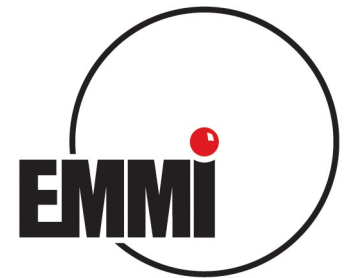


Some (personal) remarks on Polish-German collaboration in accelerator projects

- Historical comments
- Current projects
- Future Cooperations



FIAS Frankfurt Institute
for Advanced Studies



EMMI Physics Days 2014
GSI, Nov. 10, 2014

My first visit to Poland

13th winter school on topics in nuclear structure physics
Zakopane, Feb. 1975

Bent Herskind (Copenhagen) and pbm were the only
'westerners'

Strongly Oscillating Angular Distributions in the Reaction $^{32}\text{S} (^{16}\text{O}, ^{12}\text{C})^{36}\text{Ar}$
at $E_{cm.}=30$ MeV, P. Braun-Munzinger, C.K. Gelbke, G. Baur, R. Bock,
W. Grochulski, H.L. Harney and R. Stock, Nucl. Phys. **A219**(1974)253

Transfer Reactions Induced by ^{16}O on $^{29,30}\text{Si}$, I. Tserruya, W. Bohne,
P. Braun-Munzinger, C.K. Gelbke, W. Grochulski, H.L. Harney and J.
Kuzminski, Nucl. Phys. **A242** (1975)345

Professor Henryk Niewodniczański

where it began...

Because of his efforts and successes with accelerators in the 1950s and 1960s the Institute for Nuclear Physics in Cracow is now named after him:

the Henryk Niewodniczański
Institute of Nuclear Physics
Polish Academy of Sciences.



One of the founding fathers of Polish participation in international accelerator projects

Studies On Fireball Model

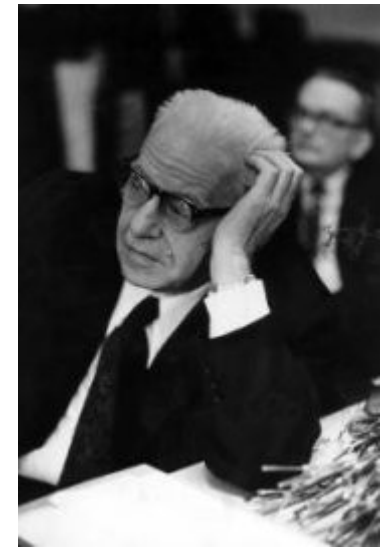
M. Miesowicz (Warsaw, Inst. Nucl. Studies). 1968. 35 pp.

C680311-1, INR-915-VI-PH

The problem of fireballs and isr-results

M. Miesowicz (Cracow, INP). 1973.

Published in Acta Phys.Polon. B4 (1973) 647-653



Marian Mięśowicz

Another founding father... Prof. Andrzej Budzanowski signing an agreement with CERN in 2003



Andrzej Budzanowski, Director-General of the Cracow Institute of Nuclear Physics (HNINP) and Lyn Evans, LHC Project Leader, signing the collaboration agreement. In the background, from left to right : Grzegorz Polok, Deputy Director-General of the Cracow Institute of Nuclear Physics, Blazej Skoczen, in charge of the LHC cryomagnet interconnections, Claude D  traz, Director for Fixed Target and Future Programmes, Alain Poncet, AT/CRI Group Leader

Establishing the Juelich Krakow Connection

Observation of the alpha-Particle Breakup Process at
E_{alpha}lab=172.5 MeV

A. Budzanowski, G. Baur, C. Alderliesten, J. Bojowald,
C. Mayer-Boricke, W. Oelert, P. Turek (Julich, Forschungszentrum) ,
F. Rosel, D. Trautmann (Basel U.)

Phys.Rev.Lett. 41 (1978) 635-638

Establishing the connection to GSI

Reinhard Kulesa



Angular Momentum Dependence Of The Quadrupole Deformation In
W-182, W-184, W-186 R. Kulesa, R. Bengtsson, H. Bohn, H. Emling,
T. Fastermann, F. Von Feilitzsch, E. Grosse, W. Nazarewicz,
D. Schwalm, H.J. Wollersheim

Phys.Lett. B218 (1989) 421

Joint experimental activities in major international experiments

AGATA, ALICE, CBM, FOPI, FRS, HADES, KAOS, LAND, NA35/NA49, NA61, NUSTAR, PANDA at GSI or CERN

ANKE, COSY11, WASA at Juelich

An important MoU for Polish-German Collaboration

EMMI and Polish Academy of Arts and Sciences

Memorandum of Understanding
between
the Polish Academy of Arts and Sciences
and
the ExtreMe Matter Institute, GSI Helmholtzzentrum für Schwerionenforschung

Here with we note the interest of both institutions to open long term scientific exchanges and collaborations on matters of common interest.

In the near future this includes active participation of members of both institutions in the workshop program of EMMI and activities of the Polish Academy of Arts and Sciences. To facilitate these exchanges EMMI will invite a representative of the Polish Academy of Arts and Sciences as observer to the EMMI Scientific Council meetings. The Polish Academy of Arts and Sciences will organize a structure appropriate for the preparation of common programs, with participation of an EMMI representative. As an attractive start of collaboration we plan to organize a joint yearly workshop (Copernicus Days) on matters of common interest.



Peter Braun-Munzinger
Scientific Director
ExtreMe Matter Institute EMMI



Andrzej Białas
President
Polish Academy of Arts and Sciences

Smoluchowski-Warburg Prize DPG and Polish Physical Society



1997/1998	Andrzej Bialas
1999	Ludger Wöste
2001	Janusz A. Zakrzewski
2003	Fritz Haake
2005	Andrzej Warczak
2007	Andrzej Buras
2009	Andrzej L. Sobolewski
2011	Peter Fulde
2013	Krzysztof Redlich

Another important connection – Thomas Niewodniczanski

Nuclear physicist and Head of
'Central Technical Services' at GSI
in Darmstadt and later head of
'Bitburger Brewery'



Tomasz Niewodniczański

25 September 1933 – 3 January 2010

Born in Vilnius, graduate of Nowodworski High School in Cracow, studied physics at the Jagiellonian University. Received his Master's Degree in physics in 1955, between 1955-1957 employed at the Institute of Nuclear Physics of the Polish Academy of Sciences in Warsaw, later worked there – after 1.5-year academic internship at the Institute of Physics of the Swiss Federal Institute of Technology (ETH) in Zurich – until 1963, receiving his PhD Degree in nuclear physics. Since 1963, held an academic position at the Institute of Nuclear Research in Świerk near Warsaw, where in 1965 he became the head of the Individual Linear Accelerator Construction Laboratory. After the launch in 1970, he emigrated from Poland and for three years pursued academic activities at the Institute of Heavy Ion Research in Heidelberg and in Darmstadt. Between 1955-1973, published a range of academic papers in nuclear physics. In 1973, took up a position at the brewery Bitburger Brauerei Th. Simon GmbH in Bitburg (FRG), where he became a board member after one year. He retired at the end of 1998. Between 1999-2001 he performed duties at various departments of Bitburger Getränkegruppe. Married to Marie-Luise Niewodniczański, family name Simon, they had three sons. Died in Bitburg (FRG)

Current and future collaborations

Andronic, Redlich, Stachel, pbm

QCD and the QGP phase boundary

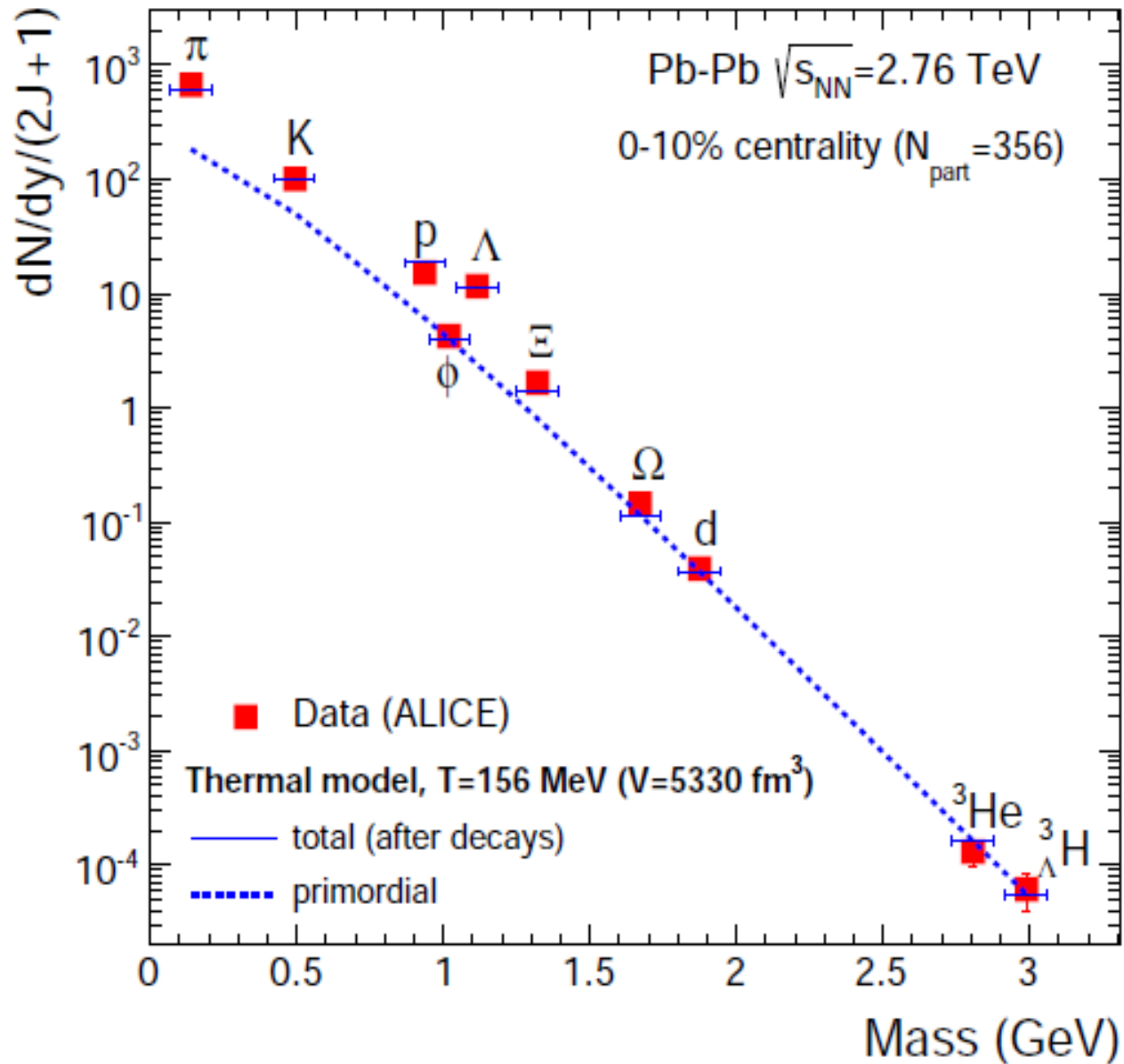
See the talks to come

ALICE physics and ALICE TPC

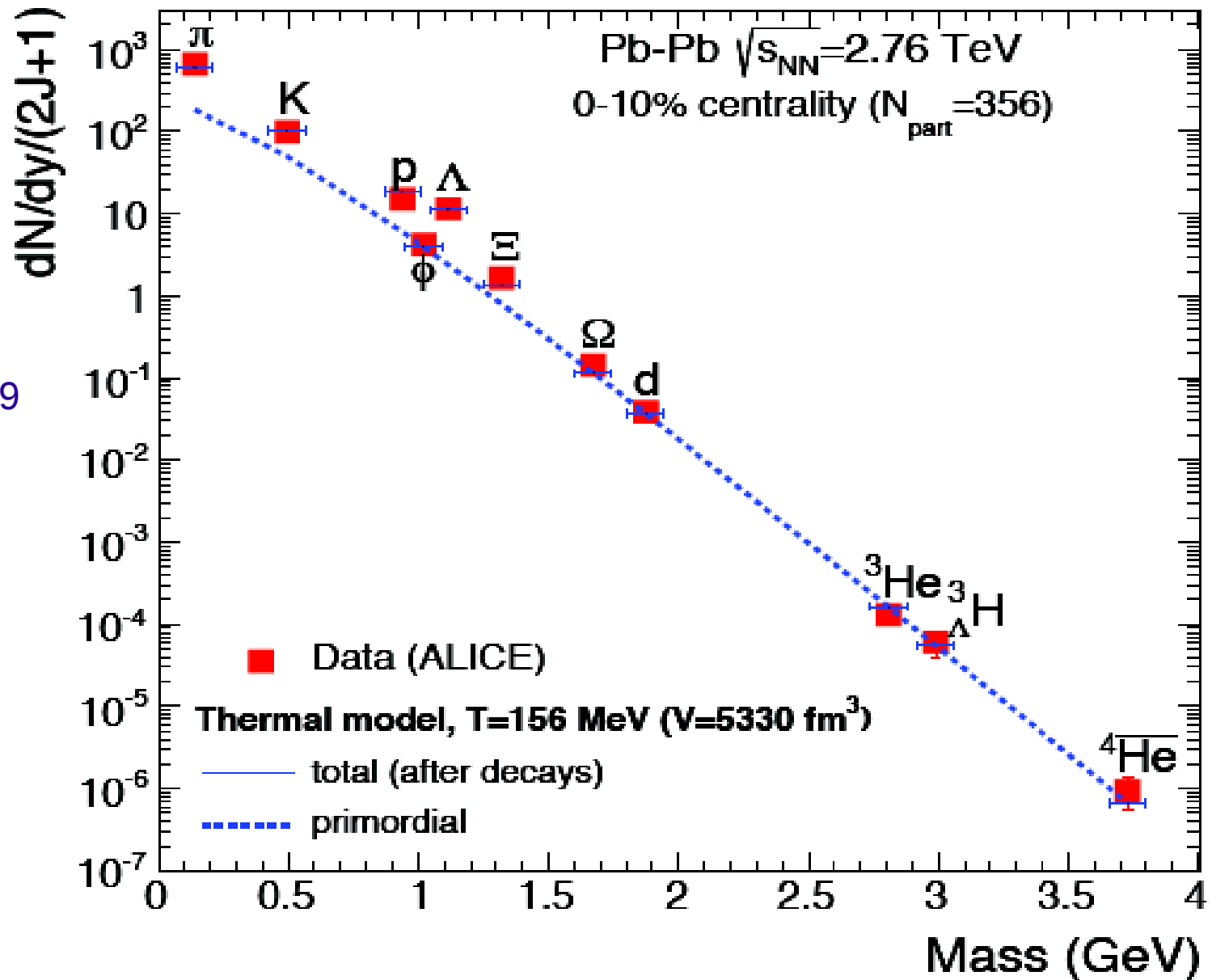
HADES physics and detector

CBM physics and detector development

Mass dependence of primordial and total yield compared to LHC data



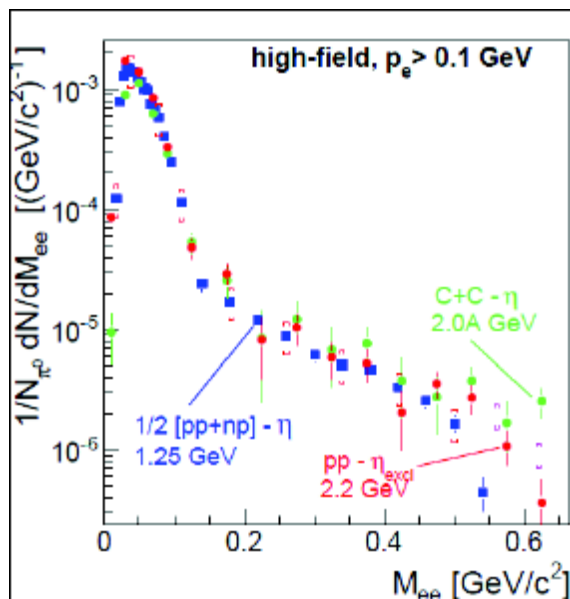
... and also including anti-alphas



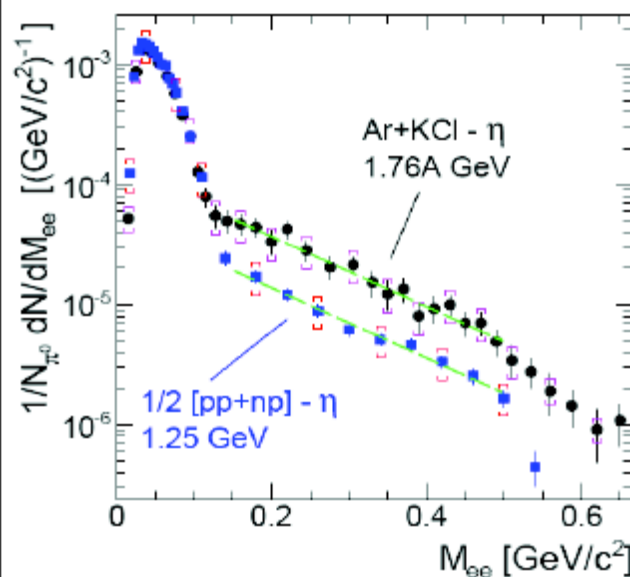
agreement over 9 orders of magnitude with QCD statistical operator prediction

yield of light nuclei predicted in: pbm, J. Stachel, J.Phys. G28 (2002) 1971-1976, J.Phys. G21 (1995) L17-L20

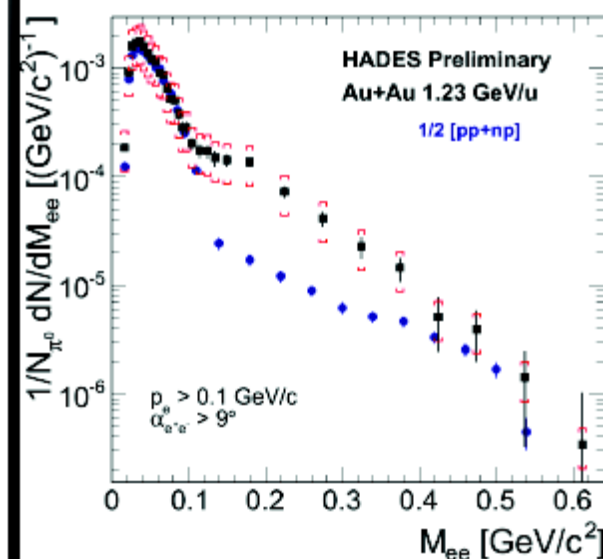
Recent results from dileptons at HADES



HADES, PLB 690 (2010) 118



HADES, PRC 84 (2011) 14902

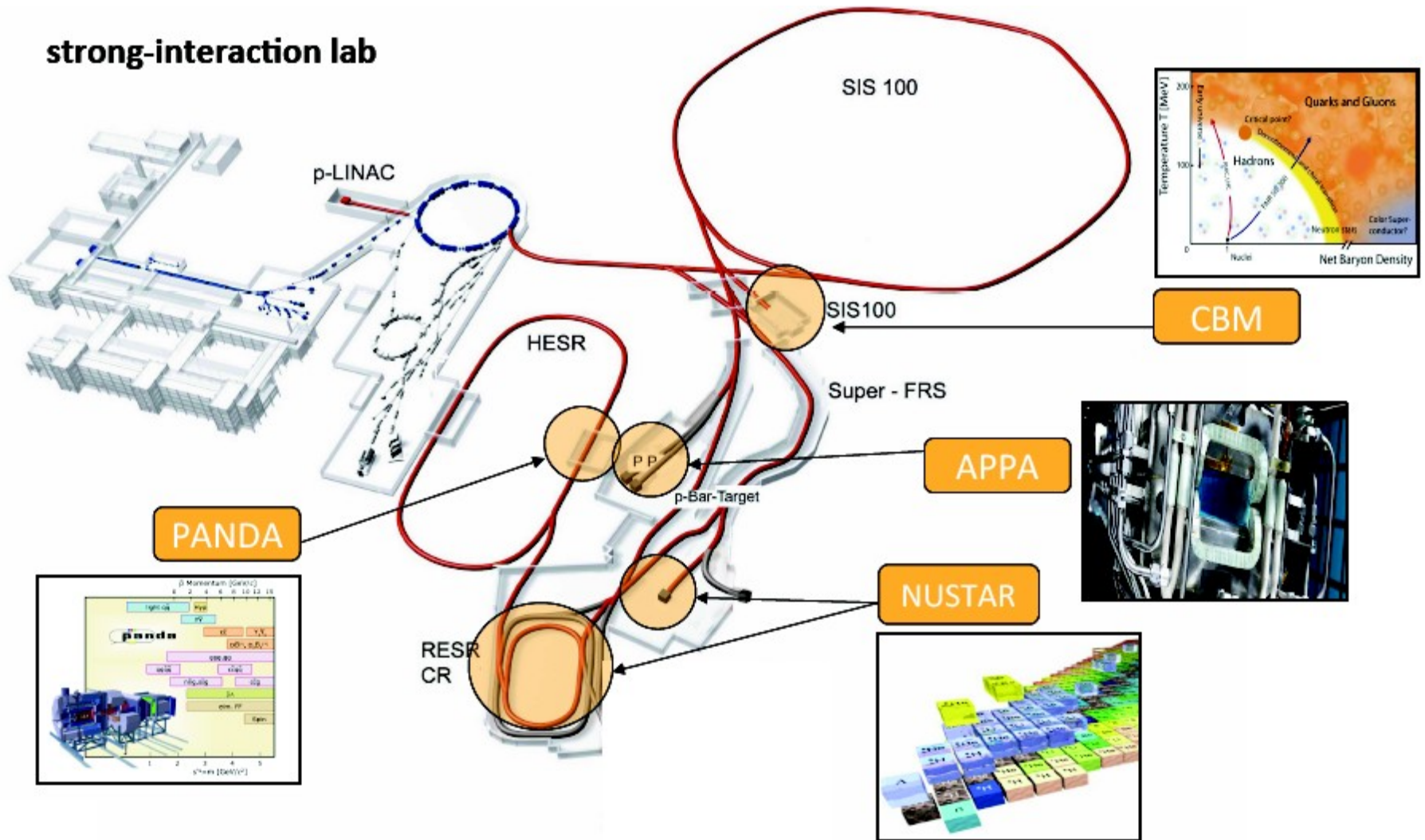


HADES, preliminary

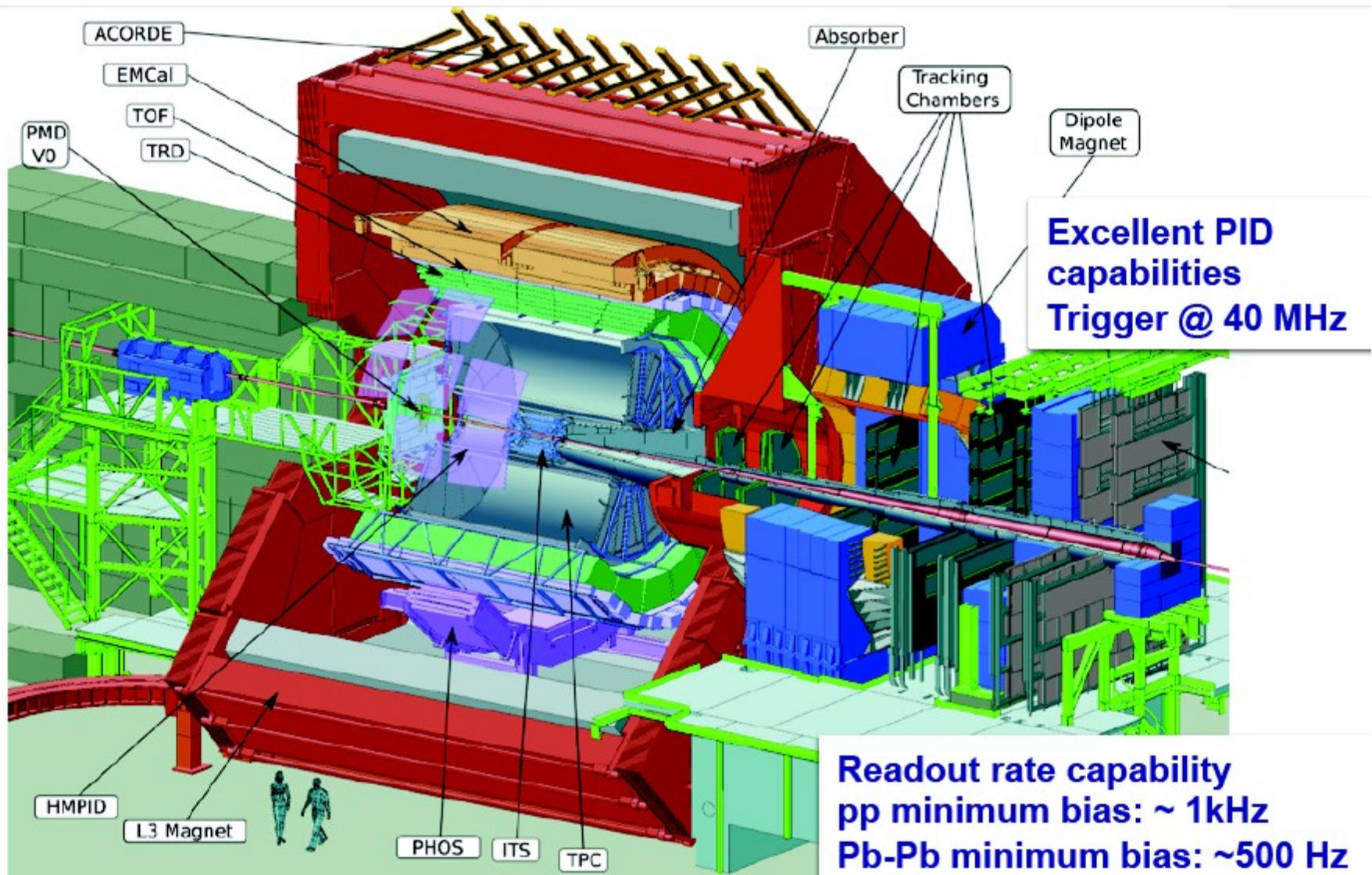
The Future at GSI-FAIR



Important Polish-German collaboration in the FAIR programs, in particular CBM



ALICE now

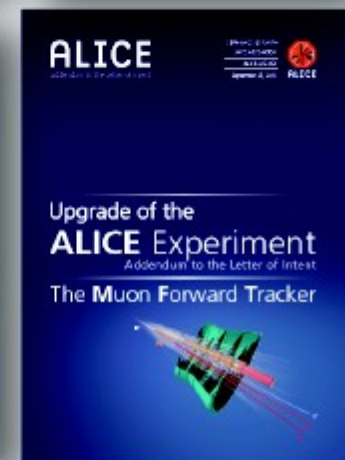
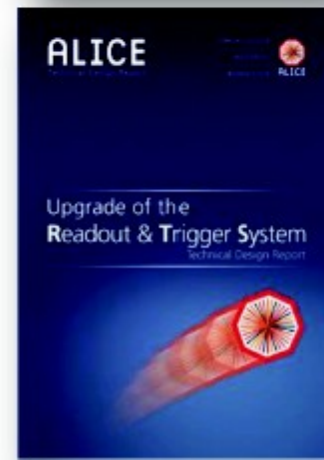
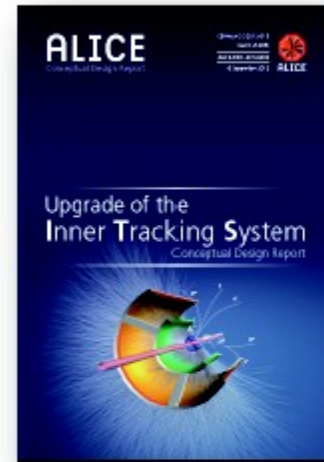


... and future plans with ALICE at the LHC

The ALICE LS2 upgrade plans:

- new, high-resolution, low-material Inner Tracking System (ITS)
- upgrade of Time Projection Chamber (TPC)
- new silicon telescope in front of hadron absorber in the acceptance of the Muon Spectrometer (Muon Forward Tracker, MFT)
- upgrade of the online systems (O²)
- upgrade of the forward trigger detectors (FIT) and ZDC
- upgrade of read-out electronics of: TRD, TOF, PHOS and Muon Spectrometer
- upgrade of the offline reconstruction and analysis framework

**Collection of ALICE upgrade TDRs
plus MFT LOI addendum**



Since the 1970s, many experimental collaborations at German accelerator labs (GSI/FAIR and COSY) and at CERN (ALICE)

Collaboration spearheaded by a (small) number of key people

Theory collaborations equally strong (see following talks)

New structures for collaboration established (EMMI)

A success story!