Creation of the Estonian Research Infrastructures Roadmap as a Successful Path of Estonian Researchers to Internationally Excellent and Competitive Science

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A launch of Estonian Research Infrastructures Roadmap in 2010 was an important landmark in the rapidly developing research and technology field in Estonia. For many years Estonia missed significant investments into the infrastructure needed for high-quality R&D. The Estonian research infrastructure roadmap is a tool for planning nationally important research infrastructures, which is complimented with the related funding instruments. The EC support with the contribution from Estonia has allowed to build up modern, high-quality infrastructure to be used by all sectors from academia to entrepreneurs rising their competitiveness.

It resulted in Estonian cooperation with the international research centres such as European Spallation Source, MAX IV Lab, ESA and CERN in physical and engineering sciences objects on the roadmap. Research centres in Estonia have same importance providing up-to-date analytical power needed for forefront research. Mostly Estonian research infrastructures are distributed because the partnership involves important stakeholders – major universities and research institutes in Estonia. NAMUR+ (nanomaterials research and technology) is created in cooperation of researchers from University of Tartu (UTARTU), Tallinn University of Technology (TalTech) and National Institute of Chemical and Biological Physics (NICBP). Estonian Magnetism Laboratory is lead by NICBP and UTARTU is contributing partner.

In my talk I will focus on development of the Finish-Estonian beamline FinEstBeAMS, which was the first international beamline at MAX IV Lab built by a consortium of Estonian and Finnish universities together with MAX IV Lab contribution in Lund, Sweden. It offers advanced time-resolved luminescence spectroscopy technique, which is important tool in development of novel optical materials. Together with the FemtoMAX beamline, which provides an excellent 30 ps time-resolution under excitation by 100 fs X-ray pulses, the research of novel scintillation materials is performed [1]. FinEstBeAMS serves as a basis for cooperation of Estonian scientists with the MAX IV Lab in all fields of research. It is also cornerstone for the EC Twinning project “EXANST”, where MAX IV Lab is one of three advanced partners increasing capacity of UT.

The outlook for future development of research infrastructures will be given.

References

1. 1. S. I. Omelkov, K Chernenko, J. C. Ekström, *et al., Recent advances in time-resolved luminescence spectroscopy at MAX IV and PETRA III storage rings*, Journal of Physics: Conference Series **2380** (2022) 012135. doi:10.1088/1742-6596/2380/1/012135