KIT – Status of Test Facilities KARA and FLUTE

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In the Institute for Beam Physics and Technology (IBPT) [1] at the Karlsruhe Institute of Technology (KIT) in Germany, the accelerator complexes KARA and FLUTE are in operation as test facilities where various scientific activities for accelerator physics and technology take place now. The Karlsruhe Research Accelerator (KARA) is a high-energy electron storage ring, which provides electron beams with an energy range between 500 MeV to 2.5 GeV and a synchrotron radiation source, the KIT Light Source. The FLUTE (Ferninfrarot Linac- und Test- Experiment) facility serves as an accelerator test facility for various accelerator physics studies, whose core consists of a femtosecond chirped laser-driven RF photo injector, a linear accelerator, and an electron bunch compressor to provide ultra-short electron bunches for THz generation studies and non-linear physics investigations.

As test facilities, KARA and FLUTE and other research infrastructures within the Accelerator Technology Platform (ATP) [2] at KIT support the R&D of technologies for tomorrow's accelerators and detectors. Access to KIT-based accelerators via IBPT is augmented by European Transnational Access via several international projects such as EURO-LABS [3]. ATP provides a single point of contact (SPOC) and central access point for large-scale accelerator projects to the accelerators (KARA and FLUTE) and know-how located at KIT institutes.

IBPT provides an educational and hands-on environment for students and the next generation of accelerator scientists at KIT. Doctor and master candidates and bachelor students are currently engaged in research and development for the projects at KARA and FLUTE and other projects, where the latest frontiers of accelerator physics are promoted enthusiastically.

Following an introduction to KIT and IBPT, the presentation introduces the status of our accelerator complexes, KARA and FLUTE and current research topics and ongoing projects. The international projects associated with the activities are introduced in the context of the research topics at KARA and FLUTE. The educational environment and related outcoming products, such as theses and presentations at international conferences, are shown in the presentation.

REFERENCES

1. IBPT website: https://www.ibpt.kit.edu/index.php
2. ATP website: https://www.ibpt.kit.edu/atp.php
3. EURO-LABS website: https://www.ibpt.kit.edu/project_EURO_LABS.php