



CHARLES
UNIVERSITY

Research
at Charles University

Foreword





Charles University is a very dynamic and diverse university. It strives to be a research-driven university that focuses on research-based education. Through research, it addresses the current social and economic challenges, such as ageing, demographic changes, climate change or sustainable development. At Charles University, we feel a strong commitment to the development of society, and we believe we contribute

to tackling these issues with the help of our researchers, their international research teams and rich international and interdisciplinary collaboration as well as collaboration with the business community.

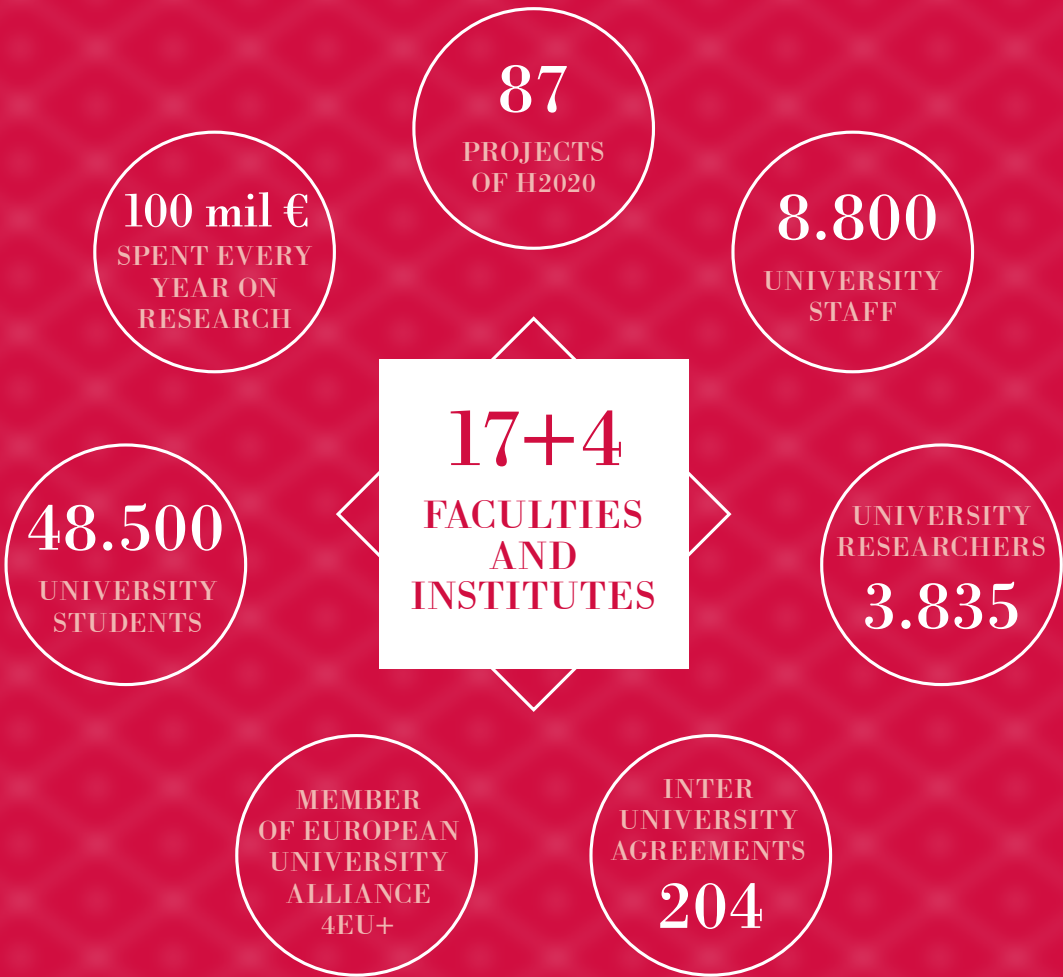
This brochure presents you with facts and figures about research at our university. The University is a complex, vibrant, and diverse institution. We want to acquaint you with our major research areas, excellent research outputs that we deliver, and our main strategic partners. We are aware that all great discoveries begin with people, so we want to introduce you some of our staff as well.

Enjoy exploring and reading about Charles University.

Quod bonum felix faustum fortunatumque sit.

Prof. Tomáš Zima
Rector

Facts and Figures Charles University in a Nutshell



87

PROJECTS
OF H2020

8.800

UNIVERSITY
STAFF

17+4

FACULTIES
AND
INSTITUTES

UNIVERSITY
RESEARCHERS

3.835

INTER
UNIVERSITY
AGREEMENTS

204

MEMBER
OF EUROPEAN
UNIVERSITY
ALLIANCE
4EU+

48.500

UNIVERSITY
STUDENTS

100 mil €
SPENT EVERY
YEAR ON
RESEARCH

Our Mission in Research

The background of the image is a close-up, low-angle shot of a highly ornate, classical architectural detail. The structure is composed of dark, possibly stone or cast-iron, elements. It features a complex arrangement of curved, overlapping arches and scrolls. Several large, stylized floral or acanthus-like motifs are integrated into the design, with some appearing to be carved into the surface. The lighting is dramatic, coming from the side, which creates strong highlights on the edges of the arches and deep shadows in the recessed areas, emphasizing the three-dimensional quality and intricate details of the architecture. The overall color palette is muted, consisting of various shades of grey, black, and brown, with a bright, overexposed area on the left side where the light source is likely coming from.

One of our goals is to serve society through research and education. As we strive to be competitive with the best European universities, we are constantly working on improving our facilities as well as academic standards. We build new relationships with partner universities where we can learn from each other and we also improve the conditions for our researchers.

The main condition for success in international research is to attract the best people that are available and to give them the best possible conditions for their work. For this task, we created a comprehensible scheme of research support of excellence covering undergraduate and graduate students, postdocs, junior researchers as

well as distinguished and well-established professors. This system helps us to increase mobility of our students and scholars, attract more international talent to the university and make us more internationally competitive. Let us introduce you to the most thrilling stories of successful and exciting research at CU.



Zuzana Musilová a young biologist from the Faculty of Science, led a 17-member team of researchers that investigated the genomes of 101 fish species. They found that deep-sea creatures have evolved and adapted special sensors to “see” colours in the dark, a thousand meters below the sea’s surface. The results of the study – with a breath-taking image of a green-eyed fish (pictured) appeared in May 2019 on the cover of Science magazine. Musilová and her team were cited worldwide in the news and media including The New York Times.



Another **CU** scientist, ornithologist **Vojtěch Kubelka** made the cover of *Science* even before completing his **Ph.D.** final exams. In the November 2018 study, he found with his colleagues that climate change has altered fundamental patterns in migratory birds' ecology. In shorebirds, predation rates (targeting shorebird nests) are now higher in the Arctic than in the tropics, the study in *Science* concluded.

Miroslav Bárta has been awarded by the “Česká hlava” prize by the government of the country for his extraordinary contributions to the understanding of the ancient Egypt civilisation. He and his team are responsible for the most fascinating archeological discoveries in Egypt in recent years, for example a unique boat from the pyramid age at Abusir .



Filip Kolář is a biologist engaged in plant evolution. His research focuses primarily on the role of genomic duplication. He explained that the massive gene mutations help plants to respond effectively to changing conditions, affect their appearance, the functioning of populations, and their interaction with the environment. In 2019 he received an ERC grant for his further research. He was also awarded the prestigious Neuron Science Award.



Kateřina Králová is an Associate Professor in Contemporary History and Head of the Department of Russian and Eastern European Studies at Faculty Social Sciences CU. In her work she focuses on reconciliation with the Nazi past, conflict-related migration and post-war reconstruction. She obtained the Learned Society Award for scientists under 40 in 2017. She is one of the founders of the **CU Herzi Center of Israel Studies at CU.**



European Research Council (ERC) Grants

In order to help those extremely talented young scientists earning recognition and financial support, Charles University organizes administrative and training support for the applicants for major research grant.

The system is called “European Research Council grant pipeline” after the most prestigious and most sought for of these grants. The aim is to motivate researchers from the university but also from abroad to submit proposals for ERC grants in order to foster excellent research and international competitiveness at Charles University. The administrative, technical and counselling support during the proposal preparation is

provided by the staff of our European Centre (EC) as an assistance to these researchers in preparation of successful. The ERC pipeline involves a national info day where potential candidates get a better idea of what the ERC really is. The candidates then continue with workshops, interview practice, and during the project’s writing they receive advice and comments on how to edit their proposals to its highest quality.

The Recipients of ERC Grants Currently Working at CU Involve:



Astrophysicist Ondřej Pejcha who received his Ph.D. at **Ohio State University**, continued as a post-doc at **Princeton University** and was awarded a **NASA** fellowship. In 2017, he returned with family to his native **Czech Republic** and to his alma mater, the **Faculty of Mathematics and Physics at CU**, to study advanced astrophysics, stellar-mergers and binary stars. A year later, he won a **European Research Council grant (ERC)** to support his research.

Other ERC Recipients at CU



Libor Barto

/Faculty of Mathematics and Physics/ ERC Consolidator
Grant for the project:
CoCoSym, Symmetry in
Computational Complexity



Jiří Klimeš

/Faculty of Mathematics
and Physics/
ERC Starting grant for
the project Accuracy and
Precision for Molecular
Solids (APES)



Vladimír Hampl

/Faculty of Science/
ERC Consolidator
Grant for the project:
Amitchondriates Life
without Mitochondrion



Matyáš Fendrych

/Faculty of Science/
ERC starting Grant for
the project Unraveling
the molecular network
that drives cell growth in
plants (CELLLONGATE)



**Jana Kalbáčová
Vejpravová**

/Faculty of Mathematics and
Physics/ ERC Starting grant
for the project Trans-Spin
NanoArchitectures: From
Birth to Functionalities in
Magnetic Field (TSuNAMI)



Jaroslav Nešetřil

/Faculty of Mathematics
and Physics/
ERC Synergy grant for
the project dynamics and
Structure of Network
(DYNASNET)

Comprehensive Scheme of the Research Support at CU

Charles University continuously supports research and development of its students and staff in all stages of their careers by competitive funding programs that are mutually complementary.

They range from the grant agency funding for student initiated projects (Charles University Grant Agency) and schemes supporting postdoctoral fellows to start-up grants for junior scientists (Primus), long term support

of well-established researchers (University research centres, UNCE), support of interdisciplinary research (Progres) and research awards for distinguished excellent scholars (Donatio Universitatis Carolinae).

Fostering New Talent

Primus

CU has developed its own system of internal grants for young investigators.

Our internal Primus system is aimed at attracting young bright minds with international experience to establish their own research group at CU. The PRIMUS support recipients are selected annually by an expert panel in a very competitive manner. CU gives out 20–25 PRIMUS supports by approx 150 thousands EUR annually since 2016. The annual budget exceeds 3 mil EUR. All PRIMUS

grantees become automatically part of ERC pipeline. Four of the PRIMUS researchers already got an ERC Starting Grant.

Since January 2020, one of 22 new Primus teams is being led by **Anežka Kuzmičová**, an expert in the theory of literature, reading and Scandinavian studies, who returned to Prague from Stockholm University. Kuzmičová, a scientist and a mother-of-two, studies child readership in natural environments (elementary schools) and its influence on the forming of the human personality. In

October 2019, she was ranked the number one researcher in the Humanities in the whole of Sweden by the renowned economic journal Focus.

Charles University Grant Agency (GA)

GA supports research projects initiated by students of master's or doctoral degree study programs. All students enrolled at Charles University can apply for a two- or three-year grants. The project applications are evaluated and their outcomes checked by expert panels. The annual budget exceeds 6.6 mil EUR and more than 800 applications from all branches of science are supported.

UNCE

UNCE (UNiversity research CEntres) represent long-term support for excellent, already established researchers at Charles University. Special focus is given to the support of early-career researchers in the funded groups. Successful researchers can set up a new research centre to perform their excellent cutting-edge research that is generously supported for a period of 6 years. Annual budget of the program exceeds 5 mil EUR, at present there are 24 UNCEs at Charles University.

Progres

Under this program, the bulk of institutional research budget at Charles University is distributed in a non-competitive manner, based on the budget principles approved by the Academic Senate. The main objective of the program is to motivate collaborations within specific research areas among different faculties, and also encourage multidisciplinary co-operations. There are 50 programs (designed for 5 years), covering all research disciplines, implemented at all faculties (Annex). Within these programs academics, researchers and students collaborate together. The budget exceeds 47 mil EUR annually.

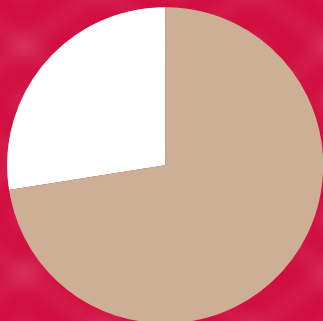
Donatio Universitatis Carolinae

The main goal of this program is to support well-established and outstanding scholars who make an extraordinary contribution to the CU's prestige. The unrestricted research support should enable them to buy new equipment, invite visiting scholars, leave for a sabbatical or start a new, risky project. Five scholars are selected by the International Advisory Board of the university and the overall annual budget is 200 thousand EUR.



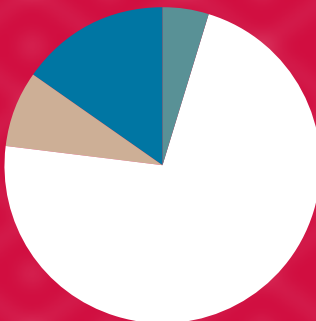
Zuzana Mot'ovská works at the 3rd Faculty of Medicine of Charles University. She is a Head of the Acute Cardiology Department at the university hospital. She has outstanding results in research and clinical practice in the field of acute coronary syndromes, thrombosis and antithrombotic therapy. She is the author of the successful multi-centre randomized study PRAGUE-18. Her team was the first in the world to compare the effects of the two most effective drugs for the treatment of acute myocardial infarction. The results of the study contributed to the optimization of antithrombotic treatment and were published in the world's most prestigious cardiology journals. She is also Donatio research support holder.

Ratio of Men and Women Among Academic and Research Staff



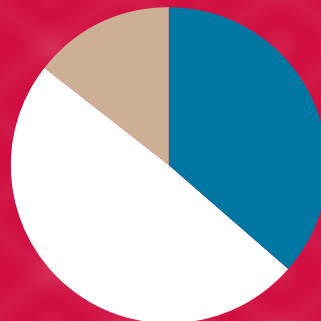
Men: 3.835
Women: 1.452

Ratio of Funding for Different Research Schemes



PRIMUS 3.315.600 €/year
PROGRES 49.335.920 €/year
UNCE 5.298.040 €/year
GAUK 10.400.000 €/year

Ratio of University Students



BA students: 36,6 %
MA students: 49,1 %
PhD. Students: 14, 3 %

International Advisory Board (IAB)



The International Advisory Board is an advisory body of the Charles University Rector. It provides expertise in various aspects of university activities such as in determining scientific and educational strategies of the university. The individuals appointed to the board are distinguished scholars affiliated with prestigious foreign institutions.

- **Prof. Aaron J. Ciechanover**
(Technion, Haifa, Israel)
- **Prof. Peter Kuhn**
(The Scripps Research Institute, USA)
- **Prof. Tim Clark**
(Friedrich-Alexander-Universität
Erlangen-Nürnberg, Germany)
- **Prof. Brigid Laffan**
(European University Institute,
Florence, Italy)
- **Prof. Marie-Elizabeth Ducreux**
(EHESS, France)
- **Prof. Gary W. Marks**
(University of North Carolina
and Universiteit van Amsterdam,
Netherlands)
- **Prof. Maria J. Esteban**
(Université Paris-Dauphine, France)
- **Prof. Keith Gull**
(University of Oxford, United Kingdom)
- **Prof. Jozef Mathias Ritzen**
(Maastricht University,
Netherlands)
- **Prof. Rolf-Dieter Heuer**
(Chairman of the Deutsche
Physikalische Gesellschaft, Germany)
- **Prof. Timothy Snyder**
(Yale University, USA)
- **Prof. Joseph Jankovic**
(Baylor College of Medicine
in Houston, Texas, USA)
- **JUDr. Peter Tomka**
(Judge and former president
of the International Court
of Justice in the Hague,
Netherlands)
- **Prof. Hans-Georg Kräusslich**
(Universität Heidelberg, Germany)

New Research and Education Facilities

Using European funds, Charles University was able to build new, up-to-date research and educational facilities outside Prague.



BIOCEV – few kilometres from Prague

BIOCEV is a joint project of Charles University and the Czech Academy of Science. The research of the centre focuses on bio-medicine. Major research topics involve i.e. the identification of specific genes responsible for heart and liver diseases, deafness, viral infections or development of new biomaterials for the replacement of blood vessels, cardiac valves, development of new therapeutic and diagnostic procedures in medicine, etc.

MEPHARED – Hradec Králové

The Teaching and Research Centre of Charles University is a part of a joint campus of two faculties – the Faculty of Medicine and the Faculty of Pharmacy in Hradec Králové east of Prague. The university sought to improve the quality of study and research at these faculties and ensure maximum interconnection of their activities with private companies.



UNIMEC and BIOMEDIC – Pilsen

The campus of the Faculty of Medicine in Plzeň (Pilsen) is located in the immediate vicinity of the teaching hospital and incorporates the building of theoretical institutes, which is intended mainly for education, and the Biomedicine Centre – an institute for research and development in the area of substitution and regeneration of organs.



Participation in European Research Infrastructures

Research infrastructures are one of the key tools of research support. They cover a wide range of disciplines, with unique and high-tech devices that are available to the national and international research communities. The infrastructures offer the capability for breakthrough discoveries with maximum efficiency, as they concentrate high-end technologies, expertise and provide access to research results to all qualified researchers.

Charles University as a Host Institution:

Czech National Corpus (Faculty of Arts)

Institute Laue-Langevin – Czech participation (Faculty of Mathematics and Physics)

Linguistic research infrastructure in the CR (Faculty of Mathematics and Physics)

National centre for medical genomics (1st Faculty of Medicine)

Research infrastructure for geothermal energy (Faculty of Science)

Laboratory of Physics of Surfaces – Optical path for research into materials
(Faculty of Mathematics and Physics)

Materials Growth and Measurement Laboratory (Faculty of Mathematics and Physics)

Laboratories of Nuclear Methods for Material Research
(Faculty of Mathematics and Physics)

DARIAH-CZ – Digital Research Infrastructure for the Arts and Humanities
(Faculty of Mathematics and Physics)

Charles University as a Partner Institution

AUGER-CZ / Pierre Auger Observatory – Czech participation

(Faculty of Mathematics and Physics)

BNL-CZ / Brookhaven National Laboratory – Czech participation

(Faculty of Mathematics and Physics)

CERN-CZ / Research Infrastructure for Experiments in CERN

(Faculty of Mathematics and Physics)

CTA-CZ / Cherenkov Telescope Array – Czech participation

(Faculty of Mathematics and Physics)

**FAIR-CZ / Laboratory for Research with Antiprotons and Heavy Ions
– Czech participation** (Faculty of Mathematics and Physics)

Fermilab-CZ / Research Infrastructure for Experiments in Fermilab

(Faculty of Mathematics and Physics)

CzechGeo/EPOS / Distributed system of observational and field measurements

(Faculty of Mathematics and Physics, Faculty of Science)

**SoWa / National infrastructure for complex monitoring of soil and water systems
in the context of sustainable land use** (Faculty of Science)

BBMRI-CZ / Biobanking and biomolecular resources research infrastructure

(1st Faculty of Medicine)

Czech-BioImaging / National infrastructure for biological and medical imaging,

(1st Faculty of Medicine, Faculty of Science)

**EATRIS-CZ / Czech national node of European infrastructure for translational
medicine** (1st Faculty of Medicine)

ELIXIR-CZ / Czech national infrastructure for biological data (Faculty of Science)

Major EU Funded Projects

Research Centres of Charles University are mainly funded by Structural Funds and by various Operational programmes focused on research and education. Centres have been formed with the aim of supporting cutting-edge research, attracting excellent researchers from abroad and creating international research teams.

Centres of Excellence – CUCAM

The Centre of Advanced Materials: Design, Synthesis, and Applications (CUCAM) was established at Charles University, Faculty of Science. The centre managed by Prof. Russel E. Morris from the University of St. Andrews in Scotland will be concerned with the preparation of new materials with suitable application properties by means of non-traditional methods of synthesis.

Centres of Excellence – MATFUN

The MATFUN centre will examine basic physical principles of materials with magnetic shape memory. The scientific team will work under the leadership of the outstanding scientist Ing. Ladislav Straka, DSc.

Centres of Excellence – STARSS

A new centre of excellence for the area of advanced research in Separation Science STARSS has started working at the Charles University Faculty of Pharmacy in Hradec Králové. The scientific team works under the leadership of

Professor Petr Solich; Professor František Švec, a renowned analytic chemist with long experience in the most prestigious scientific institutes in the USA will become a member of the team. The project incorporates three strategic foreign partners – the University of Melbourne in Australia, the Requitme Research Institute of the University of Porto in Portugal, and the University of the Balearic Islands in Spain.

Centre of Excellence – KREAS

In 2018, the KREAS project (Creativity and Adaptability as Conditions for the Success of Europe in an Interrelated World) started at Charles University, Faculty of Arts. It is the only social-scientific project, which has gained financial support for excellent research teams from EU sources. The project involves humanities-scientific research into adaptability of the European society in relation to the new social challenges (e.g. globalisation, migration, or new technologies). The project and its team have been managed by its head applicant and researcher, doc. Mirjam Friedová, Ph.D.

Joint Research Centres – Collaboration with the Academy of Science

Beside the international collaboration, the most important domestic collaboration for CU is joint research with the institutes of the Academy of Science of the Czech Republic.

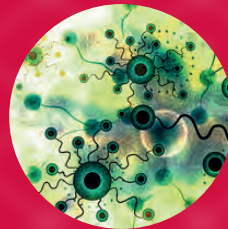


CERGE

The Economics Institute (EI) of the Czech Academy of Sciences operates as a joint institute CERGE-EI, together with the Centre for

Economic Research and Graduate Education (CERGE) of Charles University. CERGE-EI is dedicated to advancing the frontiers of economic research and education. Some of CERGE experts are also ERC grantees.

provides specialised doctoral training courses, lectures, and seminars. It also holds interdisciplinary medieval discussions, international colloquia, and conferences.



CTS

Yet another joint enterprise with the Academy of Science, Center for Theoretical Studies conducts theoretical research in various

disciplines of natural and social sciences, therefore stimulates interdisciplinary approach to research by searching for new forms of interaction between established disciplines and strengthens the link between the Academy of Sciences of the Czech Republic and Charles University.



Centre for Medieval Studies

A joint enterprise of the Institute of Philosophy of the Academy of Sciences and Charles University. It organises and

Translation of the Basic Research into Application, Industry and Social use

The Centre for Knowledge and Technology Transfer (abbreviation: CPPT) supports the commercialization of products and services originating in the faculties and other organizational units of CU.

CPPT focuses on the initial stages of commercialization process, scouting for new ideas and secures their legal and IP protection, manages proof of concept funding and individual projects supporting prospective ideas and takes care of possible future cooperation in the form of contractual research or consultation services.

To enhance the commercialisation of R&D results, Charles University established in June 2018 its subsidiary company “Charles University Innovations Prague s.r.o.” (abbreviation: CUIP). The main purpose of CUIP is to provide fast and flexible support to the final stages of commercialisation at the university.

One of the interesting outputs of our TTO is “Svoboda 1945” (Freedom 1945) →

which is a historically accurate narrative adventure game featuring dialogue-based gameplay. The game includes interactive comics, rare digitized film footage, engaging mini-games, and cinematic-style interviews that have been researched and written by a team of professional historians.



International Collaboration



International collaboration is one of the corner stones of research and development at Charles University. We are actively involved in the projects of Horizon 2020 (currently 73 projects), Erasmus+ and ESFRI.

We realize international collaboration also within some of the national schemes funded by the Ministry of Education, Czech Science Foundation, Technology Agency of the Czech Republic or Czech Health Research Council.

Joint efforts have been made together with our international partners from different university networks – Coimbra Group, UNICA, EUROPAEUM, LERU-CE7 – we were involved in discussions of the program Horizon Europe.

Our Strategic Partners

Charles University has been paying special attention to developing relations with a narrowly defined group of universities and institutes called strategic partnerships since 2015. The term “strategic partnerships” inevitably involves much deeper cooperation, a high frequency of long-term activities, potential for developing the Universities’ “third mission” and multilateral partnerships. The main goal is to present Charles University as an “open, internationalized, research-based university, attractive for its broad range of study programmes and courses.” Apart from bilateral relations, Charles University plays an increasingly important role in various European networks of universities.





CELSA

- Charles University
- Czech Technical University in Prague
- Katholieke Universiteit Leuven
- ELTE University Budapest
- Budapest University of Technology
- Semmelweis University
- University of Ljubljana
- University of Tartu

CENTRAL

- Charles University
- Humboldt Universität zu Berlin
- Universität Wien
- ELTE University Budapest
- University of Warsaw

STRATEGIC PARTNERS

- Universität Zürich (UZH)
- Universität zu Köln
- Macquarie University

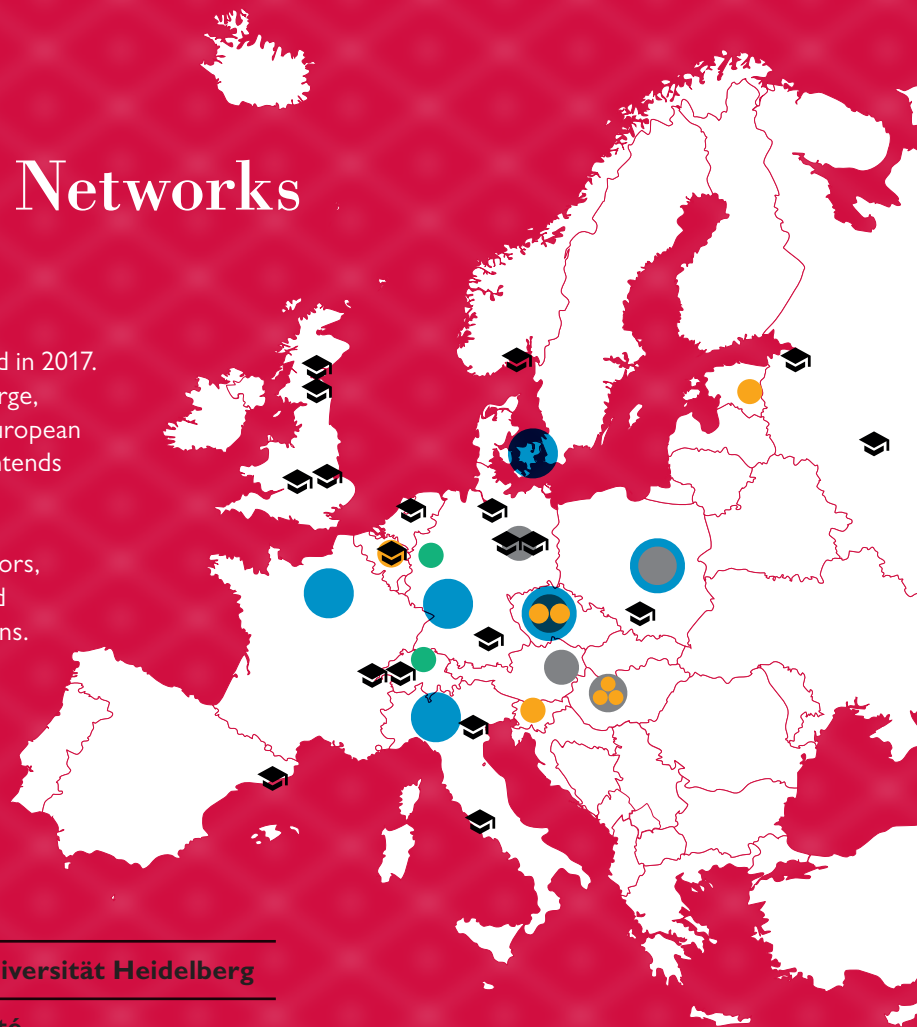


**OTHER
SIGNIFICANT
PARTNERS**

Strategic Networks

4EU+

Cooperation was initiated in 2017. Alliance 4EU+ joins six large, comprehensive, public European research universities. It intends to bring the cooperation to an advanced level by bringing together professors, researchers, students and staff from these institutions. Alliance 4EU+ gained support of the Erasmus+ 2019 European University project.



● **Charles University**

● **Ruprecht-Karls-Universität Heidelberg**

● **Sorbonne Université**

● **University of Warsaw**

● **Università degli Studi di Milano**

● **Københavns Universitet**

Major Research Areas at CU



Major research areas selected out of 17 facilities and institutes of Charles University. Overview of most successful research areas in individual scientific fields of CU are listed below.

More information of individual research teams can be found here:

www.cuni.cz/MajorResearchAreas

Major Research Areas in Social Sciences and Humanities

Research Area: Language and the Human Mind

Research Topic	Principal Researchers	Faculty
Language and the Human Mind: Understanding the Way We Communicate	Mirjam Friedová Pavel Machač Ronald Kim	Faculty of Arts
Blurred Boundaries of Medieval Texts: Digital Editing and Interpreting	Martin Nejedlý Jan Klápště Lucie Doležalová	Faculty of Arts

Research Area: The Czech National Corpus

Research Topic	Principal Researchers	Faculty
The Czech National Corpus: Research Infrastructure for Empirical Language-oriented Inquiry	Václav Cvrček Vladimír Petkevič Michal Křen	Faculty of Arts

Research Area: Interrelations

Research Topic	Principal Researchers	Faculty
Interrelations	Karel Novotný Hans Rainer Sepp	Faculty of Humanities

Research Area: Modern Thought and Crisis of Identity

Research Topic	Principal Researchers	Faculty
Crisis of Rationality and Modern Thought	Karel Thein Tomáš Halík	Faculty of Arts
Identities, Canons, Pop-culture: A Comparative Approach	Martin Procházka Petr Bílek Jan Wiendl	Faculty of Arts

Research Area: Sinology for 21st Century

Research Topic	Principal Researchers	Faculty
Sinology for the 21 st Century	Olga Lomová	Faculty of Arts

Research Area: Czech Egyptology and Research on Complex Civilisation

Research Topic	Principal Researchers	Faculty
Czech Egyptology and Research on Complex Civilisation and Resilience Processes	Miroslav Bárta	Faculty of Arts

Research Area: History – Transcontinental Studies: Europe and/vs. the World

Research Topic	Principal Researchers	Faculty
History – Transcontinental Studies: Europe and/vs. the World	Michal Pullmann Ivan Šedivý Markéta Křížová	Faculty of Arts

Research Area: Innovations in Didactics of Teaching

Research Topic	Principal Researchers	Faculty
Professional Development of Teacher's Education	Radka Wildová Michal Nedělka	Faculty of Education
Educational Effectiveness, Assessment and Its Evaluation	Jana Straková David Greger	Faculty of Education
Subject Didactics Research	Nada Vondrová Martin Bílek Martina Šmejkalová Miroslava Černochová Jana Stará	Faculty of Education
Research of the Psychological Development of a Child under the Influence of Scholarization	Anna Kucharská	Faculty of Education

Research Area: People with Special Needs and Long-term Care

Research Topic	Principal Researchers	Faculty
Support for People with Special Needs and Taking Care of Them	Lea Květoňová	Faculty of Education
Expertise in Longevity and Long-term Care	Iva Holmerová	Faculty of Humanities

Research Area: Anthropology – Social, Cultural, Historical and Biological Variability

Research Topic	Principal Researchers	Faculty
Comparative Studies of Human Behaviour	Jan Horský	Faculty of Humanities
Experimental Psychology	Jitka Lindová	Faculty of Humanities
Oral History – Perception of the Past by the Oral Narratives	Miroslav Vaněk	Faculty of Humanities

Research Area: Sociology

Research Topic	Principal Researchers	Faculty
Politicization of Society and Public Controversies	Ondřej Císař Paulus Albertus Blokker Dino Numerato Zdeněk Uherek	Faculty of Social Sciences

Research Area: Public and Social Policy

Research Topic	Principal Researchers	Faculty
Policy Design and Policy Work	Arnošt Veselý	Faculty of Social Sciences

Research Area: Collective Memory as a Theoretical and Research Concept

Research Topic	Principal Researchers	Faculty
Memory and Politics in Transformations of (Post-)Conflict Societies	Tomáš Weiss Kateřina Králová	Faculty of Social Sciences
Historical Sociology	Jiří Šubrt	Faculty of Humanities

Research Area: Inter-group Conflicts, International Interactions and Security

Research Topic	Principal Researchers	Faculty
Causes and Consequences of Inter-group Conflict: Experimental Approach	Michal Bauer Julie Chytilová	Faculty of Social Sciences CERGE-EI
International Interactions: Relations, Security, and Space	Jan Karlas Nikola Hynek Běla Plechanovová Michael Romancov	Faculty of Social Sciences

Research Area: Communication, Culture and Politics

Research Topic	Principal Researchers	Faculty
Communication, Culture and Politics	Nico Carpentier	Faculty of Social Sciences

Research Area: Sport Sciences

Research Topic	Principal Researchers	Faculty
Biomedical Aspects of Sport and Exercise	Miroslav Petr	Faculty of Physical Education and Sport
Human Movement and Sport Performance	František Zahálka	Faculty of Physical Education and Sport

Research Area: Theology, Philosophy, Biblical Studies and Medieval Art

Research Topic	Principal Researchers	Faculty
Theology, Philosophy, and Reflection of Art as Ways of Interpreting Reality	Vojtěch Novotný David Vopřada	Catholic Theological Faculty
Biblical Studies	Martin Prudký	Protestant Theological Faculty

Research Area: Ecumenical Theology, Confessionalism and Nationalism

Research Topic	Principal Researchers	Faculty
Ecumenical Studies	Ivana Noble	Protestant Theological Faculty
Confessionalism and Nationalism	Jan B. Lášek	Hussite Theological Faculty

Research Area: International Law

Research Topic	Principal Researchers	Faculty
Legal Systems of the Far East and European Law	Michal Tomášek	Faculty of Law
Compensation in International Law	Pavel Šturma	Faculty of Law

Research Area: Constitutional Law

Research Topic	Principal Researchers	Faculty
Analysis of the Constitutional System of the Czech Republic and Proposals for Its Changes	Aleš Gerloch	Faculty of Law

Major Research Areas in Life Sciences

Research Area: Drug Discovery and Development

Research Topic	Principal Researchers	Faculty
Study of Toxic and Protective Effects of Drugs on Cardiovascular System	Tomáš Šimůnek	Faculty of Pharmacy
Specialized Team for Advanced Research on Separation Science – STARSS	Petr Solich	Faculty of Pharmacy
Development of Novel Drugs against Tuberculosis and Its Multidrug-resistant Forms	Alexandr Hrabálek	Faculty of Pharmacy

Research Area: Synthesis and Catalysis

Research Topic	Principal Researchers	Faculty
Organoelement Chemistry, Organic and Inorganic Synthesis and Catalysis	Petr Štěpnička Martin Kotora Jiří Čejka Jan Veselý	Faculty of Science

Research Area: Geochemistry and Geodynamics

Research Topic	Principal Researchers	Faculty
Endogenous Geodynamics in Geology	Shah Wali Faryad	Faculty of Science
Environmental Geochemistry Group	Martin Mihaljevič	Faculty of Science

Research Area: Parasitology, Infection Biology and Eukaryotic Microbiology

Research Topic	Principal Researchers	Faculty
Cellular and Molecular Basis of the Host-pathogen Relationships	Petr Horák	Faculty of Science
Eukaryotic Microbiology and Protistology	Jan Tachezy Petr Volf	Faculty of Science

Research Area: Ecology, Evolutionary Biology and Biodiversity

Research Topic	Principal Researchers	Faculty
Ecology and Biodiversity – from Individuals to the Biosphere, from Past to the Future	David Storch Jan Frouz Adam Petrusek	Faculty of Science Centre for Theoretical Study Environment Centre
Phylogeny and Diversity of Multicellular Organisms	Pavel Munclinger	Faculty of Science

Research Area: Geography

Research Topic	Principal Researchers	Faculty
Transformation of Socio-geographic and Demographic Realities of Czechia in European and Global Contexts	Dušan Drbohlav	Faculty of Science
Physical Geography, Cartography and Geoinformatics	Bohumír Janský	Faculty of Science

Major Research Areas in Mathematics, Physics and Computer Sciences

Research Area: Mathematical Structures in Algebra, Geometry and Logic

Research Topic	Principal Researchers	Faculty
Mathematical Structures in Algebra, Geometry and Logic	Jan Krajčcek	Faculty of Mathematics and Physics

Research Area: Intelligent Systems and Computing

Research Topic	Principal Researchers	Faculty
Intelligent Systems and Computing	Roman Barták Tomáš Skopal Tomáš Bureš Jaroslav Křivánek Jan Hajič	Faculty of Mathematics and Physics

Research Area: Theoretical Computer Science and Combinatorics

Research Topic	Principal Researchers	Faculty
Theoretical Computer Science and Combinatorics	Michal Koucký Martin Loebel, Jiří Sgall Jaroslav Nešetřil	Faculty of Mathematics and Physics

Research Area: General Relativity and Gravitation, Relativistic Astrophysics and Cosmology

Research Topic	Principal Researchers	Faculty
General Relativity and Gravitation, Relativistic Astrophysics and Cosmology	Jiří Bičák	Faculty of Mathematics and Physics

Research Area: Analysis, Modelling and Computational Mathematics

Research Topic	Principal Researchers	Faculty
Analysis, Modelling and Computational Mathematics	Jan Malý, Josef Málek Zdeněk Strakoš	Faculty of Mathematics and Physics

Research Area: Material Science and Nanotechnology

Research Topic	Principal Researchers	Faculty
Modern Materials	Václav Holý Miloš Janeček	Faculty of Mathematics and Physics
Optical Spectroscopy of Individual Nano-objects	Jan Valenta	Faculty of Mathematics and Physics
OptoSpintronics	Petr Němec	Faculty of Mathematics and Physics

Structure of Thin Layers and Nanoparticles	Václav Holý	Faculty of Mathematics and Physics
Surface Physics	Vladimír Matolín	Faculty of Mathematics and Physics
Nanomaterial Modelling	Petr Nachtigall Filip Uhlík Peter Košovan	Faculty of Science

Research Area: Particle and Nuclear Physics

Research Topic	Principal Researchers	Faculty
Particle and Nuclear Physics	Rupert Leitner	Faculty of Mathematics and Physics

Research Area: Stochastic Geometry, Stochastic Analysis and Spatial Statistics

Research Topic	Principal Researchers	Faculty
Stochastic Geometry, Stochastic Analysis and Spatial Statistics	Viktor Beneš Jan Rataj, Lev Klebanov Bohdan Maslowski	Faculty of Mathematics and Physics

Major Research Areas in Medicine

Research Area: Cardiovascular Diseases

Research Topic	Principal Researchers	Faculty
Cardiovascular Diseases	Petr Widimský, Aleš Linhart, Josef Veselka, Jan Filipovský, Jan Harrer	Medical faculties

Research Area: Experimental Surgery

Research Topic	Principal Researchers	Faculty
Experimental Surgery	Martin Krbec, Robert Gürlich, Andrej Sukop Ivan Landor, Vladislav Třeška, Václav Liška	Medical faculties
Organ Replacement, Support and Regeneration	Martin Matějovič, Vladislav Třeška	Medical faculties

Research Area: Metabolism

Research Topic	Principal Researchers	Faculty
Metabolism	Jan Škrha, Michal Anděl, Dana Müllerová	Medical faculties
Sepsis	Martin Matějovič, Milan Štengl, Jaroslav Hrabák	Medical faculties

Research Area: Neurosciences

Research Topic	Principal Researchers	Faculty
Neurosciences	Evžen Růžička, Jakub Hort, Cyril Höschl Karel Ježek	Medical faculties

Research Area: Oncology and tumour biology

Research Topic	Principal Researchers	Faculty
Oncology	Aleksi Šedo, Jan Starý, Václav Mandys Jiří Petera, Jindřich Fínek, Jan Brábek	Medical faculties Faculty of Science





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