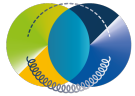


TA1 (Instrumentation) objectives

- Setup a new worldwide unique experiment at ELSA → INSIGHT (see U.T. presentation)
- **Maintain and develop ELSA infrastructure**
- R&D in the areas of microstructured detectors and microelectronics for next-generation particle physics experiments.
- Create new infrastructure: Intelligent Hardware Lab (IHL)
 - ASIC development (analog & digital), verification
 - FPGA development, embedded FPGA (eFPGA)
 - AI accelerated hardware (see Q.D. presentation)

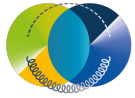


ELSA/INSIGHT timeline

Challenge: The **ELSA infrastructure** will be consolidated during a two-year shutdown from Q4/2025 to Q3/2027, including improvement of power efficiency through a new cooling scheme and an overhaul of the sources for both unpolarized and polarized beams. Beam time for INSIGHT will be made available from the end of 2027 on, as a first step of the structural development of the ELSA accelerator complex. Figure 4.5.5.7 shows the timeline for the ELSA accelerator and for the individual subdetectors of INSIGHT.

ELSA availability closely coupled to overall BLB planning of Nussallee 12 refurbishment in Bonn.

Currently, a schedule for the construction work is worked out (with BLB) which allows for largest possible flexibility. **Goal: have ELSA available in every year at least part time.**
(difficult planning...)



ELSA consolidation work

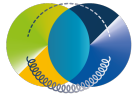
Several maintenance/consolidation works ongoing

Required for CmF:

- replacement of 2.5 GeV synchrotron capacitors (started)
- re-commissioned polarized electron source (done)
- replace conventional electron source (ongoing, PhD project)
- recommission polarized beam transport to experiment (ongoing)

Synergetic with CmF:

- improve Compton polarimetry (new project with CERN, EPFL)
- cooperation with INFN Frascati (slow positron extraction)
- FLASH radiotherapy project (submission of 1st science paper imminent)
- Beamlines for Schools
- ...



color meets flavor

Accelerator professorship



The University of Bonn is an international research university with a wide education and research profile. With a 200-year history, approximately 31,500 students, more than 6,000 staff, and an excellent reputation at home and abroad, the University of Bonn is one of the most important universities in Germany and is recognized as a University of Excellence.

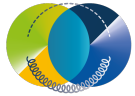
The **Faculty of Mathematics and Natural Sciences**, in the **department of Physics and Astronomy, Physikalisches Institut**, invites applications for a

W3 Professorship for Accelerator Physics

to be filled as soon as possible.

The University of Bonn operates currently the 3.2 GeV electron storage ring ELSA and the 16 MeV isochronous cyclotron BIC. Both facilities, together with the Research and Technology Center for Detector Physics FTD, form the local key infrastructure of particle physics in Bonn. The professorship's field of research should focus on electron accelerators. Operation and further development of ELSA, particularly with regard to the operation of the accelerator for experiments within the Cluster of Excellence "Color meets Flavor", are among the central responsibilities of the professorship. The position holder is expected to design innovative concepts for the strategic advancement of the ELSA accelerator facility and to establish a forward-looking vision for its operation beyond the current funding period. In addition, the use of ELSA for fundamental research in accelerator physics and for developments related to future accelerator facilities, as well as participation in corresponding coordinated programs, is desired.

Application deadline 30/09/26



ELSA/DELTA

Improve ELSA availability with components contributed from DELTA accelerator at TUDo.

- Spare 3 GHz Klystrons + infrastructure
- 3 GHz DELTA linac structure as a backup injector for ELSA
- 500 MHz RF system (power saving at highest ELSA energy)
- further “nice-to-have” spare parts

Plan to transfer DELTA parts to Bonn starting early 2027 (?).