

World Premier International Research Center Initiative (WPI)

Advanced Institute for Materials Research (AIMR)

The Advanced Institute for Materials Research (AIMR) at Tohoku University is one of nine World Premier International Research Centers Initiative (WPI) Program established with the support of the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT), aimed at developing world-class research bases in Japan. After its establishment in 2007, AIMR has been active in conducting research activities and creating new systems in order to become a global center for materials science. Since 2012, AIMR has also been conducting fundamental research by finding connections between materials science and mathematics. Through prediction, AIMR aims to formulate new scientific principles that can enable the development of materials. In order to ensure that the advanced materials that have been developed play a useful role in society, AIMR is also engaged in the development of devices and systems that make use of these materials. AIMR's mission is to contribute to the resolution of resource and environmental problems caused by human beings.

Bulk Metallic Glasses

This division is dedicated to the cutting-edge research of advanced non-equilibrium metallic materials including amorphous, quasicrystalline and nanostructured metals and alloys that exhibit unique and superior physical, chemical and mechanical properties.

Materials Physics

Exploring and understanding innovative materials for electronic devices are the key targets in the research of division.

Soft Materials

Synthesis, characterization and evaluation of soft materials, such as organo- π -electronic devices, gel, polymer composites, microporous polymer films, and nano-structured materials catalysts, are key issues of this division.

Device/System

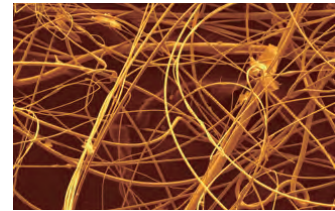
Our Device/system group consists mainly of spintronics, electronics, MEMS materials and bio device laboratories. Fabrication of innovative materials and developing them to devices are key target of our group.

Mathematics Unit

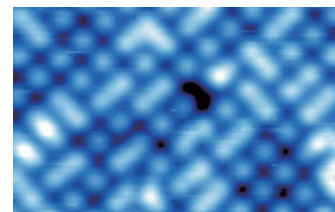
Mathematical Unit gives a viewpoint beyond various levels of hierarchy of the outcomes of materials science and builds a new scientific principle in cooperation with Groups of Bulk metallic glasses, Materials physics, Softmaterials and Device/System.

Interface Unit

The Interface Unit is made up of eight young theorists in the fields of physics and chemistry. These researchers are not affiliated with a specific research laboratory, but participate in multiple projects in their role as the bridges that connect the mathematicians and the experimental materials scientists.



Gas atomization allows the massive production of amorphous alloy nanofibers.



Atomic-scale scanning tunneling microscope (STM) image of a SrTiO₃ thin film

Grants for Excellent Graduate Schools

The Grants for Excellent Graduate Schools is a MEXT program which aims to promote the creation of an environment that brings forth researchers capable of taking an active role on the global stage and attracts excellent students by providing an environment where doctoral students can concentrate on their studies and research.

Year	Center	Participating Departments
FY 2013	Materials Integration International Center of Education and Research	Graduate School of Engineering (Department of Materials Processing, Department of Materials Science, Department of Metallurgy, Department of Applied Physics), Graduate School of Science (Major of Physics), Graduate School of Environmental Studies (Department of Environmental Studies)
	International Center of Research and Education for Molecular Complex Chemistry	Graduate School of Science (Major of Chemistry), Graduate School of Engineering (Department of Applied Chemistry, Department of Biomolecular Engineering, Department of Chemical Engineering, Department of Applied Physics), Graduate School of Pharmaceutical Sciences (Molecular Pharmaceutical Science), Graduate School of Agricultural Science (Division of Bioscience and Biotechnology for Future Bioindustries), Graduate School of Life Sciences (Department of Biomolecular Sciences), Graduate School of Environmental Studies (Department of Environmental Studies)
	Center of Education and Research for Information Electronics Systems	Graduate School of Engineering (Department of Communications Engineering, Department of Electronic Engineering), Graduate School of Information Sciences (Department of Computer and Mathematical Sciences, Department of System Information Sciences, Department of Applied Information Sciences)
	Global Nano-Biomedical Engineering Education and Research Network Centre	Graduate School of Biomedical Engineering (Department of Biomedical Engineering), Graduate School of Engineering (Department of Bioengineering and Robotics, Department of Electronic Engineering), Graduate School of Medicine (Major of Medical Sciences)
	Advanced Institute for Materials Research	Graduate School of Sciences (Major of Physics, Major of Mathematics, Major of Chemistry), Graduate School of Engineering (Department of Nanomechanics, Department of Electronic Engineering, Department of Applied Chemistry, Department of Chemical Engineering, Department of Biomolecular Engineering, Department of Materials Science), Graduate School of Environmental Studies (Department of Environmental Studies)
	Graduate School of Engineering / Department of Materials Science	Graduate School of Engineering (Department of Materials Science)
	Global COE for Conquest of Signal Transduction Diseases with "Network Medicine"	Graduate School of Medicine (Major of Medical Sciences)
	Weaving Science Web beyond Particle-Matter Hierarchy	Graduate School of Science (Major of Mathematics, Major of Physics, Major of Astronomy), Graduate School of Arts and Letters (Major of Humane Studies)
	Global Education and Research Center for Earth and Planetary Dynamics	Graduate School of Science (Major of Earth Science, Major of Geophysics), Graduate School of Environmental Studies (Department of Environmental Studies), Graduate School of Engineering (Department of Civil and Environmental Engineering)
	Center for Ecosystem Management Adapting to Global Change	Graduate School of Life Sciences (Department of Environmental Life Sciences, Department of Developmental Biology and Neurosciences), Graduate School of Agricultural Science (Division of Biological Resource Sciences, Division of Life Sciences), Graduate School of Engineering (Department of Civil and Environmental Engineering), Graduate School of Economics and Management (Course of Economics and Management), Graduate School of Pharmaceutical Sciences (Major of Life Science)
	World Center of Education and Research for Trans-disciplinary Flow Dynamics	Graduate School of Engineering (Department of Mechanical Systems and Design, Department of Nanomechanics, Department of Aerospace Engineering, Department of Quantum Science and Energy Engineering, Department of Chemical Engineering, Department of Bioengineering and Robotics), Graduate School of Information Sciences (Department of Computer and Mathematical Sciences, Department of System Information Sciences), Graduate School of Environmental Studies (Department of Environmental Studies), Graduate School of Biomedical Engineering (Department of Biomedical Engineering)
	Gender Equality and Multicultural Conviviality in the Age of Globalization	Graduate School of Law (Major of Legal and Political Studies), Graduate School of Arts and Letters (Major of Linguistic Studies), Graduate School of Economics and Management (Course of Economics and Management)
	Graduate School of Life Sciences/Department of Developmental Biology and Neurosciences	Graduate School of Life Sciences (Department of Developmental Biology and Neurosciences)