

20th CZECH DAYS FOR EUROPEAN RESEARCH CZEDER 2023

14 February 2023
Vienna House Andel's Prague

Catalogue of Speakers
and Exhibitors

Technology Centre Prague in cooperation with the Ministry of Education, Youth and Sports are pleased to invite you to attend a day conference

20th CZECH DAYS FOR EUROPEAN RESEARCH CZEDER 2023

The Czech Republic in the European Research Area:
Benefits and Impact

14 February 2023

Vienna House Andel's Prague, Stroupežnického 21, Praha 5

Language: English (interpretation will not be provided)

PROGRAMME

9.00–9.30

Registration and Welcome coffee

Moderator: **Eliška Zvolánková**

9.30–9.50

Welcome speech

Vladimír Balaš, Minister of Education,
Youth and Sports

Karel Klusáček, Director
of the Technology Centre Prague

9.50–11.15

PART 1 – Czech EU Presidency:

**Achievements and impact in the area of
research, development and innovation**

Lucie Núñez Tayupanta, Head of Unit of
the European Research Area, Ministry of
Education, Youth and Sports

**Impact assessment of H2020
and European success stories**

Julien Guerrier, Director to Common
Policy Center, European Commission

**Selected aspects of the Czech Republic's
participation in the Horizon Europe
Programme**

Daniel Frank, Vladimír Vojtěch,
Technology Centre Prague

Questions & Answers

11.15–12.00

Meet researchers and have fun!

**Exhibition of selected H2020 projects'
results with significant Czech
contribution**

12.00–13.00

Lunch break and networking

13.00–15.15

PART 2 – ERC: More than 15 years of excellent ideas
European Research Council and its impact

María Leptin, ERC President

Questions & Answers

ERC Stories

Michal Otyepka, ERC Grantee,

Palacký University Olomouc

Michal Frankl, ERC Grantee,

Masaryk Institute and Archive of the CAS

Kateřina Sam, ERC Grantee,

Biology Centre of the CAS

Matyáš Fendrych, ERC Grantee,

Charles University

Panel discussion: How can the Czech Republic become more successful in ERC competitions?

Zdeněk Strakoš, Coordinator of the

Czech Expert Group to support ERC

applicants, Charles University

Pavel Tomančák, Member of the Czech

Expert Group to support ERC applicants,

CEITEC

Michal Otyepka, ERC Grantee,

Palacký University Olomouc

Michal Frankl, ERC Grantee,

Masaryk Institute and Archive of the CAS

Kateřina Sam, ERC Grantee,

Biology Centre of the CAS

Questions & Answers

15.15–15.35

Coffee Break

15.35–17.30

PART 3 – MSCA: More than 25 years of supporting researchers' training and career development

MSCA: Its achievements and impact

Claire Morel, Head of the Unit Marie

Skłodowska-Curie Actions,

DG for Education, Youth, Sport and

Culture, European Commission

Questions & Answers

MSCA Stories

Petra Trnková, Fellow (European

Fellowship), De Montfort University

Martin Procházka, MOVES ITN

Coordinator, Charles University

Hélène Robert Boisivon, SoMoPro

(COFUND) Fellow, CEITEC

Martina Vycudilíková, MERIT (COFUND),

Central Bohemian Innovation Center

Panel discussion: „Is the Czech Republic attractive enough for foreign scientists and (how) do the Czech ones leaving the country reintegrate?“

Hélène Robert Boisivon, SoMoPro

(COFUND) Fellow

Martin Procházka, MOVES ITN

Coordinator, Charles University

Zuzana Tuťálková, EURAXESS

Czech Republic

Matouš Glanc, Director,

Czexpats in Science

Questions & Answers

17.30–18.30

Closing of the event, networking and refreshment



SPEAKERS

MATYÁŠ FENDRYCH



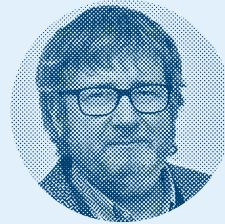
I received my PhD for my research in plant cell biology at the Institute of Experimental Botany, Academy of Sciences in Prague, where I focused on the role of exocytosis in plant cell division.

After completing my PhD studies, I moved to Ghent, Belgium, for a postdoctoral stay in the Plant Systems Biology department – VIB. I studied programmed cell death and its importance for plant root growth and development. For my second postdoc, I chose the Institute of Science and Technology, Austria, where I got to the epicenter of my current work

– to the plant hormone auxin and its effect on plant development. In 2018, after six years abroad, I returned to Prague, established a research group at the Faculty of Science, Charles University in Prague, and was awarded an ERC Starting Grant to investigate the molecular mechanisms of auxin's effect on plant roots.



DANIEL FRANK



works in the Technology Centre Prague at the National Information Centre for European Research Department.

Currently, he is the acting editor-in-chief of ECHO magazine and administrator of the Horizon Europe national portal. For the past ten years, he has worked at the

TC Prague as an analyst, monitoring the participation of the Czech Republic and EU countries in the FPs.



MICHAL FRANKL



Michal is a senior researcher at the Masaryk Institute and Archives of the Czech Academy of Sciences. He received his PhD in modern history from the Faculty of Social Sciences of the Charles University in Prague and has held several fellowships and research grants.

Intellectually and scientifically, he was informed by the research on multiethnic society in Bohemian Lands and East-Central Europe and critical approach to modern nation states. His PhD thesis (published in Czech in 2007 and in German in 2011) provided a new history of the late 19th century Czech antisemitism. Together with Miloslav Szabó, he co-authored a monograph examining Czech and Slovak antisemitism around 1918, during the First World War and in the process of construction of the Czechoslovak nation state. Michal is active in the European Holocaust Research Infrastructure which aims to improve access to Holocaust-related collections.

Michal's interest in refugee history started from his research on Czechoslovak reactions to people fleeing Nazi Germany. Together with Kateřina Čapková, he published the **Unsichere Zuflucht** (2012,

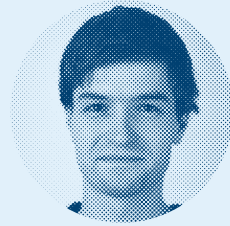
in Czech as **Nejisté útočiště**, 2008), the history of the Czechoslovak refugee policies in the 1930s. The book challenged established narratives which idealised the Czechoslovak approach and largely focused on political and cultural elites rather than the marginalised poor, less connected and/or Jewish refugees. He is the Principal Investigator of the ERC Consolidator project "Unlikely refuge? Refugees and citizens in East-Central Europe in the 20th century which investigates the continuities and ruptures in refugee reception in East-Central Europe over the 20th century and aims to make refugees at home in the histories of the region.

<https://www.unlikely-refuge.eu/project-team/frankl/>

<https://www.mua.cas.cz/cs/kontakt/frankl>



MATOUŠ GLANC



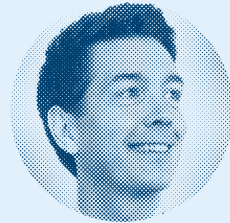
Matouš Glanc is a plant cell biologist by training. After his undergraduate studies at the Charles University in Prague and PhD in the laboratory of prof. Jiří Friml at IST Austria, he moved to Belgium in 2019 for a postdoc at the VIB-UGent Center for Plant Systems Biology, for which he obtained the EMBO long-term and MSCA-IF fellowships.

Throughout his research career, Glanc has investigated the molecular basis of cell polarity and its role in plant development. Since 2022, he has been actively involved in the support of Ukrainian researchers displaced or endangered by Russian aggression in Ukraine. Currently, Glanc is transitioning from laboratory

research to science advocacy and community support as a full-time director of **Czexpats in Science**, a grassroots NGO that promotes scientific mobility, connects the Czech scientific diaspora and leverages its potential to improve the academic environment in Czechia.



JULIEN GUERRIER



has been working for more than 25 years at the European Commission, mainly on industrial and research policy, international trade negotiations and corporate management issues.

He is currently the Director of the Common Policy Centre for the EU funding programme for Research and Innovation, HORIZON EUROPE.

Previously, he was heading the European Agency for Small and Medium-sized Enterprises, which was managing the

COSME Programme for the competitiveness of SMEs, parts of HORIZON such as the pilot European Innovation Council, the LIFE Programme and the European Maritime and Fisheries Fund.



MARIA LEPTIN



Professor Maria Leptin is the President of the European Research Council (took office on 1 November 2021).

Prior to that, Professor Leptin served as Director of **EMBO** from 2010–2021. She also established a research group in Heidelberg at the European Molecular Biology Laboratory (**EMBL**). The group studies the mechanics of shape determination during development.

After completing her studies in mathematics and biology at the University of Bonn and the University of Heidelberg, Professor Leptin worked for her PhD at the Basel Institute for Immunology, Switzerland (1979–1983) studying B-lymphocyte activation under the supervision of Fritz Melchers.

In 1984 she moved, as a post-doctoral fellow (1984–1987) to the Laboratory of Molecular Biology (LMB), Cambridge, UK, where she started her research on the embryonic development of *Drosophila*, joining the laboratory of Michael Wilcox. This work laid the foundations for her future work in the field of molecular morphogenesis. In 1988, she was appointed

as staff scientist at the same institution. As visiting scientists in Pat O'Farrell's lab at the University of California, San Francisco (UCSF) she began her work on gastrulation which became the core of her research interests at the Max Planck Institute for Developmental Biology in Tübingen, Germany, where she worked as group leader (1989–1994).

In 1994, Maria Leptin became Professor at the Institute of Genetics, University of Cologne, Germany, where she still leads a research group. She spent sabbaticals as a visiting Professor at the École Normale Supérieure, Paris, France (2001) and as visiting scientist at the Wellcome Trust Sanger Institute, Hinxton, UK (2004–2005).

Professor Leptin is an elected member of EMBO, the Academia Europaea and the German National Academy of Sciences (Leopoldina), and an Honorary Fellow of the Academy of Medical Sciences. She is also Foreign Member of the Royal Society since May 2022.



CLAIRE MOREL

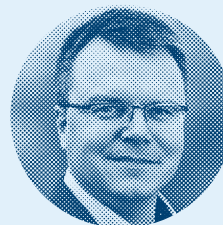


Claire Morel is the Head of unit in charge of the Marie Skłodowska-Curie Actions for the mobility and training of researchers and the development of excellent doctoral programmes, at the European Commission.

Before that she was the Head of the Unit for international cooperation at DG Education, Culture, Youth and Sport of the European Commission, with particular focus on the international dimension of the Erasmus+ programme and international policy dialogues on higher education and youth issues with various partners of the EU in the world. She has worked several years with the countries neighbour-

ing the EU. Before that, she worked for the Tempus programme (for higher education modernisation), cooperating with Central Asian countries, and for the European Training Foundation, an agency of the EU based in Turin, on the reform of vocational education and training systems in the Eastern neighbouring countries and Central Asia.

MICHAL OTYEPKA



studied physical chemistry at Palacký University in Olomouc. Between 2008 and 2020, he headed the Department of Physical Chemistry.

He now leads the Regional Center of Advanced Technologies and Materials at the Czech Advanced Technology and Research Institute (CATRIN-RCPTM) and also works in the IT4Innovations national supercomputing center at VŠB-TUO. He is dedicated to the study of the structure and properties of nanomaterials and biomacromolecules. Among other things, he was behind the discovery of the thinnest insulator in the world – fluorographene

and participated in the development of the first non-metal magnet. In 2014, he received a Neuron Impuls grant from the Neuron Foundation, in 2015 a grant from the European Research Council (ERC), and in 2020, as the first Czech scientist ever, an ERC Proof of Concept grant. As part of the EIC Transition project, which he has coordinated since 2022, he focuses on the commercial application of nitrogen-doped graphene in supercapacitors.

MARTIN PROCHÁZKA

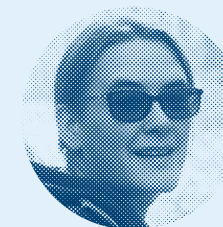


is Professor of English, American and Comparative Literature at the Faculty of Arts, Charles University, Prague.

He is the author of Romanticism and Personality (1996), Transversals (2008), and Ruins in the New World (2012), a co-author of Romanticism and Romanticisms (2005), an editor of 17 collaborative books including Renaissance Shakespeare: Shakespeare Renaissances (2014), and the founding editor of the academic journal Litteraria Pragensia (Scopus). He is

the coordinator of the H2020 MSCA ITN European Joint Doctorate (EJD) Migration and Modernity: Historical and Cultural Challenges (MOVES, <http://projectmoves.eu>), a member of the Advisory Board of the International Association of Byron Societies, Visiting Professor at the University of Porto and Honorary Visiting Professor at the University of Kent.

HÉLÈNE ROBERT BOISIVON



Since 2017, Hélène Robert Boisivon, PhD, is the group leader of the “Hormonal crosstalk in Plant Development” research team, at the Mendel Centre for Plant Genomics and Proteomics, headed by Prof. Dr. Jiří Fajkus, at CEITEC Masaryk University, in Brno, Czech Republic.

Hélène Robert Boisivon studied biology at the University of Rouen, France, and completed her Master studies at the École Normale Supérieure in Lyon, France. Her practical training marked the starting of a long relationship with seed development at Laboratory of Reproduction and Development of Plants, under the supervision of Prof. Dr. Fred Berger, now at the Gregor Mendel Institute in Vienna, Austria.

In 2002, she started her PhD studies at the Institute of Biology, in Leiden, The Netherlands, under the supervision of Prof. Dr. Remko Offringa. She worked on the regulation of the PINOID protein ki-

nase for the polar transport of auxin, a phytohormone involved in most developmental processes. She graduated in May 2008.

In September 2007, she moved to the Center for Plant Systems Biology at VIB-University of Ghent in Belgium to join the group of Prof. Dr. Jiří Friml, now at IST Vienna, Austria. She worked on unraveling how auxin production is involved in embryo development in *Arabidopsis thaliana*.

She moved to CEITEC Masaryk University in November 2012, as a post-doc (SoMoPro, 2014–2016), to continue her work

on the regulation of auxin production in seed development. She became a Junior Group Leader in 2017 and was tenured in 2021.

Her research group is now investigating the impacts of warm temperatures on seed development and seed production in the research model *Arabidop-*

sis thaliana and the crop model *Brassica napus* (oilseed rape). The team has expertise in various methodologies in molecular biology, microscopy, plant genetics, development, embryogenesis, reproduction, and hormones. The team members come from various countries: Czech Republic, Poland, Spain, India, Iran, Tunisia and France.

KATEŘINA SAM

Katerina Sam obtained Master degrees in Biology of ecosystems and in Zoology at University of South Bohemia in Ceske Budejovice in Czech Republic. After that, she continued at the same institution for the PhD in Ornithology, which she obtained in 2013.

After that, she was based shortly at University of Copenhagen in Denmark, University of Brisbane and Queensland University in Brisbane in Australia. She returned to Czech Republic in 2017, to establish the Laboratory of Multitrophic Interactions at the Entomology Institute of Biology Centre of Czech Academy of Sciences. The year after that, she received ERC Starting Grant nicknamed BABE, which stands for Bird, Ant and Bat Exclusion experiment, and which focuses on the hypothesis Why is the world green. In total, she (co)-authored 75 publications, 61 of them in peer-review journals. Her current H index is 22, and her work was cited 2159 times. Her laboratory has currently 9 PhD students, 2 postdoctoral researchers and 5 technicians. For her research work, she received Martina Roeslova Award in 2017, Wichterle Award in 2018 and Antzak Award in 2019. Recently, in 2022, Kate-

rina became Head of the Department of Ecology at the Entomology Institute of Czech Academy of Sciences.

During her current work, Katerina Sam focuses on the interactions between plants, their herbivores and trophic cascades. She investigates how the trophic levels communicate with each other, and how they affect each other. Specifically, she is focused on the effect of predation on the fitness of plants in various habitats and forest strata, which were previously inaccessible to researchers. She conducts her manipulative experiments across large scales, in an experiment spanning from Hokkaido in Japan to Sydney in southern Australia. She often manages large teams, and she also supervises ornithological surveys at large scales across Papua New Guinea as a part of Food and Agriculture Organization.

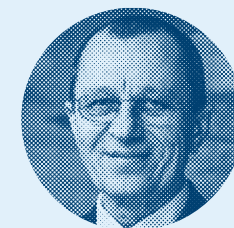


ZDENĚK STRAKOŠ

Zdeněk Strakoš is a member of the Extended Rector's Board for the ERC and Research Development Tools, Charles University. Since 2006, he has been working as a professor at its Faculty of Mathematics and Physics.

He studied mathematics at the Czech Technical University (graduated 1981) and then he worked at the Academy of Sciences (then CSAV), where he obtained scientific degrees. Between 1991 and 2000 he worked several years in the USA (IMA, University of Minnesota and Emory University). His main professional interests belong to numerical and computational mathematics. The 2013 monograph entitled Krylov Subspace Methods,

Principles and Analysis, published by Oxford University Press (co-authored by Jörg Liesen), has become one of the basic references in the field. Between 2008 and 2015 he served four times in the ERC Advanced Grants panel for Computer Science and Informatics, the last term as a panel chair. He is also recipient of several awards – including SIAM Fellow, Bernard Bolzano Medal and Donatio Universitatis Carolinae.

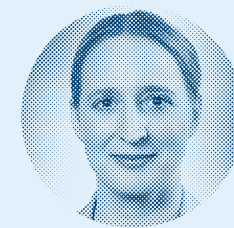


LUCIE NÚÑEZ TAYUPANTA

Lucie Núñez has been working in the position of the Head of Unit of the European Research Area at the Department of Research and Development of the Ministry of Education, Youth and Sports of the Czech Republic since 2016.

She is responsible for creating and developing strategy for an effective R&D policy at national level and engaging stakeholders to ensure its successful implementation. Furthermore, she is involved in implementing international cooperation in R&D and coordination of the Czech participation in international R&D programmes, notably the EU Framework Programme for Research and Innovation Horizon Europe. Since 2013, Lucie Núñez has participated in activities carried out by the High Level Group for Joint Programming

and, subsequently, Transitional Forum for Partnerships as national delegate of the Czech Republic; currently she serves as national representative in the Horizon Europe Strategic Programme Committee, ERA Forum, Partnership Knowledge Hub and ERA Forum sub-group on Global Approach. Furthermore, she has been national delegate for several years in Committee for Scientific and Technological Policy within the Organisation for Economic Co-operation and Development (OECD).



PAVEL TOMANČÁK

is one of the most respected Czech scientists. This top evolutionary and developmental biology expert has been working as a research group leader at the Max Planck Institute for Molecular Cell Biology and Genetics in Dresden since 2005.

His laboratory at the Max Planck Institute is dedicated to studying the regulation and evolution of gene expression during the embryonic development of multicellular organisms. Among other things, his research is unique due to the combination of advanced molecular analysis methods with state-of-the-art imaging and computational analysis of microscopic data. He started his scientific career as a molecular biology and genetics student at Masaryk University. He completed his doctoral studies at the prestigious European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany. He then worked for five years at the University of California, Berkeley, in the group of the well-known American geneticist Gerald M. Rubin. He is the recipient of two prestigious European Research Council

(ERC) grants and has been a member of EMBO since 2016. He has co-authored more than a hundred scientific publications that have been cited more than 56,000 times, making him one of the most cited scientists of Czech origin. From 1 February 2021, he became the Director of the CEITEC consortium in Brno. His extensive experience from prestigious research institutes in Germany and the United States of America, combined with his knowledge of the Czech academic environment, and his experience in interdisciplinary approaches at the interface between biology, physics, and computer science, contribute significantly to the gradual realisation of the CEITEC consortium's ambition to become a significant player in the field of science at least in the European Research Area.

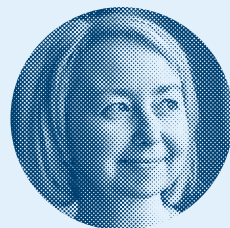


PETRA TRNKOVA

is a research fellow at the Institute of Art History of the Czech Academy of Sciences in Prague with expertise in 19th-century photography and history of photomechanical-printing practices and networks.

In 2019–2020, she was an MSCA fellow (EU, Horizon 2020 research and innovation programme) at the Photographische History Research Centre at De Mont-

fort University in Leicester, UK, where she investigated history of photomechanical printing in the UK, France and the Habsburg monarchy in the mid-19th cen-



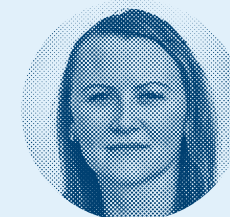
ture. She co-/authored and edited several books, including 'Oudadate Pix: Revealing a Photographic Archive' (2010) and 'Buquoys' Rožmberk. Visual Culture of an Aristocratic Seat in the Period of Romantic Historicism' (2013). Her recent writings include 'Electrifying Daguerreotypes: On Correlations between Electricity and Photography around 1840' (History of Photography, 2021, <https://doi.org/10.1080/03087298.2022.2062907>) and 'Metternich's collection of Talbot's photographs: A lost album as a virtually material being' (Journal of the History of Collections, 2022, <https://doi.org/10.1093/jhc/fhac023>). Currently, she is completing a monograph on the arrival and early development of photography on paper in Central Europe.

ZUZANA TUŽÁLKOVÁ

has started collaborating with foreign researchers at the EURAXESS Local Point at the University of Pardubice.

Since 2016 she has been working at EURAXESS Prague providing information and assistance to researchers who are coming to research in public research institutions in the Czech Republic. She helps them and their families to plan and

organize their move to the Czech Republic as well as advising them on professional and everyday life in the Czech Republic (residence permit, accommodation, health insurance, taxes, Czech language courses, organizing trips and social events).

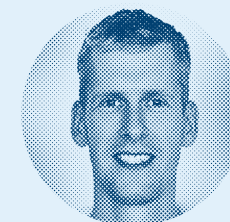


VLADIMÍR VOJTĚCH

Vladimír Vojtěch works as an analyst at the National Information Centre for European Research of the Technology Centre Prague. He is a graduate of Charles University – Faculty of Science. His field of study was regional and political geography.

He joined the Technology Centre Prague in June 2022, before that he worked for eight years at the Prague Institute of Planning and Development as a specialist in

innovation policy and a specialist in city analysis, focusing on Prague's research and development milieu and the Prague's innovation policy with an extension to the



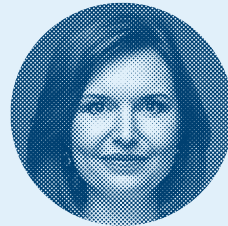
economy, measuring economic competitiveness and mapping business activities in the territory of Prague. As a part of his previous work, he also dealt with the issue of the European Structural and Investment Funds.

In the TC Prague he deals with

- the quantitative and qualitative evaluation of research and development organized by the EU,

- the participation of the Czech Republic in European framework programmes for research and development,
- the participation of private companies in European framework programmes and Czech Republic's programmes supporting business research and development,
- and assesses effects of this participation on the competitiveness of the Czech Republic and its regions.

MARTINA VYČUDILÍKOVÁ



received her master degree in Social Sciences and French Language and Linguistics at the Charles University Prague.

She worked as a language teacher, translator and a project manager of several international projects before joining the team of the Central Bohemian Innovation Centre as the regional RIS3 team member. Since 2015, her agenda included several activities involving close cooperation with regional research organisations and scientists: mapping of research organisations needs and challenges and designing relevant service and strategic programmes to overcome those challenges, regional Welcome Office for foreign researchers, organising networking

events of diverse formats such as meet-ups, hackathons and speed dating involving both scientists and business representatives, organising conferences and workshops on technology transfer and other topics related to research organisations. Currently, she is the Programme Manager of MERIT – the Central Bohemia Mobility Programme for Excellence in Research, Innovation and Technology, co-funded by Horizon Europe, MSCA-CO FUND-2021, implemented from 2023 to 2027.

EXHIBITORS

ECC-SMART

Project acronym:	ECC-SMART
Project title:	Joint European Canadian Chinese development of Small Modular Reactor Technology
Funding scheme:	Research and innovation action
Project website:	https://ecc-smart.eu/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/945234
Project duration:	1. 9. 2020 – 31. 8. 2024
Coordinator:	Centrum výzkumu Řež (CZ)
Czech participant:	University of Chemistry and Technology Prague
Contact person:	Monika Šípová

PROJECT DESCRIPTION

The Joint European Canadian Chinese development of Small Modular Reactor (SMR) Technology is a multi-international project with the aim to assess the feasibility of a small modular reactor cooled by supercritical water (SCW) and identify its passive safety features. This project is very important as the demand for energy is still increasing, and the SCW-SMR is the logical evolution of common light water-cooled reactors with higher efficiency and reduced capital costs. To achieve the related objectives, the project structure is divided into 4 technical work packages focused on Material testing, Thermal-hy-

draulics and safety, Neutronics and reactor physics, Guideline synthesis and pre-licensing studies supported by two work packages including coordination, nuclear education and training activities.

PROJECT RESULTS

After 2 years of project implementation, we can note that we challenged complications caused by Covid-19. Despite this, desired results were achieved. Among →

others, the test matrix with more than 700 specimens from 310S, 800H, AFA was established. Challenging tasks on electrochemistry and irradiation by a neutron related to the corrosion of candidate material have been started and the first results are being evaluated. An innovative design concept of a small modular reactor cooled by SCW has been proposed based on a high-pressure light water reactor (HPLWR) including the experiences of Canada and China. The extension of the relevant database has been started. Two benchmarking activities are defined. The experiments on the effect of corroded surfaces on thermal-hydraulic were implemented. Neutronic optimization of the SCW-SMR design has been started and proposed modifications for fuel assemblies and use of UO₂ and MOX. Thus, the coupling of analysis is ongoing. The review report on safety criteria and requirements for the SCW-SMR concept was completed.

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

Centrum výzkumu Řež (CVR) as a coordinator of the project ensures the administrative and partly dissemination activities. CVR leads two subtasks related to material testing and is responsible for the manufacturing and distribution of specimens for all partners including basic characterization. CVR leads and performs activities verifying the ef-

fect of neutron irradiation on the corrosion behaviour of candidate materials in SCW. This pilot experiment contains 2 steps: irradiation in LV15 including evaluation of radiation damage, and exposure of irradiated specimens in SCW. Besides, CVR manufactures instrumented tubes in 3 m lengths for partners in Germany to perform experiments on the effect of surface roughness on heat transfer.

University of Chemistry and Technology Prague (UCT) contribute to the oxidation tests in SCW including the more complex tests with a focus on the electrochemical description of the corrosion behaviour of candidate materials. ×

ELITR

Project acronym:	ELITR
Project title:	European Live Translator
Funding scheme:	Research and innovation action
Project website:	https://elitr.eu/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/825460
Project duration:	1. 1. 2019 – 31. 3. 2022
Coordinator:	Charles University (CZ)
Contact person:	Ondřej Bojar

PROJECT DESCRIPTION

The EU project ELITR focused on two big areas: (1) simultaneous speech translation, (2) automatic summarization of meetings into minutes.

The project was motivated by the need of the Czech Supreme Audit Office (SAO) to expand the set of language offered to the participants of EUROSAT Congress that SAO was organizing. ELITR developed a system that followed the speaker and human interpretation into multiple languages in real time. Either the original speaker or one of the interpretations served as the source for automatic simultaneous translation from speech into text in 42 additional languages.

We focused on the output quality of speech recognition and translation, and cross-sentence coherence. Furthermore, we worked on automatic summarization of meeting transcripts.

PROJECT RESULTS

ELITR has (1) pushed the state of the art in speech recognition and text and speech translation, and (2) coined the task of “automatic minuting”, i.e. creation of bulleted minutes from small group meetings.



Results in (1) include:

- **Super-human low-latency recognition of speech** (Nguyen, T.-S., et al.; INTERSPEECH 2021)
- **Improved multilingual speech recognition** (Pham, N.-Q., et al.; INTERSPEECH 2021)
- **Improved multilingual speech translation** (Zhang, B., et al.; EMNLP 2020)
- **Improved highly multilingual and zero-shot translation** (Zhang, B., et al.; ACL 2020)
- **SLTev**, a toolkit for evaluation and a collection of test sets (**Ansari, E., et al.; EAACL 2021 outstanding demo**)
- a demonstration of live translation from speaker and interpreter (**Bojar, O., et al.; ASLTRW 2021**)
- and a number of released corpora (**ESIC, ECA, ParCzech 3.0**).

In (2), automatic minuting, we:

- organized **AutoMin 2021**, the first shared task of this kind,
- released **ELITR Minuting Corpus** on which systems for minuting can be trained and tested.

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

Charles University, namely the Institute of Formal and Applied Linguistics at the Faculty of Mathematics and Physics, have coordinated the project from the very

beginning of selecting the best partners into the team. We developed our own Czech speech recognizer, the translation system between Czech and English; we conducted numerous experiments with multi-lingual systems. We were actively leading the vast majority of system evaluation and testing activities, building upon the components of the individual research partners. We ran the AutoMin 2021 shared task, covering all its aspects from data collection and preparation over task organization up to the final manual and automatic evaluation. We were also very active in dissemination.



FOODSMARTPHONE

Project acronym:	FoodSmartphone
Project title:	Smartphone analyzers for on-site testing of food quality and safety
Funding scheme:	MSCA-ITN-ETN – European Training Networks
Project website:	http://www.foodsmartphone.eu/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/720325
Project duration:	1. 1. 2017 – 31. 3. 2021
Coordinator:	Stichting Wageningen Research (NL)
Czech participant:	The University of Chemistry and Technology Prague
Contact person:	Jana Hajšlová

PROJECT DESCRIPTION

A paradigm shift in food quality and safety testing is required in order to free resources for an intensified combat against fraud in the food chain. As an enabling technology solution to the problem, FoodSmartphone proposes the development of smartphone-based (bio)analytical sensing and diagnostic tools, for simplified on-site pre-screening of quality and safety parameters and wireless data transfer to servers of relevant stakeholders. The consortium was built upon highly complementary disciplines: (bio)analytical chemists, biologists, physicists, micro-

nano-engineers, mathematicians, organic- and food chemists worked together on the joint supra-disciplinary goal.

PROJECT RESULTS

A plethora of results was achieved including series of several dozen peer-review publications and wide public dissemination activities. In detail, it was possible to bring the lab to the sample site. This →

was achieved by combining bioanalytical sensing and diagnostics with the imaging, computational and communication power of smartphone devices. Together, they provided food inspectors and analysts with effective and efficient tools to determine – and immediately record – results. New diagnostics, such as biorecognition tools with electrodes that can be plugged into a smartphone, have been developed. An emphasis was also placed on accelerating detection speeds, allowing results to be recorded quickly and in real time. Lastly, a prototype analysis device for detecting nut allergens in cookies was delivered. In this occasion, a handheld device crushes the cookie and soaks the crumbs in a reagent; this mixture is then analysed using test strips that are 3D-printed from a box that clicks onto the smartphone.

neurotoxic pesticides, were successfully screened in apple extracts and blood serum, respectively. Great method detectability was acquired in both cases, at the part per billion level. A highly affordable cost of 0.30 €/device was achieved, which is made possible by modern 3D printing technology. Importantly, the developed diagnostic tool can be used both for food and medical (intoxication monitoring) testing. Worthy to notice is that the mentioned research activity resulted in 7 publications in reputable international peer-review journals.

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

University of Chemistry and Technology Prague (UCT) delivered a portable lab-on-a-chip (LOC) prototype able to accommodate an enzyme colorimetric sensor and monitor color changes using a smartphone. The LOC prototype provided integrated sample handling using silicone tubing injectors that could load samples and reagents for the enzymatic reaction without the need of any lab-equipment. Carbofuran and chlorpyrifos-oxon, two

GENDERACTION

Project acronym:	GENDERACTION
Project title:	GENDER equality in the ERA Community To Innovate policy implementatiON
Funding scheme:	Coordination and support action
Project website:	https://h2020.genderaction.eu/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/741466
Project duration:	1. 4. 2017 – 30. 9. 2021
Coordinator:	Institute of Sociology of the CAS (CZ)
Contact person:	Marcela Linková

PROJECT DESCRIPTION

Between 2017 and 2021 GENDERACTION worked to advance gender equality in the European Research Area. We have succeeded in becoming one of the main advocates for gender equality in R&I, by engaging in fruitful discussions with the European Commission, the European Parliament, Council Presidencies, and other stakeholders.

We have worked to better include gender equality in Horizon Europe, and have identified new areas for mainstreaming gender, such as Open Science and Open Innovation or international cooperation in science, technology, and innovation.

Many of our recommendations have been taken up and put into practice. As a result, our policy briefs have been recognised by the European Commission as one of the most important contributions to gender equality in Horizon 2020.

PROJECT RESULTS

GENDERACTION has contributed to increasing the general awareness and strengthened the uptake of gender equality measures in R&I. The knowledge creat-



ed has been quoted in strategies, guidelines, and reports at the EU (e.g. 2019 Report on Equality between Women and Men in EU, She Figures 2021) and national levels. GENDERACTION documents informed the national positions on Horizon Europe in many EU countries.

GENDERACTION supported policy developments at the national level. For example, in Austria the targets for main research performing organisations were fine-tuned by the Federal Ministry of Education, Science and Research based on project outputs. In Malta and Cyprus, it helped to introduce gender equality considerations in R&I funding programmes. In Germany, Poland and Greece, the project made it possible to strengthen a network of institutions working on gender issues and in Spain the policy briefs were key drivers for mobilising the gender & science community.

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

The Centre for Gender and Science at the Institute of Sociology was the GENDERACTION coordinator. As such it was responsible for steering the project, cooperating with the Commission and representing the project externally. This included a presentation of project recommendations in the European Parliament in 2018 at an event Women in Science:

Recommendations to Improve Horizon Europe through a Gender Perspective or in 2019 at the Finnish Presidency conference New Pathways to Gender Equality. The Centre was also responsible for dissemination and communication activities, and succeeded in developing a large following on Twitter with highly recognised campaigns organised with other EU-funded projects. In 2021 the coordinator organised the final conference Deepening the ERA through Gender Equality together with the SI PRES and contributed to early drafting of what became the Ljubljana Declaration on Gender Equality.



MULTI-STR3AM

Project acronym:	MULTI-STR3AM
Project title:	A sustainable multi-strain, multi-method, multi-product microalgae biorefinery integrating industrial side streams to create high-value products for food, feed and fragrance
Funding scheme:	BBI-IA-DEMO – Bio-based Industries Innovation action – Demonstration
Project website:	https://www.multi-str3am.com/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/887227
Project duration:	1. 5. 2020 – 30. 4. 2025
Coordinator:	A4F Algafuel SA (PT)
Czech participant:	Institute of Microbiology of the CAS
Contact person:	Richard Lhotský

PROJECT DESCRIPTION

The MULTI-STR3AM project was initiated by the need to switch to sustainable ways of producing food, feed and raw materials. Microalgae have enormous biosynthetic potential and are a rich source of lipids, proteins and high-value compounds.

Project focuses on the potential to increase production technologically and biologically while reducing costs, providing valuable products for large end-users in the food, feed and fragrance industries.

The project reduces costs, increases cultivation scale and sustainability through:

- Improving suitable microalgae strains using NON GMO techniques.
- Reducing CAPEX and OPEX through design and engineering of cultivation technology.
- Utilization of by-products in the spirit of circular economy.
- Valorisation of all biomass by a zero-waste approach.



PROJECT RESULTS

Development and improving technology of heterotrophic growth of microalgae where simple carbon compounds are source of energy instead of light. Some microalgae are capable to grow this way.

Use of different technologies for retrieving products from biomass, namely membrane ultrafiltration and chromatography.

Mass cultivation of different algal species using novel thin layer cascades approach.

Report (output) on the regulatory landscape for microalgae biomass valorisation across market applications.

Optimisation of heterotrophic growth conditions of several microalgal species.

Successful application for recognition of other microalgae species as NON Novel Food in the EU, opening up the market for the use of algae in the food industry. ✕

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

Non GMO breeding of microalgae – result: new non green strains of Chlorella.

Selection of new species and strains for production of saturated fatty acid.

NEXTBASE

Project acronym:	NextBase
Project title:	Next-generation interdigitated back-contacted silicon heterojunction solar cells and modules by design and process innovations
Funding scheme:	Research and innovation action
Project website:	https://nextbase-project.eu/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/727523
Project duration:	1. 10. 2016 – 30. 9. 2019
Coordinator:	Forschungszentrum Jülich GmbH (DE)
Czech participant:	Institute of Physics of the CAS
Contact person:	Antonín Fejfar

PROJECT DESCRIPTION

The NextBase project deals with the development of innovative high performance c-Si solar cells and modules based on the interdigitated back-contacted silicon heterojunction (IBC-SHJ) solar cell concept targeting cells with efficiency above 26.0 % and corresponding solar modules with efficiency above 22.0 %. At the same time, the NextBase project pursues the development of a new industrial manufacturing tool and low-cost processes enabling a competitive IBC-SHJ solar module cost of < 0.35 €/Wp.

PROJECT RESULTS

The deliverables for the NextBase project have been divided into 7 different categories – Advanced silicon wafer preparation (e.g. Fabrication and delivery of 2500 High quality n-type Cz wafer per year), Novel layer stacks and contacting materials (e.g. IBC devices with TMO based contact stacks with Voc > 740 mV and FF > 82 %), High-efficiency IBC-SHJ devices processing (e.g. Selection of suitable patterning schemes for ≥ 26.0%-efficient devices), IBC-SHJ process integration for mass production (e.g. Report on the breakdown



of optical and electrical losses in IBC-SHJ solar cells and optimization strategies), Module encapsulation and interconnection of IB-SHJ devices (e.g. High-efficiency module showing an energy conversion efficiency above 22 %), Characterization and numerical simulations (e.g. Reports on optical characterization of comb finger shapes with guidelines for use by other WPs) and Cost and life-cycle analysis (e.g. Report on NextBase technology environmental analysis).

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

The development of high-efficiency silicon heterojunction (SHJ) solar cells requires a tool for precise measurements of thicknesses of passivating and doping fingers with thicknesses of only several nanometers. For this purpose, we have exploited an attenuation of the Raman signal of the substrates by the thin silicon film. Using this approach, we have developed a new contactless thickness profilometry suitable for probing thin films deposited on rough substrates. We demonstrated its use to probe profiles of thin silicon stripes deposited on rough silicon surfaces used in high-efficiency silicon interdigitated back-contacted SHJ solar cells developed within the NextBase project. The method became a fundamental tool for developing the back-contacting schemes within the NextBase consortium.



ONCOBIOME

Project acronym:	ONCOBIOME
Project title:	Gut OncoMicrobiome Signatures (GOMS) associated with cancer incidence, prognosis and prediction of treatment response
Funding scheme:	Research and innovation action
Project website:	https://www.oncobiome.eu/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/825410
Project duration:	1. 1. 2019 – 30. 6. 2024
Coordinator:	Institut Gustave Roussy (FR)
Czech participant:	Masaryk University, Masaryk Memorial Cancer Institute
Contact person:	Eva Budinská, Iveta Selingerová

PROJECT DESCRIPTION

The project ONCOBIOME seeks to functionally characterize and validate cancer associated gut microbiome fingerprints of high clinical relevance, and to develop diagnosis tools for personalized medicine. The project aims to:

- 1) identify and validate core or cancer-specific Gut OncoMicrobiome Signatures (GOMS) associated with cancer occurrence, prognosis and response to therapy or adverse effects
- 2) decipher the functional relevance of these cancer-associated gut commensal ecosystems in the regulation of host metabolism, immunity and oncogenesis

- 3) integrate these GOMS with other oncology hallmarks (clinics, genomics, immunomics, metabolomics)
- 4) design optimal companion tests, based on those integrated signatures to predict cancer occurrence and progression.

PROJECT RESULTS

The first GOMS for lung cancer was validated and reported in stage IV NSCLC 1L+2L (Derosa et al. Nat Med, 2022) and filed as a new patent. The GOMS for early breast →

cancer pre- and post-chemotherapy were discovered (Terrisse et al. Cell Death & Differ. 2021). The GOMS associated with colon cancer progression have been characterized across two geographically distant institutions (UNITN/Italy and Masaryk University / Czech Republic). Pan-cancer GOMS were reported (Yonekura et al., Cancer Discovery). The metabolomics platform accomplished some significant advances by identifying distinct metabolites associated with long term responders of preclinical significance. The partner biotech companies developed or extended their prototypes (Immunoscore for HaliDX and Akkermansia for everImmune). Exploitation of metagenome led everImmune Biotech Cie to complete a series A fund raising, and succeed in the manufacturing of a master batch of Oncobax® AK that will allow to launch a Phase I/II trial.

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

RECETOX, Masaryk University (MU) in collaboration with Masaryk Memorial Cancer Institute (MMCI) contribute to the project in two ways. First, MMCI provided a unique cohort of 200 stage I–V colorectal cancer tumours and patients' stool samples, while RECETOX, MU contributes with their expertise in multiomics data integration and biomarker mining in colorectal cancer as leaders of WP4 of the project named Multiomics integration. X

RICAIP

Project acronym:	RICAIP
Project title:	Research and Innovation Centre on Advanced Industrial Production
Funding scheme:	Coordination and Support Action
Project website:	https://ricaip.eu/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/857306
Project duration:	1. 9. 2019 – 28. 2. 2026
Coordinator:	Czech Technical University in Prague (CZ)
Czech participant:	Brno University of Technology
Contact person:	Eva Doležalová

PROJECT DESCRIPTION

RICAIP is a European distributed research centre of excellence (CoE) focusing on R&D in robotics and artificial intelligence. RICAIP is based on a strategic partnership of four leading research institutions: CIIRC CTU in Prague (coordinator), CEITEC BUT in Brno, DFKI and ZeMA in Saarbrücken, Germany.

RICAIP creates a unique research environment for the development and testing of innovative solutions for advanced and fully integrated industrial production. Thanks to RICAIP, the Czech industry has access to the latest scientific knowledge and applications in Industry 4.0 domains.

The establishment of the RICAIP centre is the main objective of the RICAIP project – jointly funded by the EU Horizon 2020 and OP RDE of the Ministry of Education, Youth and Sports with EUR 48.5 million for 2019-2026.

PROJECT RESULTS

To address the overall project goals:

- Creating a new CoE in the Czech Republic for Advanced Industrial Production;



- Initialize and expand a network of distributed testbeds for Industry 4.0

RICAIP has successfully set up and equipped two advanced industrial testbeds:

- In Prague at CIIRC/CTU, opened in May 2022
- In Brno at CEITEC/BUT, opened in November 2022.

Selected results and industry-driven demonstrators:

- Initial use case on a **distributed production with digital twins** in a multi-agent system framework
- Use Case on a **unified interface for production data exchange across the shopfloor and beyond** allowing also communication among testbeds
- Use Case on a **Virtually machined surface used for machine learning of quality control algorithm**
- Use Case on **Optical recognition of the robot/machine tool working space for collision avoidance**
- Industrial demonstrator for automated assembly: **Delta robot operating in 5G SA** environment

industry needs in order to develop specific solutions as close as possible to industrial applications. The identification of available technical equipment and the timeline are also determined by the Czech teams. The German teams contribute to the initial scheme and add new specific perspectives or functionalities based on their strong scientific expertise, best practices and also on replicability while using additional state-of-the-art infrastructure available in Saarbrücken. Such a collaborative network enables the development of results for the widest possible range of applications and interfaces within distributed production.



CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

Czech-German research teams work closely together, with Czech teams leading the particular research task. They define an overall scientific strategy based on

SMARCOAT

Project acronym:	SMARCOAT
Project title:	Development of Smart Nano and Microcapsulated Sensing Coatings for improving of Material Durability/Performance
Funding scheme:	MSCA-RISE
Project website:	https://smarcoatrise.wixsite.com/smarcoat
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/645662
Project duration:	1. 1. 2015 – 31. 12. 2018
Coordinator:	Universidade de Aveiro (PT)
Czech participant:	Synpo akciová společnost
Contact person:	Kateřina Zetková, Vladimír Špaček

PROJECT DESCRIPTION

The application of coatings to specific substrates can have different purposes, including protection against aggressive and external factors, enhancement of performance-relevant properties or simply aesthetics. In this context, the main goal of SMARCOAT is to design, synthesize, develop and scale up a set of innovative materials for sensing substrate degradation.

The importance of this project for society can be envisaged from different perspectives. Mobility is a key aspect when considering the demands for supply of goods and accessibility to different places for professional and touristic reasons. On

the other hand, the rise of fossil fuel consumption with the consequent detrimental effects for the environment requires the development of new materials capable of imparting significant weight reduction, while keeping good performance throughout the whole service life of the vehicles. In SMARCOAT, the focus relies upon improving the detection of degradation of light weight metal alloys and fiber-reinforced plastics, materials which are commonly used in combination as hybrid structures in the aerospace and automotive industries. An early, cost-effective detection of degradation can allow for cheaper yet safer preventive maintenance operations.



PROJECT RESULTS

In work package (WP) **Development of sensing micro and nanomaterials**, the main focus leaned on the synthesis of silica nanocontainers and layered double hydroxides with pH indicators, polymeric capsules for impact detection and porous titania and zinc oxide materials for detection of UV degradation related processes. These syntheses were successfully achieved and the encapsulation of active species performed.

In WP **Coating preparation and characterization**, pre-treatments were developed for different metallic and FRP substrates. In addition, different coating formulations were selected, and the incorporation of additives tested.

In WP **Impact sensing verification and modelling**, the concept of mono-sensitive system with a function of visual response to mechanical action was realized by developing model systems. The verification of impact sensing was also performed and the correlation between sensor response and magnitude of stimuli was studied for both mechanical and corrosion degradation processes.

In WP **Upscaling and validation**, several samples of upscaled nanoadditives were supplied to different partners and the most promising systems were used to prepare batches of coating formulations, later applied into prototypes and subjected to standard testing.

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

SYNPO was involved in the development of coating formulations with novel corrosion sensing and mechanical detection additives, upscaling and preparation of prototypes for the validation of the targeted coating properties under relevant conditions for the applications (vehicle industry).



SMARTAGRIHUBS

Project acronym:	SmartAgriHubs
Project title:	Connecting the dots to unleash the innovation potential for digital transformation of the European agri-food sector
Funding scheme:	Innovation action
Project website:	https://smartagrihubs.eu/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/818182
Project duration:	1. 11. 2018 – 31. 10. 2022
Coordinator:	Stichting Wageningen Research (NL)
Czech participant:	WirelessInfo
Contact person:	Karel Charvát

PROJECT DESCRIPTION

SmartAgriHubs project aims to realise the digitisation of European agriculture by fostering an agricultural innovation ecosystem dedicated to excellence, sustainability and success.

The consortium includes a diverse network of start-ups, SMEs, business and service providers, technology experts and end-users. The development and adoption of digital solutions is achieved by a tight ecosystem of 140 Digital Innovation Hubs embedded within 9 Regional Clusters, which are led by organisations that are closely involved in regional digitisation initiatives and funds.

Moreover, this network of Digital Innovation Hubs consists of 2000 Competence Centers and 28 Flagship Innovation Experiments where ideas and prototypes are developed and introduced into the market.

PROJECT RESULTS

The SmartAgriHubs project serves as a catalyst for game-changing innovations in smart farming techniques. It aimed to deliver 80 new digital solutions to the



market, raise €30M additional funding from public, regional, national and private sources, and help digitise over 2 million farms spread across Europe. End-users have been trained and informed through the SmartAgriHubs innovation portal where information is easily accessible to farmers and their businesses, thereby creating an efficient and satisfactory user-experience. Similarly, a catalogue for farmers and agribusinesses maps the existing digital technology field and facilitates the exchange of best practices among the network.

By connecting and fostering European agricultural and IT innovation SmartAgriHubs extends digital solutions into the agri-food sector and helps farmers and their businesses to achieve real and attainable results.

By registering on the SmartAgriHubs Innovation portal, you will gain access to the ecosystem.

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

Results within the SmartAgriHubs project (and a local Czech-Slovak sub-project within the cascade financing of the SmartAgriHubs project called Agrihub CZ@SK) are:

- **www.agrihub.cz platform**
- **www.agrihub.sk platform**

- Agronode – IoT node for integration of sensor measurements
- AgroMeteorological station – live demonstration
- Regional foods and examples of good practice – web solution
- Hub4Everybody – Digital Innovation Hub – social platform for sharing information
- Whiteboard – a collaborative platform for working with spatial data
- FIE20 experiment in cooperation with Latvian BOSC focusing on integration and IoT data
- FiledCalc Software for creating management zones from image frames
- QField – mobile application for precision agriculture
- FarmInside – advisory software for SmartFarming



SPOT

Project acronym:	SPOT
Project title:	Social and innovative Platform On cultural Tourism and its potential towards deepening Europeanisation
Funding scheme:	Research and innovation action
Project website:	http://www.spotprojecth2020.eu/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/870644
Project duration:	1. 1. 2020 – 31. 12. 2022
Coordinator:	Mendel University in Brno (CZ)
Contact person:	Milada Šťastná

PROJECT DESCRIPTION

SPOT is a 3-year EU-funded project under the Horizon 2020 programme, focused on the study of problems related to cultural tourism. The consortium is composed of 15 partners from 13 EU countries, UK and Israel. The SPOT project provides an innovative response to recent problems by understanding cultural tourism across very different regions and countries and by integrating stakeholders and policy actors. The main keystones of the project are: incorporating the role of local communities, expanding the concept of cultural tourism, from the passive consumption of cultural objects to the active and interactive participation in cultural experiences, building in the role of stakeholders, devel-

oping this interactive and dynamic view not as a local phenomenon, but as a multi-scale phenomenon.

PROJECT RESULTS

There are two main results of the project besides several other reports: **SPOT-IT** tool and **SPOT Web-based Resource Centre**. The SPOT-IT tool is designed to provide decision-supporting information for various stakeholders who are interested in promoting cultural tourism within a given case study area. The main aim was



to develop an innovative tool that could provide decision-support mechanisms for the development of cultural heritage attractions/sites. The tool is based on GIS layers, a decision-supporting mechanism, two additional algorithms, and a public participation platform. The SPOT Web-based Resource Centre is an online inventory providing functionalities for the collection and organization and retrieval of knowledge related to cultural tourism development. It provides information for scientists, policy-makers, stakeholders, NGOs, and practitioners, data and maps related to the case study areas, presentation of research results, policy recommendations/strategies.

mon project results such as Policy briefs and the project brochure compiling recommendations on different levels such as European, national, regional and local.



CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

The contribution of the Czech team to the project results is significant and **the idea and the main project concepts** (including the SPOT-IT tool and Web-based resource centre) **were created by the Czech project coordinator** along with her team and later on other project partners. Besides, the Czech partner contributed to the research done at the selected Case study (the South Moravian region) where several presentations, reports, media outreaches and policy briefs were prepared and delivered to the relevant stakeholders. There are many project publications, and workshops done by the Czech team, but the team also contributed to the com-

UP2DCHEM

Project acronym:	UP2DCHEM
Project title:	Upscaling of fluorographene chemistry for supercapacitor electrode material
Funding scheme:	ERC Proof of concept
Project website:	https://www.rcptm.com/projects/up2dchem-upscaling-of-fluorographene-chemistry-for-supercapacitor-electrode-material/
Project factsheet on Cordis:	https://cordis.europa.eu/project/id/899245
Project duration:	1. 4. 2020 – 30. 9. 2021
Coordinator:	Palacký University Olomouc (CZ)
Contact person:	Michal Otyepka

PROJECT DESCRIPTION

The preliminary data showed that chemistry of fluorographene, which has been developed in the framework of ERC Consolidator project 2DCHEM, can lead to efficient synthesis of graphene derivatives having properties suitable for supercapacitor electrode materials. Subsequently, project UP2DCHEM aimed to deliver the upscaling of an industrially-relevant one-chemical-step novel manufacturing process, based on chemistry of fluorographene, resulting in a supercapacitor electrode material. The as prepared novel covalent graphene derivative enables a significant boost in the gravimetric/vol-

umetric energy density, without sacrificing the rate performance, i.e. power. A significant business opportunity has been created through implementing novel and cost-effective materials and processes.

PROJECT RESULTS

In a previous project 2D-CHEM, prof. Otyepka designed new functional materials derived from graphene, one of →

which showed very promising results in labs. In the UP2DCHEM project, he aimed to upscale the material's synthesis from milligrams to kilos and to verify its utilisation in energy storage devices. Yet scaling up from small to large quantities proved more challenging than expected, especially as the synthesis requires one chemical to be used as an airbag propeller. In the end, the project found a company that managed the synthesis, allowing prof. Otyepka to confirm that it is possible to synthesise such quantities and that the material still exhibits the required properties under these conditions and volumes. Not only does this finding allow prof. Otyepka to further optimise the synthesis, it has also opened the door to supercapacitor devices and further evolution of the project.

CONTRIBUTION OF THE CZECH PARTICIPANT TO THE PROJECT RESULTS

CATRIN UP (Czech Advanced Technology and Research Institute of Palacký University Olomouc) was the only partner and the coordinator of the project. Consequently, the information about our contribution is already described in the 'Project results' part. ×

