

INSTITUTE FOR NANOMATERIALS, ADVANCED TECHNOLOGIES AND INNOVATION TUL



RESEARCH



COLLABORATION



INNOVATION

WE ARE CXI TUL



„CXI TUL is both university institute and an industry hub.

CXI TUL provides outstanding applied research in the field of nanotechnologies and environmental protection, advanced design and additive manufacturing, and information technologies.



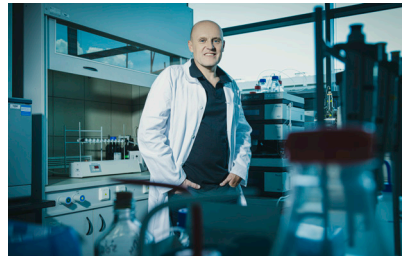
We wholeheartedly embrace collaborations that ignite innovation and shape the future.”

Miroslav Černík

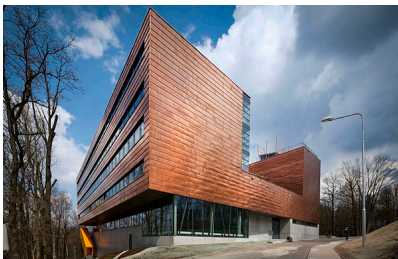
CXI TUL Director



**RESEARCH
ON THE TOP**



WE ARE CXI TUL



2009 CXI TUL was established

2012 Building L was opened

2017 The milestone of 50 mil. EUR in total for national and international grants was reached



2022 The milestone of 20 mil. EUR in total for contractual research was reached

2024 15 years of CXI TUL was celebrated



**OUR MISSION:
RESEARCH
MEETS
INDUSTRY**



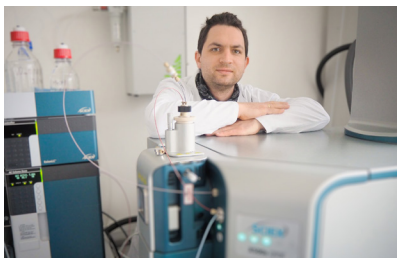
CXI TUL HIGHLIGHTS

> 100 

Over 100 scientific machines
worth more than 20 mil. EUR

20% 

20% of turnover in
contractual research funded
directly by industry
partners



**BEST
EMPLOYER**



The HR Excellence in Research Award



UN 2030 sustainable goals achieved

> 80 

More than 80 research projects
annually, involving around
170 employees

CXI TUL HIGHLIGHTS

50%



Gender equality,
half of the employees are women



70

Patents

370

Intellectual property protected
results of research

74

Certified technologies and pilot plants



>1000



More than one thousand research
publications
in respected journals



OUR EXPERIENCE



INTERNATIONAL COOPERATION

Horizon Europe, Digital Europe, MSCA, Life+, Twinning



CROSS-SECTORAL COOPERATION

European Digital
Innovation Hubs project



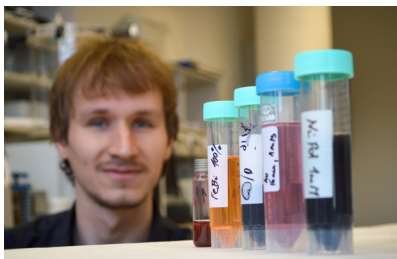
COOPERATION WITH INDUSTRY

Cooperation with CzechInvest,
supporting innovation

AMIA association

National Centre of Competence
for Industrial 3D Printing (P3DT)

OUR EXPERIENCE



SCIENTIFIC RESEARCH

National and international projects
Highly impacted publications

RESEARCH & BUSINESS

Around 2 mil. EUR contractual research and
complementary activity annually
Analytical laboratory CXI TUL



AMIA



P3DT



Lab CXI



RESEARCH DIRECTIONS



NANOMATERIALS IN NATURAL SCIENCES

We specialise in the research, development, synthesis, behavioural description, and in particular the application of advanced materials and nanomaterials, mostly in the fields of water treatment, environmental protection, and life sciences.

We ensure that our innovations contribute to a sustainable and a healthier world.



COMPETITIVE ENGINEERING

Our expertise lies in the research, development, and application of cutting-edge engineering technologies and structures. We specialise in mechatronic systems, power units, and other machine and vehicle components taking into account new approaches.

We also excel in advanced methods for processing new materials, including additive technologies. Our innovative solutions are designed to drive progress and efficiency across various industries.



SYSTEM INTEGRATION

We focus on the development of state-of-the-art software solutions, data processing and integration between systems, cybersecurity and architecture, and communication protocols such as 5G, providing communication interfaces for industrial applications.

Our expertise covers sensors and electronics, PLCs, robotics, including the use of collaborative robots, cloud application development, big data analytics, machine learning and AI, LLMs, industrial computer vision, and others.

RESEARCH DIRECTIONS

NANOMATERIALS IN NATURAL SCIENCES

Head of the Department: Lukáš Dvořák

Nanochemistry

Environmental Technology

Nanofiber Preparation Lab

Environmental Nanorobotics

Applied Biology

Environmental Chemistry



COMPETITIVE ENGINEERING

Head of the Department: Jiří Šafka

3D Technologies

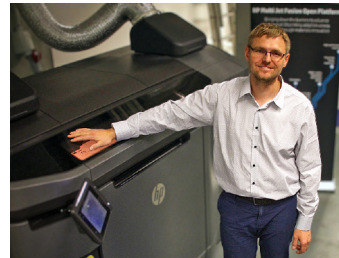
Vehicles

Machinery Construction

Advanced Technologies

Advanced Materials

Microscopy Lab



SYSTEM INTEGRATION

Head of the Department: Jan Kočí

Hardware and Sensorics

Physical Measurements Lab

Software and Artificial Intelligence

Process Modeling and AI Lab



CXI TUL COMMUNITY

Fatma Yalcinkaya, Senior Researcher of Nanotechnology, CXI TUL

"I love working at CXI because of the supportive people and the good facilities. It is a place where I can grow both professionally and personally, making my research here productive and enjoyable.

For the last four years, I have been included in the Global list of the top 2% of scientists across various disciplines, released by Stanford University.

This achievement is thanks to the CXI Research Center, which has significantly contributed to my academic development. The CXI Research Center is a shining example of intellectual progress and the power of working together on academic projects."



Michal Řezanka, Head of the Department of Nanochemistry, CXI TUL

"After completing my PhD at Charles University in Prague, I saw a flyer at the University of Chemical Technology in Prague advertising a position at CXI TUL. I was impressed by professors Stibor and Cernik for their expertise and friendly approach.

CXI TUL offers significant opportunities for my scientific career, allowing me to pursue enjoyable research. Additionally, in cooperation with other parts of the Technical University of Liberec, I teach and guide students in their final theses, continually returning to science."



Alena Ševců, Head of the Department of Applied Biology, CXI TUL

"I have been at CXI TUL since its inception, when my colleagues and I were given the incredible opportunity to build biologically oriented laboratories from the ground up. For me, CXI TUL represents opportunity, collaboration, and most importantly, a team of people I can rely on and I am truly happy to work with.

After studying hydrobiology and a postdoc in the US, I took a break from scientific work. I realised how much I missed it. I genuinely enjoy working at CXI TUL. We have a well-coordinated international team that brings diverse perspectives and skills to our projects."



CXI TUL COMMUNITY

Hadi Taghavian, Researcher of Polymer Engineering, CXI TUL

"CXI TUL offers a unique blend of excellence, collaboration, and diversity. The institute is renowned for its commitment to advancing theoretical science and making it applicable to real-world problems.

The international composition of the research community creates a rich environment where diverse perspectives drive creativity.

In addition, a supportive and collaborative culture is essential for my professional growth. The emphasis on teamwork and mutual success means that I can work alongside some of the brightest minds in the field, and contribute to ground-breaking research."



Bohumil Cimbál, Head of R&D, ATREA s.r.o.

"CXI TUL is our go-to partner for tackling complex project issues. Through the AMIA association, we explore CXI TUL's capabilities, current projects, and new services.

Our AMIA membership channels general research into specific collaborations, such as bilateral contractual research between Atrea and CXI TUL.

CXI TUL provides answers to technical questions, solutions to specific problems, and introduces new technical possibilities."

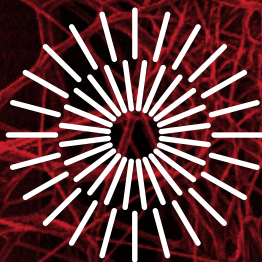


Filip Trešl, Production manager, Magna Exteriors s.r.o.

"CXI TUL represents a significant part of my professional career, serving as a vital source of innovative ideas. Collaboration with CXI TUL has brought us substantial cost savings, as many research activities cannot be performed in typical industrial environments. This partnership has provided us with a deep insight into new technologies, leading to greater efficiency.

Moreover, access to high-end equipment at CXI TUL allows us to simulate industrial conditions and verify selected technological processes in a short timeframe."





JOIN US AND INNOVATE
WITH US



www.cxi.tul.cz



cxi@tul.cz



+420 485 353 093



Institute for Nanomaterials, Advanced
Technologies and Innovation

Web



LinkedIn

