

# PTPC2019

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## The FinEstBeAMS beamline at MAX IV laboratory

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The FinEstBeAMS is a materials and atmospheric science beamline located at the 1.5 GeV storage ring of the MAX IV Laboratory, Sweden. FinEstBeAMS received the first light on 24th of November 2017. Currently beamline is under commissioning, we expect to start regular user operation 2018.

The beamline covers a wide photon energy range, 4.3–1000 eV, and gives an opportunity to probe core and valence levels with a focused ( $0.1 \times 0.1$  mm) or defocused beam, produced by an elliptically polarizing undulator. The optical layout of the FinEstBeAMS beamline is based on the plane grating monochromator illuminated with collimated light. The beamline delivers  $8 \times 10^{13}$  ph/s –  $1 \times 10^{11}$  ph/s on sample with resolving power up to 10 000.

The FinEstBeAMS has three end stations: (i) gas-phase end station (Photoelectron-Photoion Coincidence Spectroscopy), (ii) FinEstLUMI (Photoluminescence Spectroscopy) and (iii) solid state end station (Ultraviolet and X-ray Photoelectron Spectroscopy).

The FinEstBeAMS allows to investigate atoms, molecules, clusters, nanoparticles, atmospheric solid or liquid particles in gas phase or deposited on substrate, fragmentation pathways of bio- and organic molecules, atmospheric processes, scintillators, surface composition of environmental liquids, steels, and nanomolecular layers on alloy surface.

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[1] The parts of M. Huttula, E. Kukkk, and J. Hölsä of the SR-MAXIV project, FIRI2010.

[2] FinEstBeAMS phase II –FIRI2013, University of Turku, University of Oulu and Tampere University of Technology.

[3] MAX IV Infrastructure –FinEstBeAMS Solid State Materials Research, FIRI2014, University of Turku, University of Oulu and Tampere University of Technology.

[4] E. Nõmmiste project “Estonian beamline to MAX-IV synchrotron”, University of Tartu.

### Summary

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