

Helmholtz event 20325: NanoScale 2023, October 10th to 12th, 2023, in Helsinki, Finland



After a 4-year break due to the pandemic, [NanoScale](#) took place again in October 2023, this time in the modern conference center Technopolis Ruoholahti in Helsinki, Finland. With 106 participants from 24 countries, the 9th edition of the NanoScale was once again very well received and significantly exceeded the organizational team's expectations – which were somewhat cautious after the pandemic. Many conference guests were pleased to be able to finally meet their colleagues from Europe and all over the world in person again after the pandemic and exchange ideas with them. In addition to guests from 15 European countries, we were able to also welcome experts from Australia (NMIA), Japan (NMIJ), USA (NIST), Korea (KRISS), Taiwan (ITRI) and South Africa (NMISA).

This year's NanoScale, which also runs as permanent EURAMET project #1342 under the leadership of Uwe Brand, was organized by a local team led by Virpi Korpelainen from the Finnish Metrology Institute VTT MIKES together with the PTB team led by Thorsten Dziomba (PTB 5.1) with support through the [Helmholtz Fund](#). The oral presentations were selected by a 12-member International Scientific Committee.

A total of [31 lectures](#) and [52 posters](#) were presented. The 83 abstracts can be read in the 305-page Book of Abstracts. Particular highlights were the special sessions on the results of the EMPIR projects 20IND08 [MetExSPM](#) ("High-speed Scanning Probe Microscopy measurements of functional properties of nanostructures") for the development of fast and multifunctional scanning probe microscopic methods and 20IND07 [TracOptic](#) ("3D roughness & dimensional measurements using optical 3D microscopy and optical distance sensors") for the characterization of topographically measuring optical 3D microscopes and distance sensors. In addition, interferometry, ellipsometry, scatterometry as well as spectroscopy and analytics were covered. In addition to technical device developments, the main focus was on understanding the methods: systematic experimental investigations combined with simulation and modeling, increasingly supported by AI, to which a separate session was dedicated. In the area of standards, the focus was on crystalline standards. Strategies for ensuring traceability of industry-related applications rounded off the range of topics.

The conference proceedings will be published in a [virtual special issue](#) of Measurement Science and Technology (MST). The printed versions will be included in current print editions. The deadline for manuscript submission has been extended to February 29, 2024. After successfully completing the peer review, the papers are listed and linked on the [landing page](#).

The conference was rounded off with a welcome reception on the first evening, the conference dinner on the second evening and tours to the VTT MIKES laboratories on the Espoo campus.

As in 2019 in Braunschweig, the NanoScale was once again embedded in a so-called "Length Metrology Week" so that the delegates could combine their attendance at the meetings with participation in the conference: many of the world's leading metrologists from the field of

length measurement (dimensional measurement technology) gathered in Finland from October 9th to 13th, 2023. The annual meeting of [EURAMET TC Length \(TC-L\)](#) took place before NanoScale, and afterwards the working groups of the [BIPM Consultative Committee for Length \(BIPM-CCL\)](#) met. In addition, the [EMPIR 20IND07 TracOptic](#) consortium held its M27 meeting immediately before the NanoScale.

The concept of the “Length Metrology Week” is to continue in 2025 (then in conjunction with [MacroScale](#), probably in South Africa) and finally again in 2026 together with NanoScale in a European country (hosts are currently being sought).



HELMHOLTZ
FONDS e.V.

