Specific Neutron Beam Facility at J-PARC
Registered Institution for Facilities Use Promotion

Comprehensive Research Organization for Science and Society
Research Center for Neutron Science and Technology

http://www.cross-tokai.jp
Consistent with its longstanding policy of promoting open access to major publicly-funded research facilities, the Japanese government has appointed CROSS-Tokai to administer and support user operations on the Public Beamlines at J-PARC-MLF – one of the world’s leading spallation neutron sources. This appointment brings J-PARC-MLF into line with the SPring-8·SACLA synchrotron radiation and XFEL facility (Harima Science City, Hyogo) and the “K Computer” supercomputer facility (Kobe, Hyogo) where the Public Use Promotion legislation has already been successfully applied.

Located north-east of Tokyo on the Japanese Pacific coast, Tokai has been for many years a major center for nuclear science and technology and now hosts the Japan Proton Accelerator Research Complex (J-PARC). Jointly built and operated by the Japan Atomic Energy Agency (JAEA) and the High Energy Accelerator Research Organization (KEK), J-PARC is comprised of a series of world-class proton accelerators and experimental facilities that make use of the intense proton beams. At the center of these is the Materials and Life Science Experimental Facility (MLF). At full design power, the MLF will use a 1 MW pulsed proton beam to generate the world’s most intense neutron and muon beams.

The MLF currently has 18 neutron beamlines in operation and a further three under construction or in commissioning. Seven of the operating instruments have been designated as Public Beamlines within the Specific Neutron Beam Facility as defined by the Public Use Promotion legislation (See above figure). These instruments are open to local and international researchers via the Public Beamline User Program administered by CROSS-Tokai. The Public Beamlines boast a suite of instruments that deliver world-class performance across a range of scientific endeavor from fundamental research to industrial applications. As the MLF grows to full capacity, it is hoped that as many as 10 neutron instruments will be eventually supported and administered as Public Beamlines by CROSS-Tokai.

The role of CROSS-Tokai

The Public Use Promotion legislation specifies two major functions for CROSS-Tokai regarding the Public Beamlines at J-PARC-MLF: to implement and manage an open and independent proposal selection system and to provide user support to those experiments approved by this system.

CROSS-Tokai has 60 staff now in place on the Tokai site to carry out activities associated with these functions that include:

- Assessment and selection of experimental proposals to use the Public Beamlines
- Assessment and selection of proposals to build Contract Beamlines
- Facility utilization promotion through outreach activities (conferences, workshops etc.)

Importantly, with a team of 38 research and technical staff, as well as support laboratories and facilities, CROSS-Tokai is an active and productive research center for neutron science and technology.

Find out more

CROSShelp is a one-stop shop for users, potential users or, indeed, anyone seeking information about the neutron beam facilities at J-PARC-MLF. We welcome all enquiries and provide expert advice and assistance with any aspect of accessing and using J-PARC-MLF including:

- Planning an experiment - from concept to setup
- Instrument capabilities and performance - selecting the most appropriate beamline
- Proposal preparation
- Experiment support and data analysis
- Provision of other specialist information

To contact us or find out more about CROSS-Tokai, please visit [www.cross-tokai.jp](http://www.cross-tokai.jp) and click on the CROSShelp icon.
The Public Beamline at J-PARC

**Experimental Hall 2**

- **BL15 TAIKAN 大観**
  Small and Wide Angle Neutron Scattering Instrument
  Structural analysis on the sub-nano to micron scale of soft matter, biomolecules, metals and magnetic materials

- **BL17 SHARAKU 写楽**
  Polarized Neutron Reflectometer
  Structural analysis of surfaces and buried interfaces in functional thin film materials, biological membranes etc.

- **BL18 SENJU 千手**
  Extreme Environment Single Crystal Neutron Diffractometer
  Crystal and magnetic structure analysis of functional materials

**Experimental Hall 1**

- **BL11 PLANET**
  High-Pressure Neutron Diffractometer
  Structural analysis and radiography of liquids and crystalline materials under extreme pressure and temperature conditions

- **BL02 DNA**
  Biomolecular Dynamics Spectrometer
  Measurement of atomic motion and spin dynamics (in magnetic systems) of bio-macromolecules, soft matter and functional materials

- **BL01 4SEASONS 四季**
  4D-Space Access Neutron Spectrometer
  Measurement of spin and lattice dynamics and magnetic excitations in strongly correlated electron and low-dimensional spin systems

- **BL22 RADEN 螺鈿**
  Energy Resolved Neutron Imaging System
  Visualization of the spatial distribution of crystal structures, nuclides and magnetic domains by neutron transmission imaging and 3D reconstruction

Proton beam

Neutron production target
How to access the J-PARC MLF beamline

Types of proposals

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**Types of proposals**

- **Regular Proposals**: Two submission rounds per year. Approved proposals valid for 6 months. Open to applicants from universities, public research organizations and private industry.
- **Long-term Proposals (in preparation)**: Accepted in the regular submission rounds. High-quality proposals that require a longer term outlook to achieve their scientific goals.
- **Urgent**: Proposals that demand immediate access due to pressing scientific or social importance. May be submitted at any time.
- **Rapid Access (in preparation)**: For short notice access faster than the regular submission rounds allow. Expected to take applications before each accelerator operations cycle.
- **Elements Strategy Initiative Projects**: Special beamtime reserved for projects supported by the Elements Strategy Initiative of MEXT targeting the characterization and evaluation of: magnetic materials; catalysts and battery materials; electronic materials; and structural materials.
- **Trial Use**: Provides an opportunity for novice users of pulsed neutrons - academic or industrial - to access the facility. Proposals are accepted twice yearly, in advance of the regular application deadlines. CROSS staff assist with proposal preparation, post-experiment data analysis etc.

**STEP 1: Consultation**

For information about the neutron beamlines at J-PARC or assistance with any aspect of accessing these facilities, feel free to contact the CROSS-Tokai Science Coordinators.

**Science Coordinators**
E: user_question@cross.or.jp
T:+81 29-219-5300
F:+81 29-219-5311

**STEP 2: Proposal submission**

Submit a proposal online via the J-PARC Proposal Submission System at https://jpms.j-parc.jp/j-pas/auth/menu.jsp
All non-proprietary proposals are assessed by the Proposal Evaluation Committee

**STEP 3: Administrative requirements**

Once your proposal has been approved, complete the administrative requirements online via the J-PARC User Support System at https://jrs.j-parc.jp/usjparc/ui/index_E.jsp
For more detail, please http://j-parc.jp/researcher/MatLife/en/applying/index3.html

**STEP 4: Using the beamline**

**STEP 5: After the experiment**

After your beamtime, complete the post-experiment administrative requirements
* Submit a Beamtime Completion Report
* Submit an Experiment Report within 60 days (non-proprietary proposals)

For more details please see

Non-proprietary Proposals
There is no charge for MLF beamtime on the condition that experimental results are made public. As part of this process, non-proprietary users are required to submit to J-PARC Center an Experiment Report within 60 days of the completion of their beamtime. This report will be published in the annual MLF Activity Report.

Proprietary Proposals
A time-based fee is charged for proprietary use of MLF beamtime. In this access mode, the MLF reserves the right to assess the proposal for safety and technical feasibility.

ESI Center Proposals

Non-proprietary proposals