



CEITEC Nano Research Infrastructure

Viktor Danchuk, CEITEC Nano RI specialist

CEITEC - Central European Institute of Technology



YOUNG AND DYNAMIC
Established in 2011



CONCENTRATED KNOWLEDGE
52 Research Groups



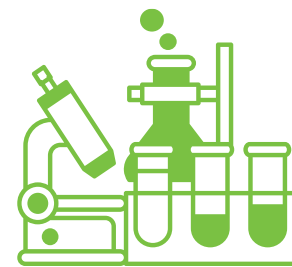
CONSORTIUM
6 Partners, 2 campuses



MULTIDISCIPLINARITY
8 Research Areas



CONCENTRATED KNOWLEDGE
750+ researchers



CUTTING-EDGE TECHNOLOGIES
14 Core Facilities



Research Areas

8

IN TOTAL

MATERIAL SCIENCE



Advanced
Nanotechnologies
and Microtechnologies



Advanced
Materials



Structural
Biology



Genomics
and Proteomics
of Plant Systems



Molecular
Medicine



Brain and Mind
Research



Molecular
Veterinary
Medicine



Industrial Cybernetics,
Instrumentation and
Systems Integration

LIFE SCIENCE



UNIQUELY BROAD SET OF INSTRUMENTATION

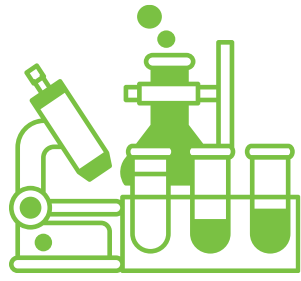
for Nanoscience and Nanotechnology
under one roof





UNIQUELY BROAD SET OF INSTRUMENTATION

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EXTENSIVE NANOFABRICATION FACILITIES

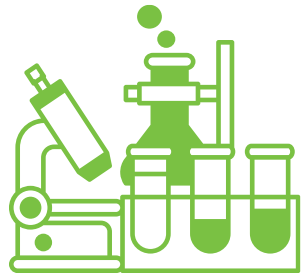
no comparable alternative in Czechia
leading in Central Europe
competitive worldwide





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ABILITY TO SUPPORT FULL R&D CYCLE

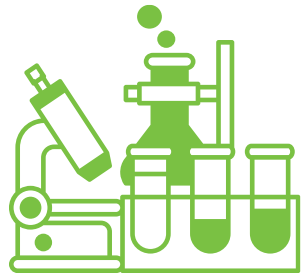
from idea to innovation
programs and support for startups





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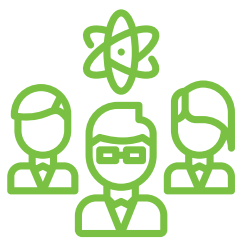
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STRONG EMPHASIS ON TRAINING

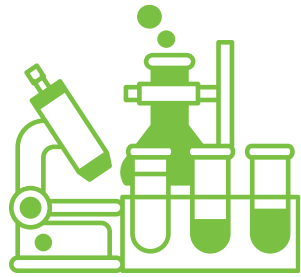
800 trainings for 200 user/year
4 undergraduate courses from 2 universities





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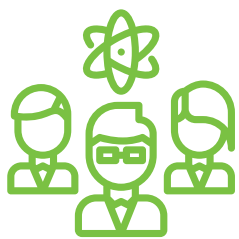
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LARGE AND ACTIVE USER BASE

350+ users, yearly 100 new users
60% outside CEITEC





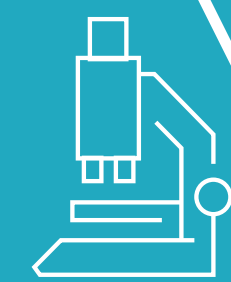
2 000 m²
Clean room

ISO5
ISO8

18 715
Number of
reservations

116 940
Hours of
reservations

117
Instruments



361
Users

80
Companies and
institutions

36
Nationalities

2025

Equipment available at CEITEC Nano

Nanofabrication	Nanocharacterization	Structural analysis	Chemical laboratory
Lithography - Maskless: EBL, DWL, FIB - Mask Aligner - UV Wet chemistry lab - Wet benches - Multiple processes (Plasma)chemical and thermal processes - LPCVD, PECVD, ALD - RIE-F, RIE-Cl, DRIE - IBE, RIBE, CAIBE Depositions (PVD) - Magnetron sputtering - E-beam evaporator - IBAD Packaging - Wire bonder - Laser dicer - Dicing saw	Microscopy - SEM/FIB, SPM, SNOM, Kerr microscopy UHV techniques - XPS - Scanning Auger microscopy - SIMS, LEIS - UHV complex system Elmag measurements - 9T, 1.4K ppms - LT probe station - Automated probe station - VNA-FMR, spin-wave spectroscopy Optical measurements - VUV-VIS-MIR spectroscopic ellipsometers and spectrometers, FTIR, RAMAN, and BLS microscopes	Microscopy - HRTEM - HRSEM - FIB/SEM - Microanalysis by EDS, WDS, EBSD, EELS - Sample preparation: - Cutting - Mechanical, electrolytical and ion polishing X-ray diffraction - High-resolution X-ray diffractometer - Powder diffractometer	Chemical analysis - Chromatography - GC-MS/FID - GPC - BET - NMR - FTIR microscope - DHR2 Rheometer Chemical synthesis - Monowave - Thermal reactor - Spincoater - Centrifuges
			X-ray CT
			Computed tomography - Micro CT - Nano CT

Access conditions:

Self-service

Academia: yearly fee 1600 € /user/year

Industry: yearly fee + hourly charges (30 € /hour)

Full-service

Fee based on the time spent on the project

(60-130 € /hr. academia, 100-300 € /hr. industry)



2025 Statistics

Equipment: 80 large-scale instruments / 32 M€

Staff count: 39 employees / 29 FTE

User count: 582 persons / 95 research groups

User institutions:

29% CEITEC

24% Brno University of Technology

29% External academic

10% Startups & SME

8% Large companies

Full-service projects: 91 full-service projects

68% commercial, 32% academic

CEITEC Nano is active at the national level

**CZECH
NANO
LAB.**

COORDINATION OF CZECHNANOLAB

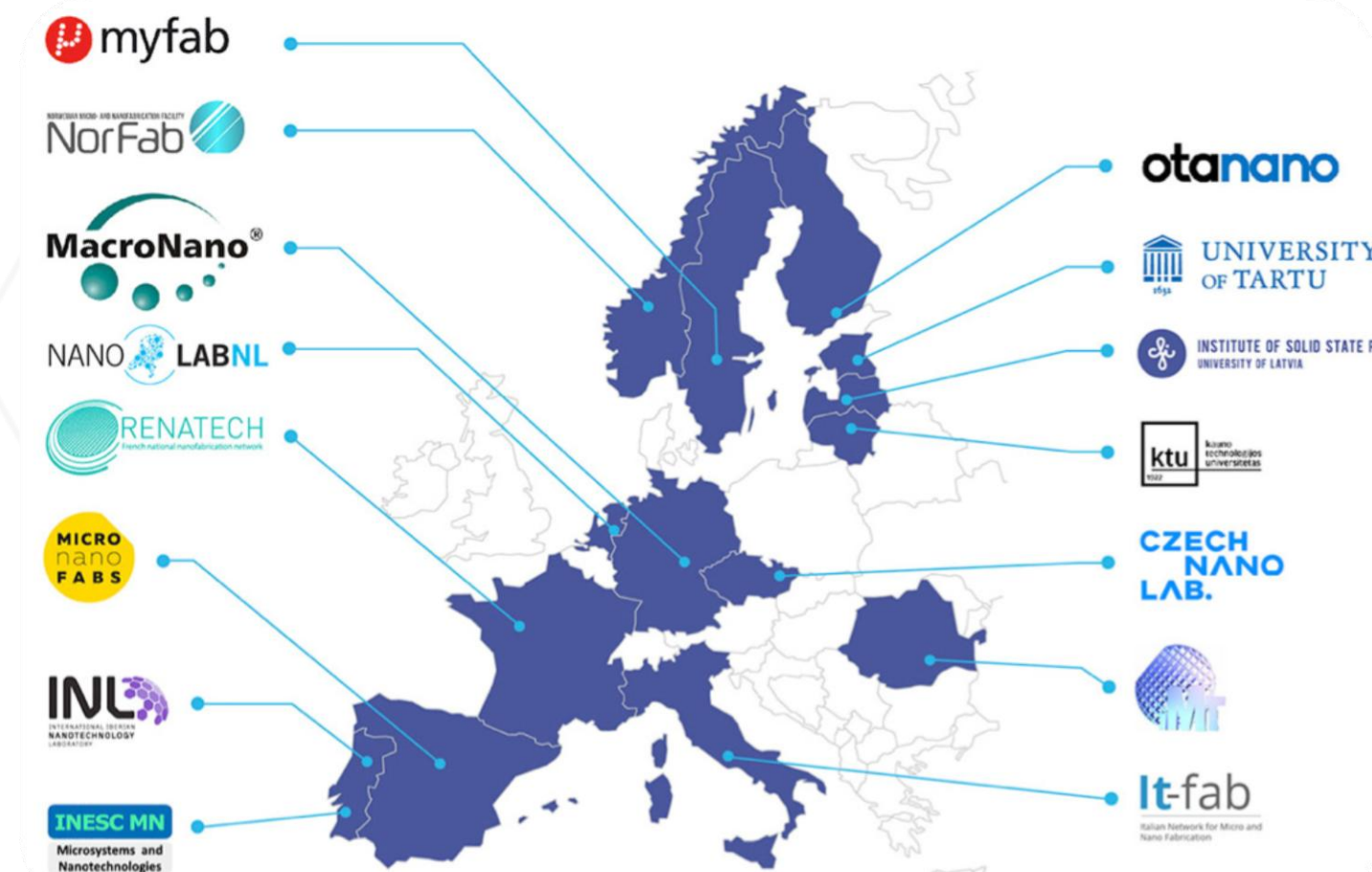
#4 on the Czech Roadmap of Large Research Infrastructures
second node is located in Prague
the only RI where BUT is the hosting institution



As well as at the international level

IMPORTANT ROLES AT EURONANOLAB

partner in charge of financial matters
consortium vice-chair, coordinator of data
management group, participation in HE projects



CEITEC Nano is active also Worldwide

PART OF GLOBAL NANOLAB

An international network of nano-fabrication and characterization facilities

<https://globalnanolab.org/>



GLOBAL NANOLAB WORKSHOP

The first workshop to develop this concept was at ENRIS conference in 2025

5 national networks – USA, Canda, Europa, Japan, Australia

Our Purpose



The Global Nanolab exists to leverage our collective expertise to improve our ability to have local impact.

Our Vision



Global Nanolab is recognised by all of our members as delivering value across common challenges.

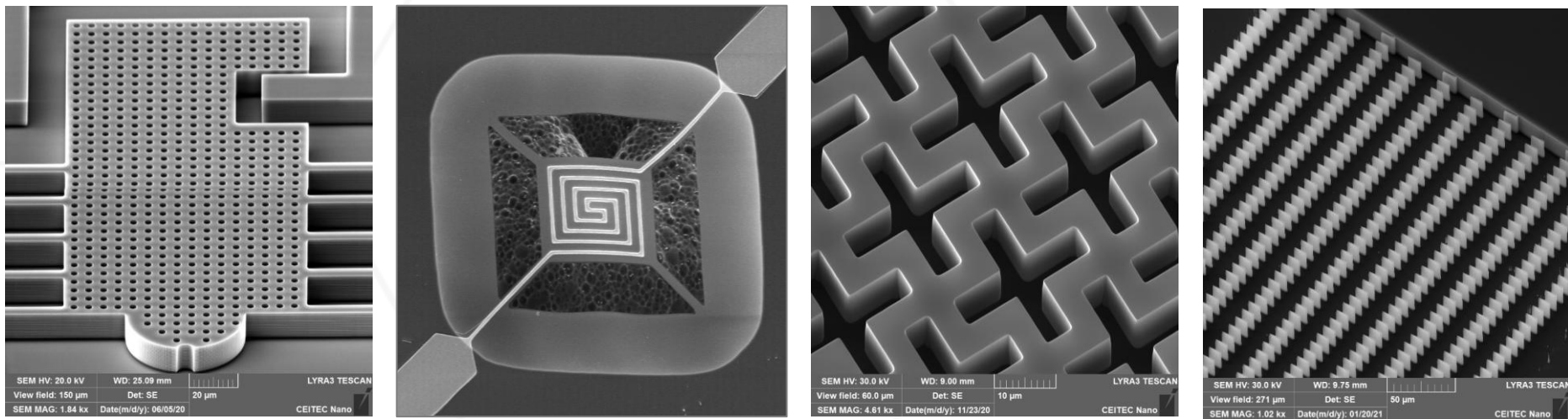
Thanks for your attention

CEITEC Brno University of Technology

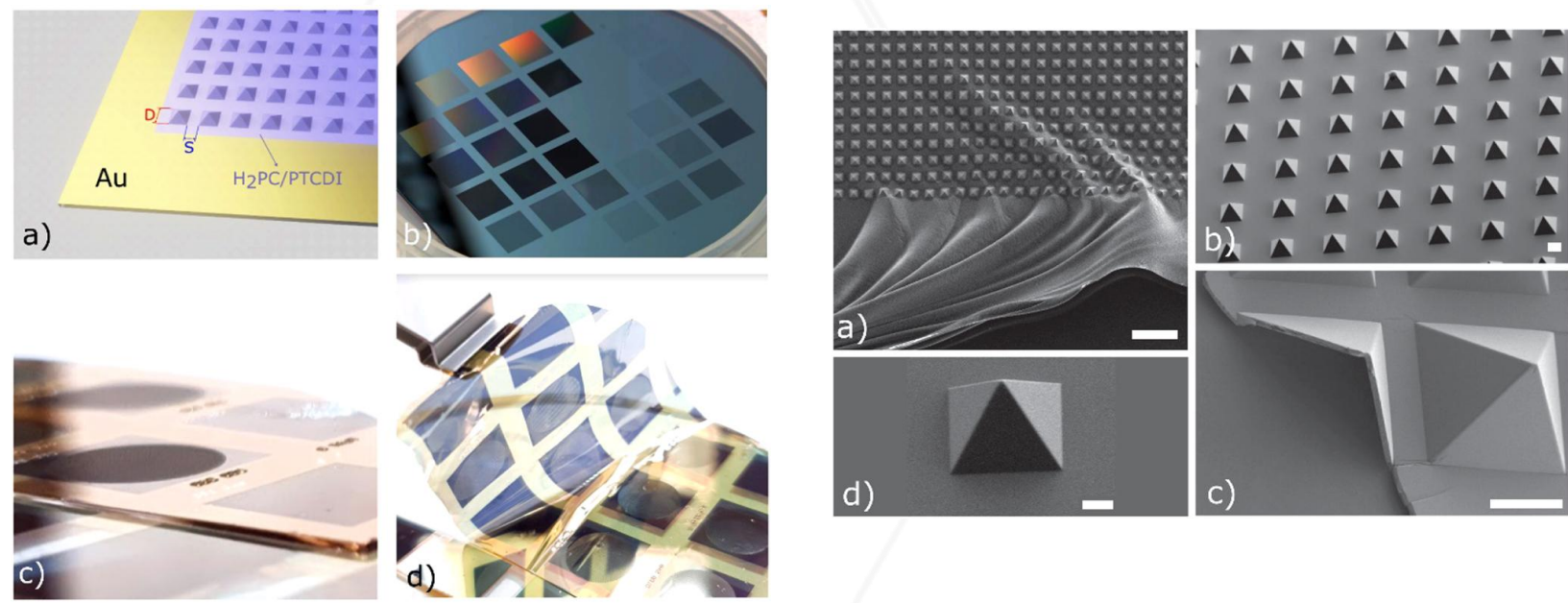
Brno, Purkyňova 656/123

Examples of structures and devices made at CEITEC Nano

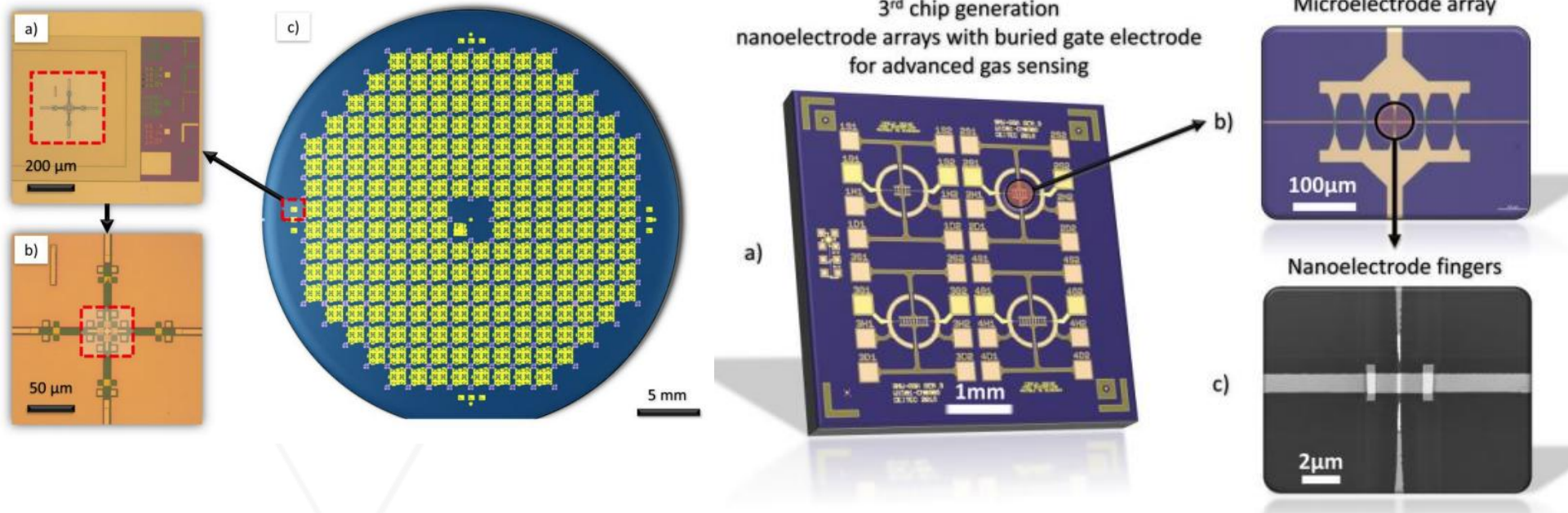
MEMS and microfluidic structures



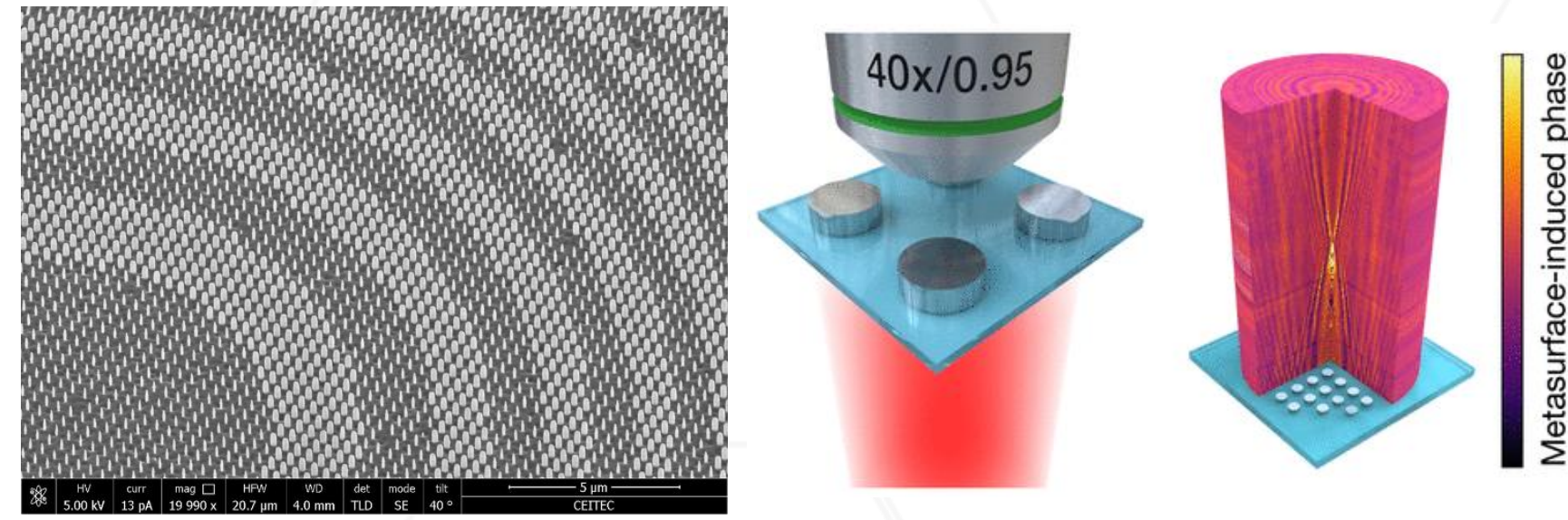
3D-structured flexible opto-bioelectronic devices

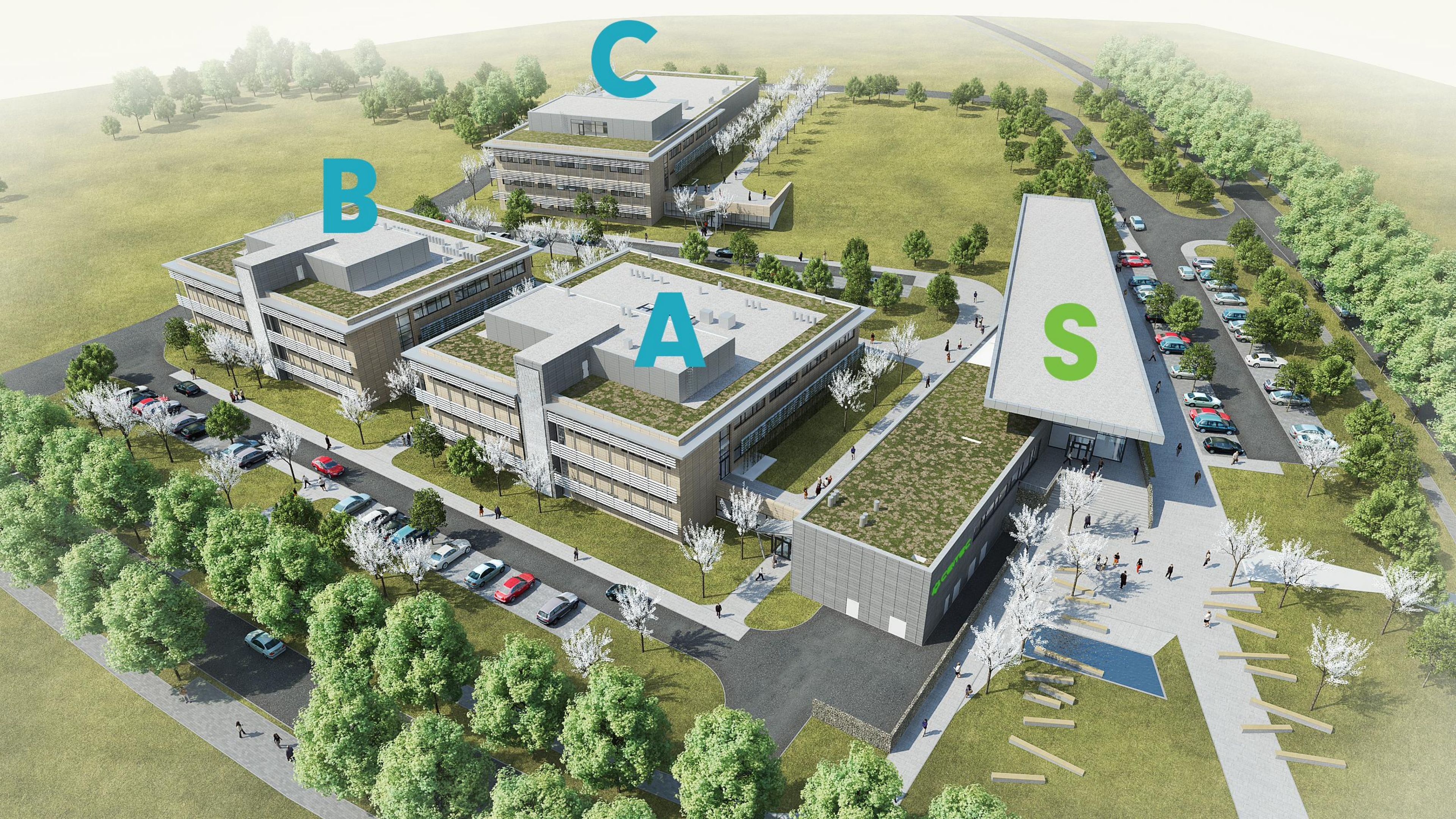


Single nanowire gas-sensing chips



Photonic metasurfaces for phase manipulation





C

B

A

S