Let's Benefit from Research Infrastructures

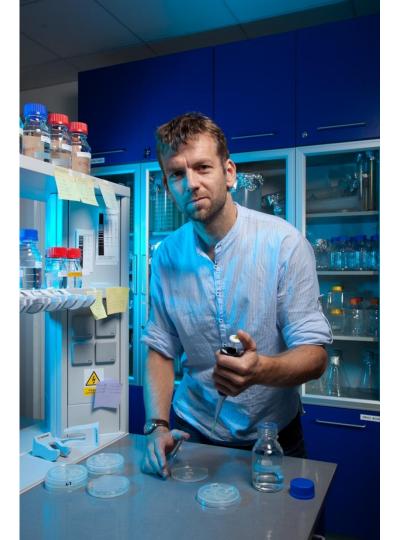
New opportunities for top research

November 29, 2017 Campus Dejvice

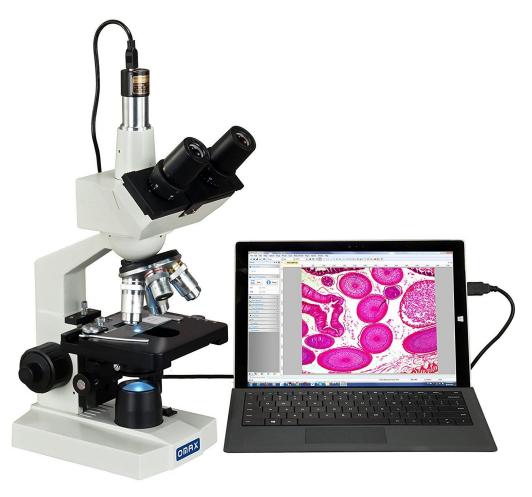
Tomas Mozga tomas.mozga@gmail.com, +420 776 030 294

RESEARCH

- scientists
- ideas
- laboratory
- money
- instruments





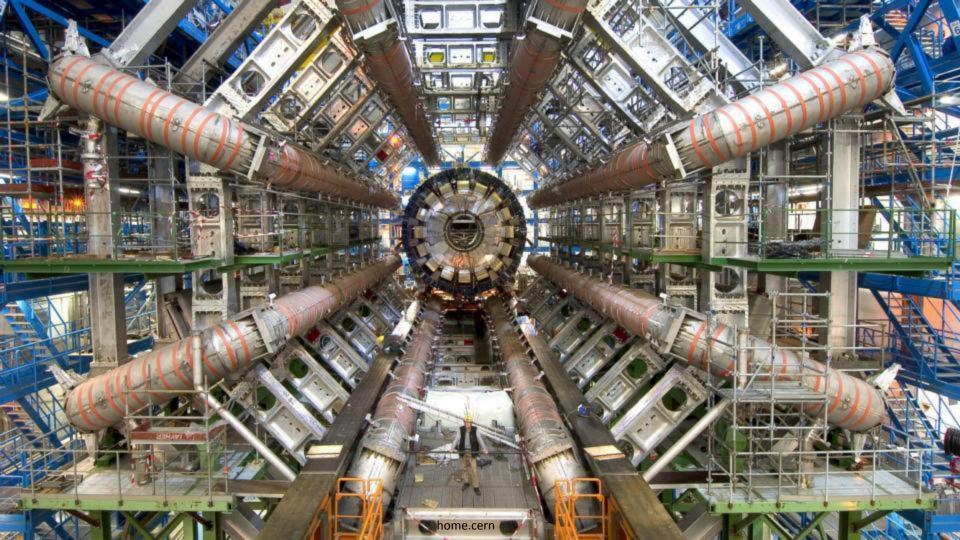




www.microscopenet.com www.vox.com







Research infrastructures

http://ec.europa.eu/research/infrastructures

- represent unique facilities, resources, collections & related services used by the scientific community to conduct top-level research
- offer unique research services to users from different countries, attract young people to science & help to shape scientific communities
- bring together a wide diversity of stakeholders to look for solutions to many of the problems society is facing today
- are responsible for some of the greatest scientific discoveries & technological developments
- play an increasingly important role in the development of knowledge and technology

Research infrastructures

http://ec.europa.eu/research/infrastructures

unique facility

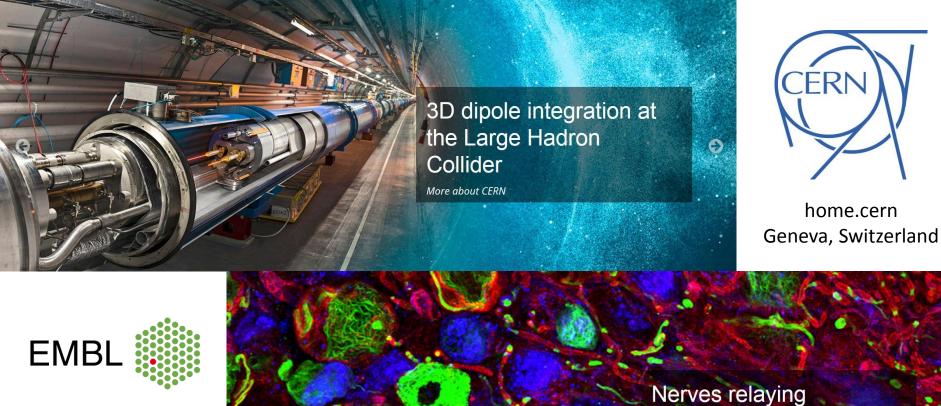
excellent research

international overlap

open access services

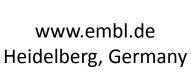






information from the skin

More about EMBL





www.eso.org Garching, Germany







European Space Agency

www.esa.int Paris, France





www.esrf.eu Grenoble, France

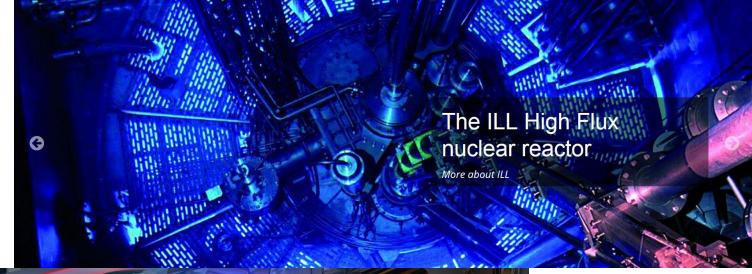


www.euro-fusion.org Garching, Germany





www.ill.eu Grenoble, France







www.xfel.eu Schenefeld, Germany



Intergovernmental RIs

Garching, Germany

ESO, EUROfusion

Geneva, Switzerland

CERN

Grenoble, France

ESRF, ILL

Heidelberg, Germany

· EMBL

Paris, France

ESA

Schenefeld, Germany

XFEL













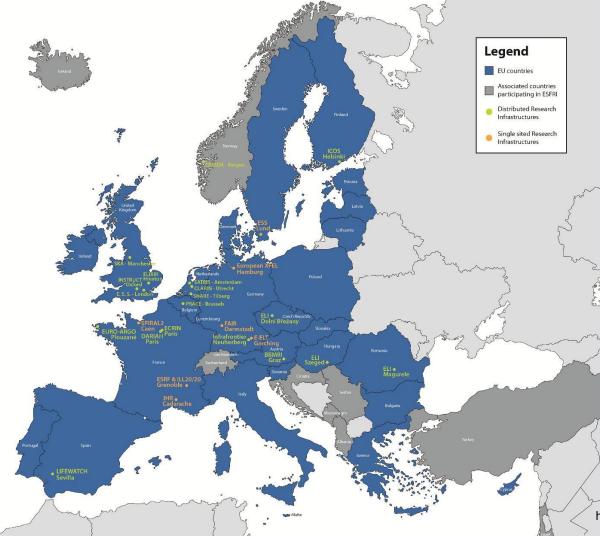
European Space Agency

www.eiroforum.org
Intergovernmental RIs









Physical Sciences & Engineering

Materials

Energy

Environmental Sciences

Biomedical Sciences

Social Sciences & Humanities

E-infrastructures



http://europa.eu/rapid/press-release_MEMO-12-772_en.htm

Pan-European RIs – Physical Sciences & Engineering (7)

http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=mapri_european

- CTA: Cherenkov Telescope Array
 Heidelberg, Germany, www.cta-observatory.org
- E-ELT: European Extremely Large Telescope
 Garching, Germany, www.eso.org/public/teles-instr/elt
- ELI: Extreme Light Infrastructure
 Brussels, Belgium, www.eli-beams.eu
- FAIR: Facility for Antiproton and Ion Research
 Darmstadt, Germany, www.fair-center.eu
- KM3NeT: Kilometre Cube Neutrino Telescope
 Amsterdam, Netherlands, www.km3net.org
- SKA: Square Kilometre Array
 Manchester, UK, skatelescope.org
- SPIRAL2: Facility for the production and study of rare isotope radioactive beams Caen, France, www.ganil-spiral2.eu



Physical Sciences & Engineering

- CTA, Heidelberg, Germany€? m
- E-ELT, Garching, Germany
 €1.1 billion
- ELI, Brussels, Belgium€845 million
- FAIR, Darmstadt, Germany
 €1 billion
- KM3NeT, Amsterdam, Netherlands €? m
- SKA, Manchester, UK €1.5 billion
- SPIRAL2, Caen, France
 €196 million

Pan-European RIs – Materials (7)

http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=mapri_european

- CERIC-ERIC: Central European Research Infrastructure Consortium Trieste, Italy, www.ceric-eric.eu
- EMFL: European Magnetic Field Laboratory Brussels, Belgium, www.emfl.eu
- ESRF: Upgrade of the European Synchrotron Radiation Facility Grenoble, France, www.esrf.eu
- ESS: The European Spallation Source
 Lund, Sweden, europeanspallationsource.se
- EUROFEL: Free Electron Lasers of Europe
 Hamburg, Germany, www.iruvx.eu/e20
- XFEL: European X-Ray Free-Electron Laser Facility GmbH Hamburg, Germany, www.xfel.eu
- ILL: Upgrade of the European Neutron Spectroscopy facility based at the Institut Laue Langevin Grenoble, France, www.ill.eu



Materials

- CERIC-ERIC, Trieste, Italy€? m
- EMFL, Brussels, Belgium €? m
- ESRF, Grenoble, France
 €241 million
- ESS, Lund, Sweden €1.5 billion
- EUROFEL, Hamburg, Germany €? m
- XFEL, Hamburg, Germany €1.1 billion
- ILL, Grenoble, France
 €171 million

Pan-European RIs – Energy (7)

http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=mapri_european

- ECCSEL: European Carbon Dioxide Capture and Storage Laboratory Infrastructure Trondheim, Norway, www.eccsel.org
- EU-SOLARIS: European Solar Research Infrastructure for Concentrating Solar Power Almeria, Spain, www.eusolaris.eu
- HIPER: High Power Laser Energy research Facility
 Oxford, United Kingdom, www.hiper.org
- IFMIF: International Fusion Materials Irradiation Facility Rokkasho, Japan, www.ifmif.org
- JHR: Jules Horowitz Reactor
 Cadarache, France, www-rjh.cea.fr
- MYRRHA: European Fast Spectrum Irradiation Facility
 Mol, Belgium, http://sckcen.be/en
- WINDSCANNER: The European Windscanner Facility Roskilde, Denmark, www.windscanner.eu



Energy

- ECCSEL, Trondheim, Norway €? m
- EU-SOLARIS, Almeria, Spain €? m
- HIPER, Oxford, UK€? m
- IFMIF, Rokkasho, Japan€? m
- JHR, Cadarache, France €750 million
- MYRRHA, Mol, Belgium €? m
- WINDSCANNER, Roskilde, Denmark€? m

Pan-European RIs – Environmental Sciences (9)

http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=mapri_european

- COPAL: Heavy Payload Long Endurance Tropospheric Aircraft Toulouse, France, www.eufar.net/copal
- EISCAT_3D: The next Generation European Incoherent Scatter Radar System Kiruna, Sweden, www.eiscat.se
- EMSO: European Multidisciplinary Seafloor Observatory, Rome, Italy, www.emso-eu.org
- EPOS: European Plate Observing System, Rome, Italy, www.epos-ip.org
- EURO-ARGO ERIC: Global Ocean Observing Infrastructure Plouzané, France, www.euro-argo.eu
- IAGOS: In-Service Aircraft for a Global Observing System, Brussels, Belgium, www.iagos.org
- ICOS: Integrated Carbon Observation System, Helsinki, Finland, www.icos-infrastructure.eu
- LIFEWATCH: Science and Technology Infrastructure for Biodiversity and Ecosystem Research Seville, Spain, www.lifewatch.eu
- SIOS: The Svalbard Integrated Arctic Earth Observing System Longyearbyen, Norway, www.sios-svalbard.org



Environmental Sciences

- COPAL, Toulouse, France
- EISCAT_3D, Kiruna, Sweden
- EMSO, Rome, Italy
- EPOS, Rome, Italy
- EURO-ARGO ERIC, Plouzané, France €40 million
- IAGOS, Brussels, Belgium
- ICOS, Helsinki, Finland
 €130 million
- LIFEWATCH, Seville, Spain €255 million
- SIOS, Longyearbyen, Norway



www.envriplus.eu



Environmental Sciences

- COPAL, Toulouse, France
- EISCAT_3D, Kiruna, Sweden
- EMSO, Rome, Italy
- EPOS, Rome, Italy
- EURO-ARGO ERIC, Plouzané, France €40 million
- IAGOS, Brussels, Belgium
- ICOS, Helsinki, Finland
 €130 million
- LIFEWATCH, Seville, Spain £255 million
- SIOS, Longyearbyen, Norway



www.envriplus.eu/research-infrastructures

Pan-European RIs – Biomedical Sciences (13)

http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=mapri_european

- ANAEE: Infrastructure for Analysis and Experimentation on Ecosytems, Paris, France, www.anaee.com
- BBMRI-ERIC: Biobanking and BioMolecular resources Research Infrastructure Graz, Austria, www.bbmri-eric.eu
- EATRIS-ERIC: European Advanced Translational Research Infrastructure in Medicine Amsterdam, Netherlands, eatris.eu
- ECRIN-ERIC: European Clinical research Infrastructures Network, Paris, France, www.ecrin.org
- ELIXIR: European Life-science Infrastructure for Biological Information, Hinxton, UK, www.elixir-europe.org
- EMBRC: European Marine Biological Resource Centre, Paris, France, www.embrc.eu
- ERINHA: European research Infrastructure on Highly Pathogenic Agents, Lyon, France, www.erinha.eu
- EU-OPENSCREEN: European Infrastructure of Open Screening Platforms for Chemical Biology Berlin, Germany, www.eu-openscreen.eu
- EURO-BIOIMAGING: European Research Infrastructure for Biomedical Imaging Heidelberg, Germany, www.eurobioimaging.eu
- Infrafrontier: European Infrastructure for Phenotyping and Archiving of Model Mammalian Genomes
 Neuherberg, Germany, www.infrafrontier.eu
- INSTRUCT: Integrated Structural Biology Infrastructure, Oxford, UK, www.structuralbiology.eu
- ISBE: Infrastructure for Systems Biology-Europe, London, UK, project.isbe.eu
- MIRRI: Microbial Resource Research Infrastructure, Braunschweig, Germany, www.mirri.org



Biomedical Sciences

- ANAEE, Paris, France
- BBMRI-ERIC, Graz, Austria, €170 m
- EATRIS-ERIC, Amsterdam, Netherlands
- ECRIN-ERIC, Paris, France
- ELIXIR, Hinxton, UK, €470 million
- EMBRC, Paris, France
- ERINHA, Lyon, France
- EU-OPENSCREEN, Berlin, Germany
- EURO-BIOIMAGING, Heidelberg, Germ.
- Infrafrontier, Neuherberg, Germany
 €180 million
- INSTRUCT, Oxford, UK, €300 million
- ISBE, London, UK
- MIRRI, Braunschweig, Germany

Pan-European RIs – Social Sciences & Humanities (5)

http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=mapri_european

- CESSDA: Consortium of European Social Science Data Archives Bergen, Norway, www.cessda.eu
- CLARIN ERIC: Common Language Resources and Technology Infrastructure
 Utrecht, Netherlands, www.clarin.eu
- DARIAH-ERIC: Digital Research Infrastructure for the Arts and Humanities Paris, France, www.dariah.eu
- ESS ERIC: European Social Survey
 London, UK, www.europeansocialsurvey.org
- SHARE-ERIC: Survey of Health, Ageing and Retirement in Europe Munich, Germany, www.share-project.org



Social Sciences & Humanities

- CESSDA, Bergen, Norway
 €30 million
- CLARIN ERIC, Utrecht, Netherlands €104 million
- DARIAH-ERIC, Paris, France €20 million
- ESS ERIC, London, UK€2 million
- SHARE-ERIC, Munich, Germany €23 million

Pan-European RIs – E-infrastructures (1)

http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=mapri_european

 PRACE: Partnership for Advanced Computing in Europe Brussels, Belgium, www.prace-ri.eu



E-infrastructures

PRACE, Brussels, Belgium €100 million

National RIs of European interest

www.esfri.eu/national-roadmaps www.msmt.cz/vyzkum-a-vyvoj-2/cestovni-mapa-cr-velkych-infrastruktur-pro-vyzkum

- National and regional RIs that receive EU support, in particular through Integrating Activities projects for transnational access
- Open to all European researchers from academia and industry

AUGFR-CZ **Czech RIs BNL-CZ CANAM** www.esfri.eu/national-roadmaps **CFITFC Nano CENMAT** www.msmt.cz/vyzkum-a-vyvoj-2/cestovni-mapa-cr-velkych-infrastruktur-pro-vyzkum **CERN-CZ** CTA-CZ **ELI Beamlines** ESS-CZ 58 RIs **EU-ARC.CZ** FAIR-CZ Fermilab-CZ HILASE ILL-CZ Prague **IPMINFRA Pardubice** LNSM LSM-CZ **PALS** Olomouc **SAFMAT** Ostrava SPIRAL2-CZ SPL-MSB VdG Brno **CATPRO** České Budějovice COMPASS CVVOZEPPowerLab JHR-CZ Reactors LVR-15 & LR-0 **RINGEN**

SUSEN

WCZV

ACTRIS-CZ

CzeCOS

CzechGeo/EPOS CzechPolar2

NanoEnviCz

RECETOX

SoWa

BBMRI-CZ C4SYS

CCP

CIISB

CZECRIN

Czech-BioImaging CZ-OPENSCREEN

EATRIS-CZ

ELIXIR-CZ

NCMG

AIS CR

CLB

CNC

CSDA

ESS-CZ

LINDAT/CLARIN

RIDICS

SHARE-CZ

CERIT-SC

CESNET

IT4Innovations

Research infrastructures

http://ec.europa.eu/research/infrastructures

unique facility

excellent research

international overlap

open access services

Open Access Services of RIs

- 1) Checking of facilities and services of the RI.
 - 2) Formulation of research project.
 - 3) Preparation of an application form.
 - 4) Submission of project application before specific deadlines.
 - 5) Review report of responsible experts.
 - 6) Evaluation of the project by the RI according to technical aspects, feasibility, costs, scientific excellence, novelty, uniqueness and impact of your project.
 - 7) Final decision and detailed feedback to the proposal.
 - 8) Specification of analysis & time schedule, signing of a contract agreement.
 - 9) Preparation of samples and analysis according to instructions.
 - 10) Analysis of samples by the RI, data interpretation.
 - 11) Receiving of analysed data from measurements, consultation & discussion.
- 12) Acknowledgement to the RI in publications and whenever you will present the data. You are expected to share the results in **open access** regime.





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RESEARCH

MEDIA

CONTACTS



http://nano.ceitec.cz/access-for-academic-users/



http://nano.ceitec.cz/equipment/

- Nanofabrication laboratory
 Nanolithography
 Etching & Deposition
- Nanocharacterization laboratory
 Electrical and magnetic measurements
 Microscopy and nanomanipulation
 Optical measurements
 UHV Technologies
- Structural analysis laboratory
 Electron microscopy
 X-ray diffraction
- Micro & nano X-ray CT laboratory
- Laser Spectroscopy laboratory



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National Centre for Toxic Compounds



Stockholm Convention Regional Centre



INFRASTRUCTU

RECETOX Research Infrastructure







The RECETOX RI is a research platform for implementation of interdisciplinary projects in environmental science, epidemiology, biomedicine, and bioinformatics using state-of-the-art facilities and equipment, excellent expertise, providing a broad range of services in open access mode.

The RECETOX research infrastructure (RI) was established and is further developer through the European Structural and Investment Funds as well as by national resources.

The RECETOX RI supports operation of long term environmental and population studies, analyses of a broad range of anthropogenic and natural toxins in environmental matrices or in biological tissues, as well as the development of complex soft ware tools for management, analysis, interpretation, and visualization of available data.

Since 2010, the RECETOX RI has been included in the Czech Roadmap of Large



www.recetox.muni.cz/index-en.php?pg=research-infrastructure



www.czechglobe.cz/en/open-access/czechglobe-open-access-call/



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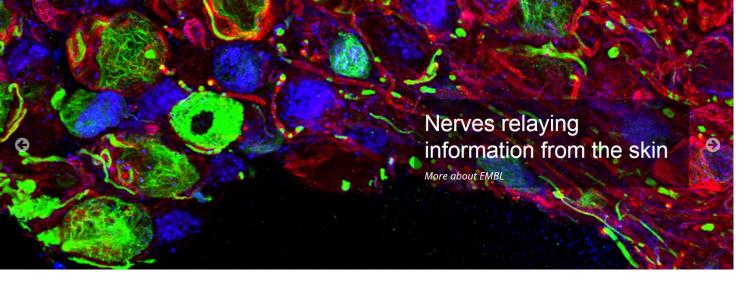
ELIXIR CZ Services

All Services	1D sequence	2D typology	3D structure	xD omics
DNA	ACTG ACTGACTG ACTGACTGACTGACTG	A=T C=G T=A G=C	The state of the s	
RNA	ACUG ACUGACUG ACUGACUG	AAAAG G G C C = G A=U		
Protein	ACDE FGHIKLMNP General Professional Professi			
Drugs and other small molecules	InChl MILES	NH5 N NH5		

www.elixir-czech.cz/services



www.hilase.cz/en/research-programs/access-to-the-hilase-facility -beam-time-applications-for-the-period-102017-92018/





www.embl.de Heidelberg, Germany

- Advanced Light Microscopy: Widefield-, Confocal-, Super-Resolution-, High-throughput microscopy
- Chemical Biology: Biacore surface plasmon resonance technology (SPR)
- Electron Microscopy: Electron microscopy, Ultramicrotomes, Cryo-ultramicrotomes
- Flow Cytometry: high-parametric and aseptic sorting
- Genomics: massively parallel sequencing (MPS) HiSeq2000, HiSeq4000, MiSeq, NextSeq sequencers
- Metabolomics: high-resolution mass spectrometry system (HRMS) coupled with liquid chromatography (UHPLC) and direct infusion (NanoMate)
- Protein Expression, Purification and biophysical characterisation
- Proteomics: mass spectrometry for MS and LC-MSMS, protein and peptide separation



Infrastructures		939
Services	- 1	2040
Equipment		2352
Organisations		1108
Persons	1	2627

AAA	We	come

The MERIL (Mapping of the European Research Infrastructure Landscape) portal provides access to a database that stores information about openly accessible research infrastructures (RIs) in Europe, across all scientific domains, including the social sciences and humanities.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 654296.

About News FAQs Add RI Documents MAC Members Contact

Please note that the MERIL portal is being regularly upgraded and populated with new information on ongoing basis. For any request or issue, please contact meril[at]esf.org.

Latest Additions

- Grid5000
- ELIXIR Luxembourg (ELIXIR-LU)
- · Luxembourg Institute of Socio-Economic Research (LISER)
- · Materials Research and Technology -Luxembourg Institute of Science and Technology (MRT-LIST)
- IT for Innovative Services Luxembourg Institute of Science and Technology (ITIS-LIST)



portal.meril.eu

Key words for searching at RIs

http://ec.europa.eu/research/infrastructures

- Equipment
- Facility
- Services
- Open access
- Application form
- Booking system
- •••

European Research Area (ERA): http://ec.europa.eu/research/era

European Research Area

- Research Infrastructures (RIs): http://ec.europa.eu/research/infrastructures
- EIROforum = Cluster of European intergovernmental Ris, www.eiroforum.org



European Strategy Forum on Research Infrastructures (ESFRI) = Strategic instrument to develop the scientific integration of Europe, www.esfri.eu



Cluster of Pan-European RIs: www.esfri.eu/roadmap-2016
Overview of the national RIs: www.esfri.eu/national-roadmaps

- European Research Infrastructure Consortium (ERIC) = Specific legal form to facilitate the
 establishment and operation of RIs with European interest
 https://ec.europa.eu/research/infrastructures/index_en.cfm?pg=eric
- European Environmental Research Infrastructures (ENVRI) = Cluster of environmental RIs across Europe, www.envriplus.eu



- Mapping of the European Research Infrastructure Landscape (MERIL) = Database of European RIs, portal.meril.eu
- Czech RIs: www.msmt.cz/vyzkum-a-vyvoj-2/velke-infrastruktury-vyzkumu

