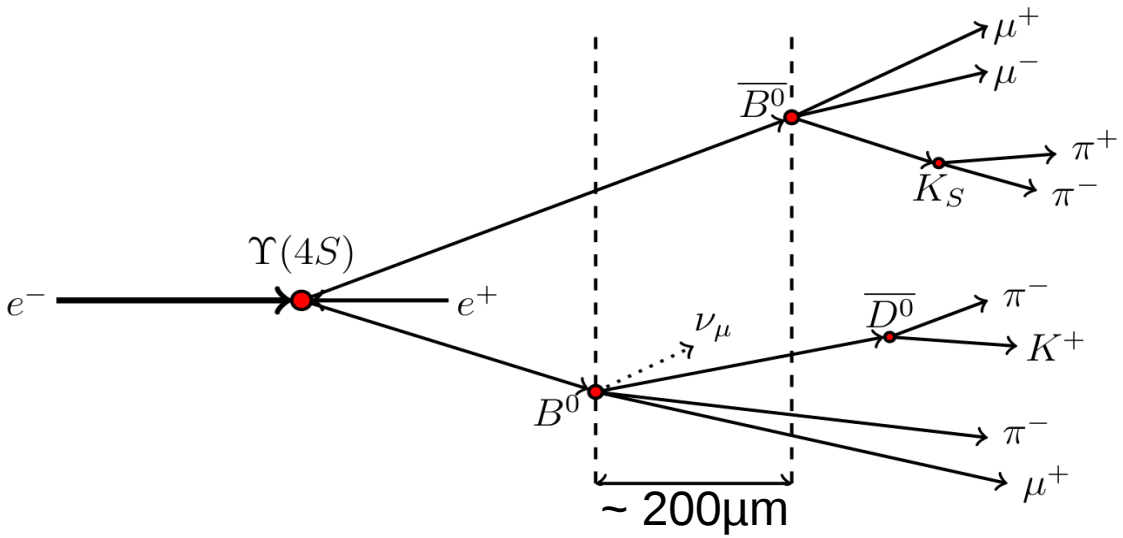

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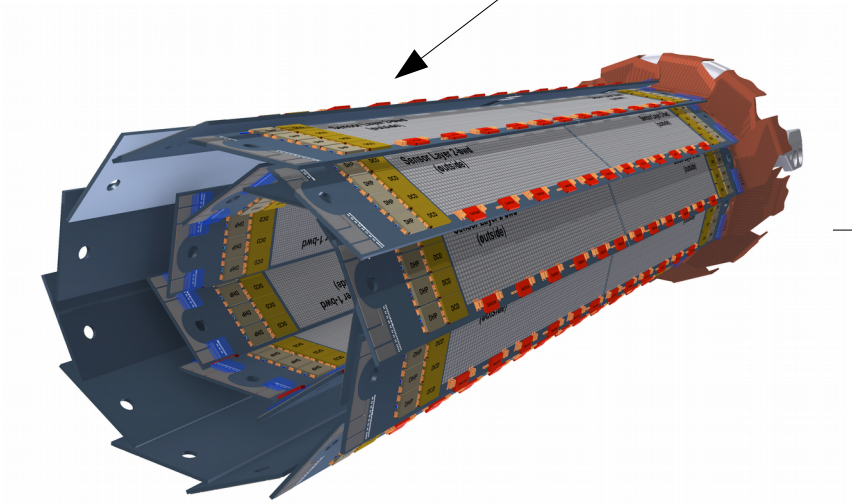

Belle II Pixel Detector (PXD)

Close to the IP & 30kHz trigger
→ huge background from
$\gamma\gamma$-processes
Bhabha scattering
Beam-gas scattering etc.
→ estimated data rate of 20GB/s !!
→ reduction needed

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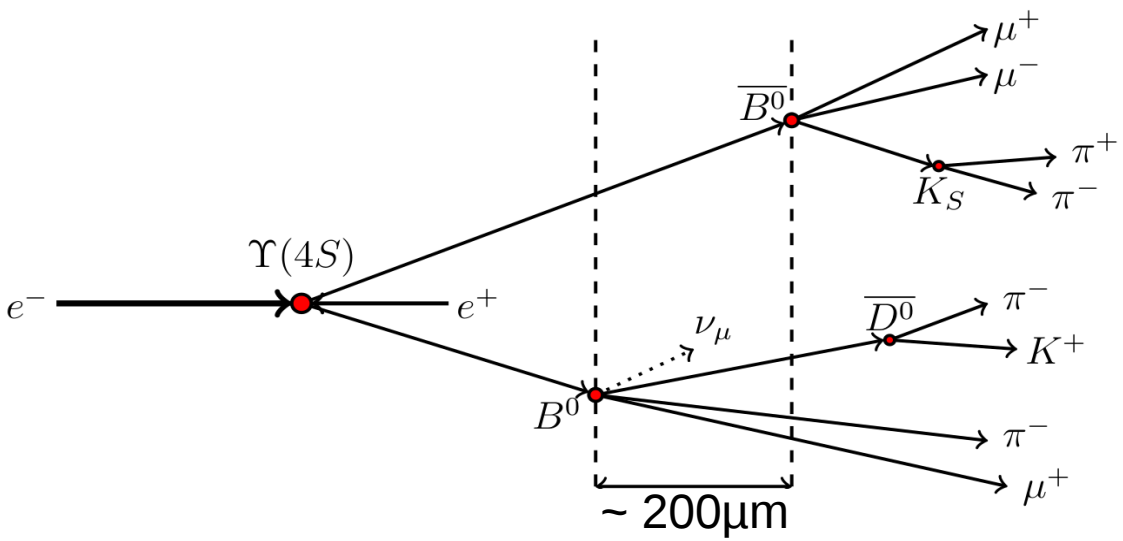
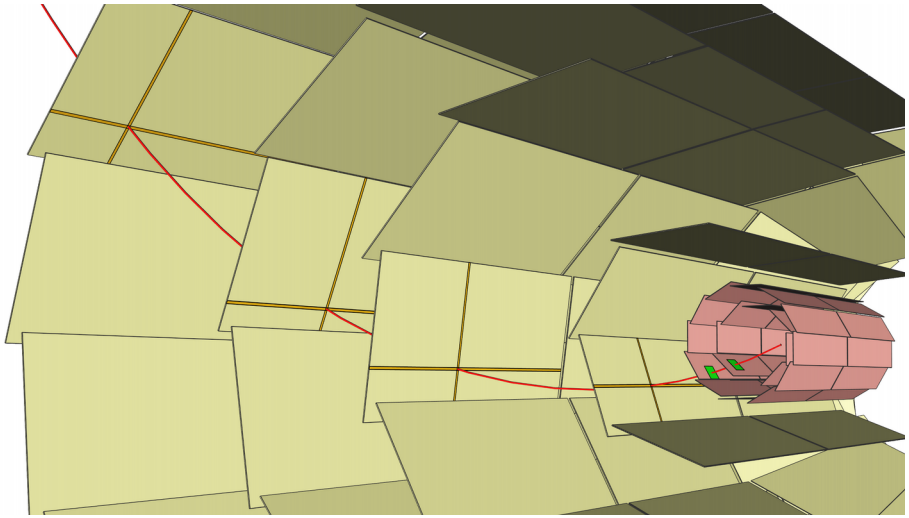


Scheme of a particle track crossing the 6 layers of the VXD and defining 2 ROIs on the PXD surface



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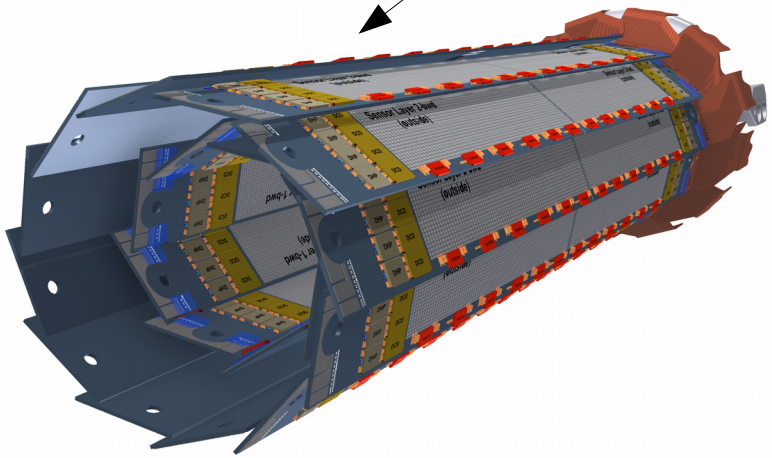

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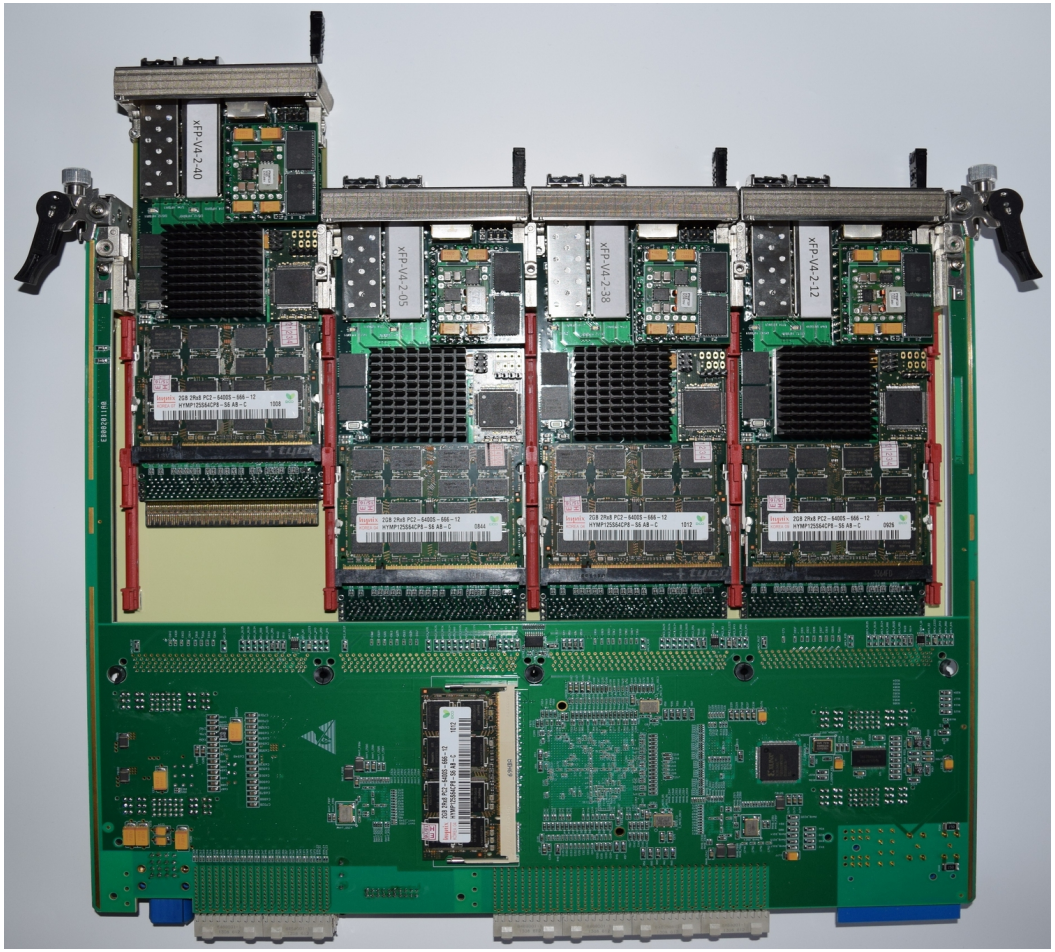
ONSEN (ONline Selection Nodes) system

ATCA based hardware platform
9 carrier boards, 33 AMC daughter boards
Performs ROI selection to reduce background by factor of 30

One carrier board with
4 AMC daughter boards



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- Simon Reiter
- Klemens Lautenbach

JGU Mainz:
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IHEP Beijing:
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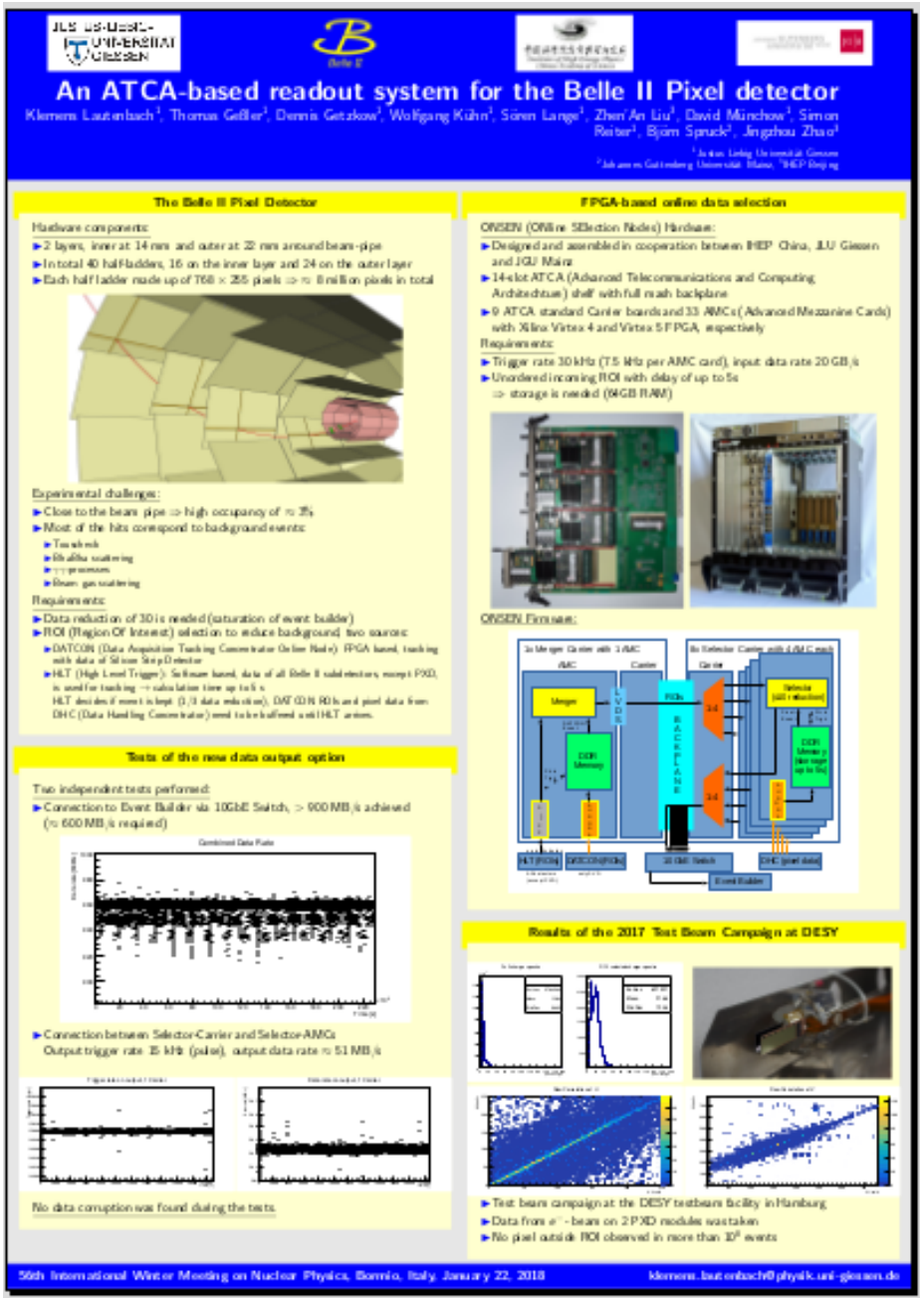

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