

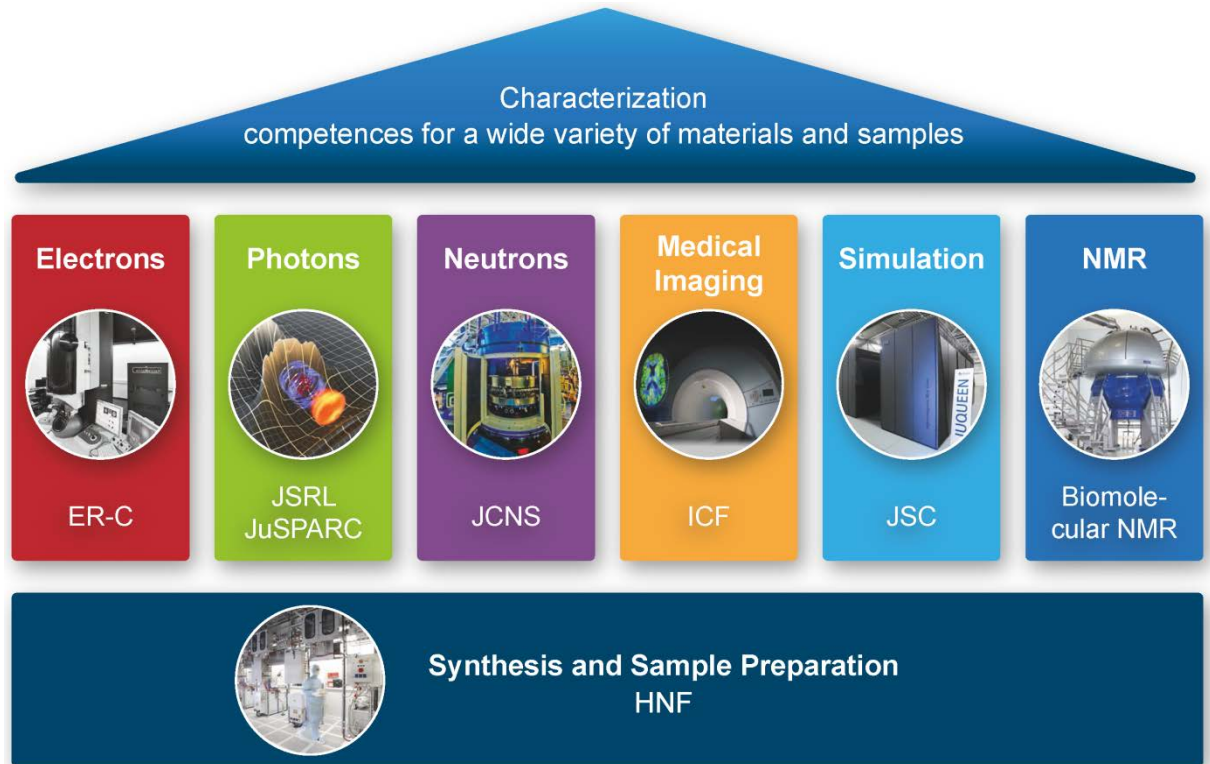
# Jülich Multi Method Platform

The broad scientific spectrum and interdisciplinary approach of research at Forschungszentrum Jülich is also reflected in the variety of scientific methods and instruments operated and developed by Forschungszentrum Jülich and its partners. Forschungszentrum Jülich works with the best partners in science and industry to develop, set up and operate these methods and instruments as user facilities to provide internal and external researchers with world class infrastructures.

Especially the combination of know-how in HPC for simulation and data sciences with analytical methods available at Jülich is quite unique and offers exceptional possibilities.

Therefore, the Jülich Multi Method Platform strives to integrate multi method analysis more deeply into research by:

- Online methodological training,
- Online identification of optimal methods,
- Access to the distributed method expertise,
- Combined measurement time proposals.



## Multi Method Applications

Jülich is dedicated to support the combination of different platform techniques for scientific questions. If you need assistance with the combination of the above listed methods available in Jülich, please contact [j.timper@fz-juelich.de](mailto:j.timper@fz-juelich.de).

For the respective specific methods please contact the application experts at the platforms as indicated in the following.

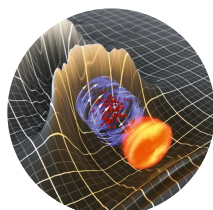


# Electrons

The **Ernst Ruska-Centre (ER-C)** is a user and development facility for atomic-resolution microscopy and spectroscopy with electrons at the highest international level. It develops scientific infrastructure and advanced methods for studying the structural and electronic properties of materials, employing advanced electron microscopy techniques. ER-C offers a number of state of the art microscopes as well as specialized cutting edge equipment with the highest resolution. In addition to its long-standing expertise in solid-state research, its capabilities and expertise in the application of cryo-EM to soft matter research are currently being extended.

## Ernst Ruska-Centre

For further information visit [ER-C.org](http://ER-C.org), or go directly to [www.er-c.org/centre/proposal.htm](http://www.er-c.org/centre/proposal.htm) to find out about measurement time applications.



# Photons

Jülich offers expertise in the application of photon sources for the characterization of materials. The **Jülich Synchrotron Radiation Laboratory (J-SRL)** provides access to advanced photon-based spectroscopy and microscopy techniques. For this purpose, the JSRL operates dedicated end stations and beamlines at different synchrotron radiation sources.

In addition the **Jülich Short-Pulsed Particle Acceleration and Radiation Center (JuSPARC)** denotes a unique new experiment facility at Forschungszentrum Jülich, which will enable research with short-pulsed photon and particle beams from end of 2018. The conceptual design of JuSPARC is first and foremost determined by a set of state-of-the-art time-resolved instruments, which are designed to address the electronic, spin, and structural states of matter employing photon pulses from the visible to the hard X-rays regime.

## Jülich Synchrotron Radiation Laboratory

For further information visit [J-SRL](http://J-SRL).

## JuSPARC

For further information visit [JuSPARC](http://JuSPARC), or contact [Prof. M. Büscher](mailto:Prof. M. Büscher).



# Neutrons

The **Jülich Centre for Neutron Science (JCNS)** is a user facility which develops and operates neutron-instruments at the best neutron sources worldwide: at Heinz Maier-Leibniz Zentrum (MLZ) in Garching, Institute Laue Langevin (ILL) in Grenoble, France, and the Spallation Neutron Source (SNS) in Oak Ridge, Tennessee, USA. In-house research focuses on correlated electron systems and nanomagnetism as well as on soft matter and biophysics. In these areas of expertise, JCNS offers support on world-class instruments with a specialized sample environment and ancillary laboratory access for external users.

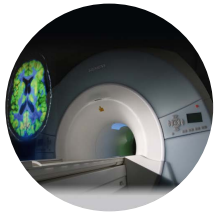
Also Jülich coordinates the German contribution to the European Spallation Source (ESS) in Lund, Sweden, where JCNS will contribute neutron instrumentation and will provide access through JCNS in the future.

## Jülich Centre for Neutron Science

For an overview visit [JCNS](#).

For detailed user information see [UserInformation](#).

For User Access and application information see [www.mlz-garching.de/user-office](http://www.mlz-garching.de/user-office).



# Medical Imaging

The imaging devices of the Institute of Neuroscience and Medicine are pooled in the **Imaging Core Facility (ICF)**. These are various instruments that provide insights into the brain, including a number of magnetic resonance tomographs (MRI) of different field strengths as well as two positron emission tomographs (PET) and two MR-PET hybrid devices, one of them a high-field device with a strength of 9.4 tesla. In 2018, ICF will be supplemented by another magnetic resonance tomograph with a field strength of 7 tesla.

## Imaging Core Facility

ICF is currently being established as a user facility.

For more information on medical imaging at Forschungszentrum Jülich please see [INM-4](#).



# Simulation

As a national and European **supercomputer facility**, research at **Jülich Supercomputing Centre (JSC)** is performed through collaborative infrastructures exploiting extreme-scale supercomputing and federated data services. With the highly scalable supercomputer (IBM Blue Gene/Q JUQUEEN) JSC provides resources of the highest performance class for projects in science, research, and industry in the fields of modeling and computer simulation. The general-purpose cluster system JURECA supplies researchers from all over Germany with another competitive and universally operable supercomputer for applications requiring increased memory or which are inherently less scalable. Additional dedicated cluster systems are installed to serve special community needs. JSC offers support for users on **Mathematical Methods and Algorithms, Performance Analysis, Application Optimization, Visualization, and Deep Learning**.

## Jülich Supercomputing Centre

For computing time applications and user support please refer to [ComputingTime](#)

Industry users please see [IndustryRelations](#) for more information.



# Biomolecular NMR

The **Biomolecular NMR Center in Jülich**, a state-of-the-art research platform for biomolecular ultra-high-field liquid and solid-state NMR spectroscopy, is jointly operated by Forschungszentrum Jülich and Heinrich Heine University Düsseldorf. In its final stage, the research infrastructure will contain eight NMR spectrometers. This building will also host the first 1.2 GHz NMR spectrometers available anywhere in the world. The Biomolecular NMR Center will be integrated into an user facility for structural biology in the future, combining dedicated competences for NMR with x-ray diffraction (JSRL), simulation (JSC), neutron scattering (JCNS) and cryo-electron microscopy (ER-C).

## Biomolecular NMR Center

For information and contact please see [BiomolecularNMRCenter](#)



# Synthesis and Sample Preparation

The **Helmholtz Nano Facility (HNF)** is a user facility for nanometer structures and devices covering all aspects research to application. The fabrication of complex nanometric devices requires extraordinary efforts in process technology. Comprising 1000 m<sup>2</sup> of cleanroom area and a wide variety of processing tools, HNF is designed to tackle these challenges using an interdisciplinary approach, combining electrical engineering and physics with chemistry and biology. A state-of-the-art deposition cluster with in situ characterization tools efficiently combines different materials and significantly improves interface quality.

HNF supports its users through process experts and engineers in process optimization and development.

For more information about **Helmholtz Nano Facility** please see [http://www.fz-juelich.de/hnf/EN/Home/home\\_node.html](http://www.fz-juelich.de/hnf/EN/Home/home_node.html)

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