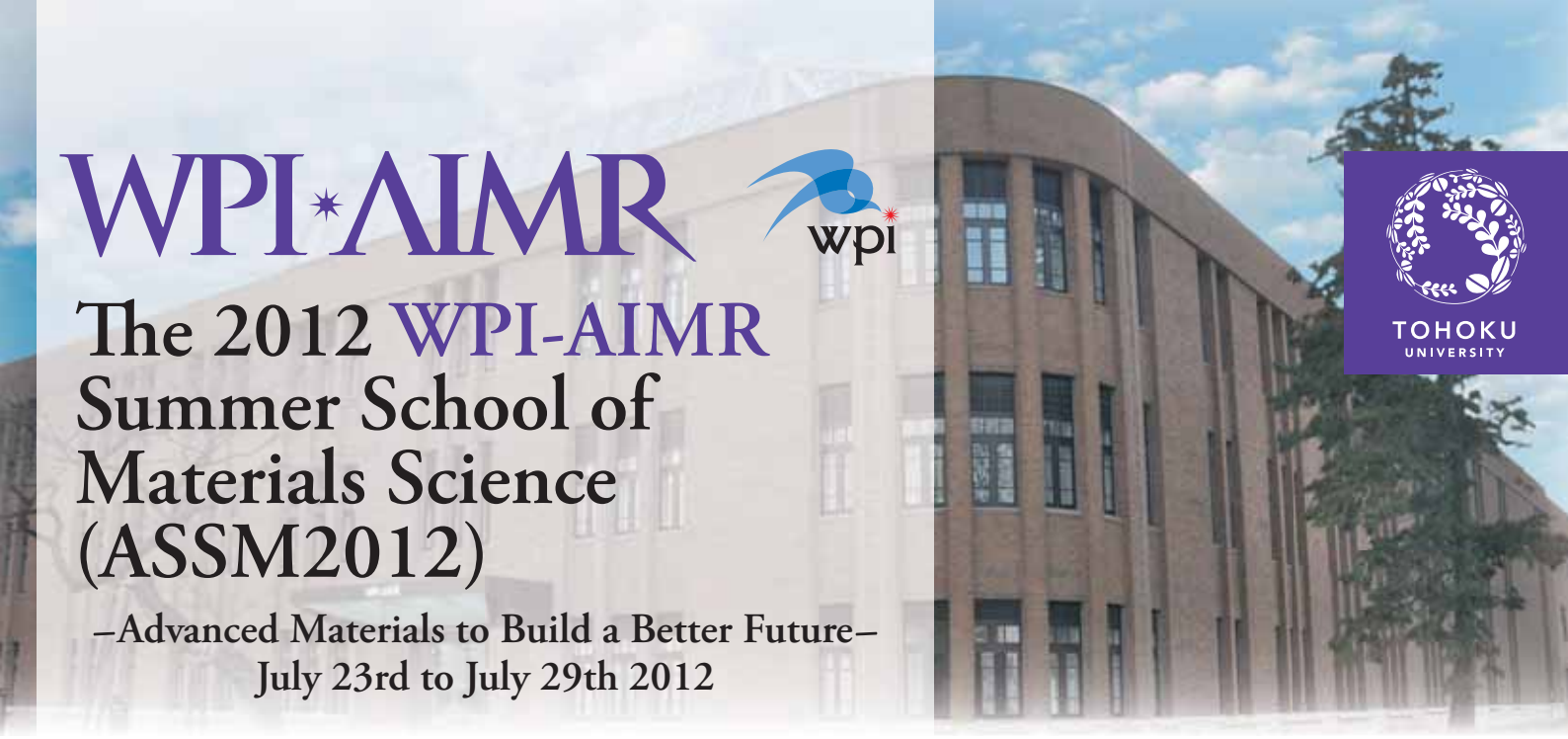

WPI·AIMR

The 2012 WPI-AIMR Summer School of Materials Science (ASSM2012)

–Advanced Materials to Build a Better Future–

July 23rd to July 29th 2012

About WPI-Advanced Institute for Materials Research (WPI-AIMR)

WPI-AIMR's top-class international researchers are adding new dimensions to the burgeoning field of materials science, as well as developing innovative functional materials and devices. The interdisciplinary research vigorously conducted there is based on atomic and molecular control. WPI-AIMR was established at Tohoku University in 2007 under the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT)'s World Premier International Research Center Initiative (WPI).
URL: http://www.wpi-aimr.tohoku.ac.jp/en/index.php

ASSM 2012

The WPI-AIMR Summer School offers a one-week graduate level summer program focusing on a given theme, such as "Materials Science." The program was designed to inspire and challenge graduate level students in the field of physics, chemistry, materials science, electrical engineering, precision engineering, mechanical engineering, etc. from all over the world. The program provides young professionals with lectures by world-leading researchers and laboratory courses at WPI-AIMR in accordance with the theme, and all instruction is performed in English.

(1) Morning lecture sessions

AIMR world-leading researchers will give a three-hour lecture (including break time) for four days and teach the fascination of Materials Science.

(2) Afternoon laboratory sessions:

1. Candidate students will select from 20 research fields (laboratories) at the time of application, and they will be separated into 15 groups in advance.
2. There are two students per group in principle
3. AIMR researchers will supervise the students in their laboratories for four days.

In addition, ASSM 2012 provides various activities that expose students to the attractiveness of Materials Science and enrich their academic experiences.

Application Procedures

To apply for this program, candidate students need to submit the following documents via email.

1. Application Form for ASSM 2012
2. Copy of your passport (PDF)
3. Copy of registration certificate at your university (PDF)

Eligibility

Applicants must be graduate students enrolled in full time graduate degree programs at their home universities. This program requires students to be fluent in English.

Credits

Participating students are required to take four lectures and laboratory courses in WPI-AIMR, which equate to 50 hours. On completing this requirement, the 2012 WPI-AIMR Summer School of Materials Science (ASSM 2012) should be two ECTS (European Credit Transfer System)* credits. These credits are not conferred at WPI-AIMR. Students who require credits for this program should inquire at their home universities.

*Note: ETCS credits are values allocated to course units to describe the student workload required to complete them. In ECTS, 60 credits represent one year of study (in terms of workload)

Number of Places

30 graduate students

Location

WPI-AIMR, Tohoku University, Sendai, Miyagi, Japan
Zao Royal Hotel, Zao-cho, Miyagi. Japan

Accommodation and Expenses

Accommodations will be provided, travel expenses (round-trip economy class airfare and rail fare for Shinkansen) will be covered, and costs of stay will be supported by WPI-AIMR.

Application Deadline: May 7, 2012

*Please send us the necessary documents by e-mail.
*If you do not receive a confirmation of receipt from us, please let us know.

Evaluation

Your application will be evaluated mainly based on your description of "4. Academic Details" and "5. Statement of Motivation" in the application form. We may contact your supervisor as the need arises.

Date of Announcement for Successful Applicants

Mid-May

Program Fee

Free (incl. tuition and field trip)
Travelers insurance, and daily expenses should be paid individually
Students are advised to prepare sufficient money for food and personal expenses.

Lecture sessions

No	Lecturer	Subject
Lecture1	Professor Kazue Kurihara	Surface Forces Measurement for Nano-Materials Science and Technology
Lecture2	Professor Katsumi Tanigaki	Functions of nano materials and their applications to Industries
Lecture3	Professor Mingwei Chen	Science and Technology of Nonequilibrium Materials
Lecture4	Professor Terunobu Miyazaki	Importance of magnetic materials and How to understand magnetism intuitively?

List of Laboratory Courses at WPI-AIMR

Group	No	Theme
Bulk Metallic Glasses	B-1	Making nano-sponge metals
	B-2	Preparation of superalloys (metallic glasses)
Materials Physics	M-1	Angle-resloved photoemission spectroscopy of Dirac-cone electronic states in layered functional materials
	M-2	Tranmission electron microscopy of thin films and nanoparticles
	M-3	Making new materials from heteroepitaxy
	M-4	Fluorescence Microscopy of Bio-Nanosystems.
	M-5	Fabrication and measurements of organic transistors
	M-6	Introduction to advanced Molecular Dynamics (MD) or Monte Carlo (MC) methods
	M-7	Introduction to numerical simulation of scanning probe microscopes (choice: STM, AFM, KPFM)
	M-8	Derivation of a density functional and its implementation to a first-principles calculation program
	M-9	Implementation of a method for the physical property which you want to evaluate using a first-principles calculation program
	M-10	Dynamics and structure of molecular liquids in confined systems: based on classical molecular dynamics simulations
Soft Materials	S-1	Fabrication and catalytic properties of nanoporous metals
	S-2	AFM-based Elasticity Mapping on Soft Materials
	S-3	AFM-based Force Spectroscopy of Single Polymer Chain
	S-4	Synthesis and Characteristics of Nanoparticles
Device/ System	D-1	Fabrication and characterization of magnetoresistive spin devices
	D-2	Dielectrophoresis technique for microscale organization of cells and microparticles
	D-3	Fabrication of hydrogels for cells encapsulation and drug delivery
	D-4	Preparation of stable single layer graphene oxide solution

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