

INSd Summer School 2026, Osaka-Tsukuba

(Summer Lectures in 2026 on Nanotechnology/Nanoscience)

2 lectures: Live-hybrid (on site and on line)
during July 21 and 31

R³ Institute for Newly-Emerging Science Design, the University of Osaka, opens the INSd Summer School 2026 on Nanoscience and Nanotechnology, where two lectures are provided by live-hybrid and on-demand styles. This summer school is aimed at fostering international young talent in nanoscience and nanotechnology. Each set of lectures is composed of seven or eight classes during July 21st and 31st, 2026. In principle, lectures will be given as a live-hybrid (on site face-to-face and online) style. However, students can access the on-demand style lectures in case they cannot attend. These students should finish viewing a series of lectures during the specified period and are requested, just after each lecture, to submit the answer to the short question raised during each of lectures to ensure the attendance. Final examination of both lectures will be, in principle, executed as the live-hybrid style with the participation of the lecturers. ZOOM or Webex system will be used for hybrid and on-demand lectures. In this year, lecturers in the University of Osaka will give talks in person at Toyonaka campus. We strongly recommend all the students from the University of Osaka to participate in the lectures at the site (Toyonaka Co-Creation Building A at Toyonaka Campus). The lecture documents and recorded lectures will be uploaded to the homepage of R³ center.

URL: <http://www.insd.osaka-u.ac.jp/>

■ Lecturers:

Dr. Simon Chouteau, Dr. Pierre Vinchon, Dr. Nicolas Mauchamp, and Dr. Lucas Spiske

(R³ Institute of Newly-Emerging Science Design, The University of Osaka)

Prof. Marie D'angelo

(Institute for NanoSciences of Paris, Sorbonne University, France)

Schedule and abstracts of lectures are shown on the second page.

■ **Lecture Room:** (Toyonaka Campus) R.N. 305, INSd Seminar Room, 3rd floor of Toyonaka Co-Creation Building A (Old Name: Interdisciplinary Research Building).

■ **Applicants:** Although the priority is given to graduate-school students who take “Graduate Minor Program or Graduate Program for Advanced Interdisciplinary Studies for Education, Research and Training on Nanoscience and Nanotechnology” (hereafter, nano-program), “Interactive Material Science Cadet Program”, “Multidisciplinary PhD Program for Quantum Beam”, and “Honors Program in Science, Engineering and Informatics”, there is plenty of room for other domestic and foreign graduate and undergraduate students and staff members are welcome. Homework exercises and final test (student presentation) will be imposed on graduate students who need credits. They are also requested to reply to short questions in case of on-demand lectures for the evidence of the viewing.

■ **Maximum number of topics and units of credit:** One unit of credit is given for International Exchange Lecture on Nano-science and Nano-engineering B (Lecture by Dr. S. Chouteau et al.) and one unit for C (Lecture by Prof. M. D'angelo). Graduate students can get up to two units of credit. Especially, foreign students desiring to take the nano- program, but being not good at Japanese, are requested to complete these two topics in order to transfer two units of credit to the otherwise required module, “Nanotechnology Career-up Lectures for Social, Legal, Ethical Relationship”.

■ **Deadline and method of application:** Register the application either in Japanese or in English via;
(for students in the University of Osaka)

(FORMS URL) <https://forms.cloud.microsoft/r/ENcesVExYK?origin=lprLink>

Registration deadline is July 15th.

You will receive information on how to access the website for the lecture documents and recorded lectures.

■ Lecture Schedule (about 90 minutes per one lecture)

Dr. Simon Chouteau, Dr. Pierre Vinchon Dr. Nicolas Mauchamp, Dr. Lucas Spiske Prof. Marie D'angelo	Live-hybrid (on site and online)	Lectures from Osaka
Prof. Marie D'angelo	Live-hybrid (on site and online)	

Dr. Simon Chouteau et al. (7/21 – 7/24) and Prof. Marie D'angelo (7/27-7/31)

Time/date	7/21 (Tue)	7/22 (Wed)	7/23 (Thu)	7/24 (Fri)		7/27 (Mon)	7/28 (Tue)	7/29 (Wed)	7/30 (Thu)	7/31 (Fri)
10:45-12:19	1	3	5	7			2	4	6	8
13:30-15:04	2	4	6	8		1	3	5	7	

■ Lecturers, Titles and Abstracts of Lectures

Lecture name: International Exchange Lecture on
Nanoscience and Nanoengineering B
(International Exchange Special Lecture 2)
講義名 : 国際ナノ理工学特論B

Fundamentals of Material Modifications by Low-Pressure Plasma : Experimental and Theoretical Perspectives

Dr. Simon Chouteau, Dr. Pierre Vinchon, Dr. Nicolas
Mauchamp, and Dr. Lucas Spiske
(R3 Institute of Newly-Emerging Science Design, The
University of Osaka)

- Introduction to plasma physics
- Plasma-surfaces interactions
- Atomic-scale modeling: Introduction to molecular dynamics
- Introduction to Density Functional Theory
- State of the art of Density Functional Theory
- Molecular dynamics: Application to plasma-surfaces interactions
- 2D materials modifications by low-pressure plasma
- Low-pressure plasma modeling and diagnostics.

Lecture name: International Exchange Lecture on
Nanoscience and Nanoengineering C
(International Exchange Special Lecture 2)
講義名 : 国際ナノ理工学特論C

Probing Electrons in Solids: A Comprehensive Lecture Series on Photoemission Spectroscopy

Prof. Marie D'angelo

(Institute for NanoSciences of Paris, Sorbonne University,
France)

- Fundamentals of photoemission: Basic principles and experimental aspects, including X-ray generation
- Core-level photoemission: Probing localized electronic states for the chemical analysis of solids
- Band dispersion: Angle-resolved photoemission spectroscopy for determining the electronic structure of crystalline materials
- Advanced methods: Recent developments in photoemission, including time-resolved, spin-resolved, and near-ambient-pressure photoemission

R³ Institute for Newly-Emerging Science Design
(INSD), University of Osaka

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E-mail: nano-program_2@office.osaka-u.ac.jp

Website: <http://www.insd.osaka-u.ac.jp>

INSO 夏の学校 2026, Osaka-Tsukuba

(Summer Lectures in 2026 on Nanotechnology/Nanoscience)

2 lectures: Live-hybrid (on site and on line)
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大阪大学エマージングサイエンスデザイン R³ センターでは、毎年、海外を含めトップ大学で行われている大学院レベルのナノ理工学関連の基礎および最先端技術の講義を英語で直接聴講できる INSD 夏の学校を開講しています。今年度は、7月21日から7月31日までの間に1テーマあたり7~8コマで2テーマの講義を実施します（今年度は阪大から2テーマ）。原則として2テーマとも各学生による発表形式の最終試験は講師参加の下に、“対面”およびライブ・ハイブリッド生中継で行う予定です。

本企画は、国際性に富んだナノ理工学若手人材の育成を目的としており、「ナノテクキャリアアップ特論（前期講義）」と同様に TIA（つくばイノベーションアリーナ）連携大学院の筑波大学大学院数理物質科学研究科との共催で開催します。最終の試験は大阪大学と筑波大学の学生が合同で参加します。講義資料と録画された講義はパスワード付の電子ファイルとして提供されます（URL: <http://www.insd.osaka-u.ac.jp>）。

阪大側の講師は豊中キャンパス豊中共創棟 A（旧 文理融合棟）で“対面”で講義を行います。この2コースへの阪大からの参加者は豊中共創棟 A で直接聴講されることを強くお勧めします。

■ 講師：（講義の詳細は次ページに掲載）

大阪大学： **Dr. Simon Chouteau, Dr. Pierre Vinchon, Dr. Nicolas Mauchamp, and Dr. Lucas Spiske**
(R3 Institute of Newly-Emerging Science Design, The University of Osaka)
Prof. Marie D'angelo
(Institute for NanoSciences of Paris, Sorbonne University, France)

■ 講義場所： 豊中キャンパス 豊中共創棟A 3階305号室（セミナー室）（およびライブ生中継）

■ 受講対象者： ナノ高度学際教育研究訓練プログラム高度副プログラム、副専攻プログラム（ナノプログラム）とカデットプログラム、卓越大学院、理工情報系オーナー大学院プログラムの大学院学生、OUICP-nanoの短期留学生を優先しますが、その他の留学生を含む大学院生、学部生、研究生、教職員の聴講も歓迎します。単位を希望する大学院生には、毎回の短い質問に対する出席レポートなどが課される場合があります。

■ 受講テーマ数と単位認定： 受講テーマ数は制限しませんが、単位認定に関して院生は2テーマまで認め、いずれか1テーマ履修で国際ナノ理工学特論B又はC（大学院1単位）が授与されます。なお、高度副プログラム（ナノプログラム）履修希望者でナノテクキャリアアップ特論の履修が語学上困難な留学生には、申告により本講義単位との振替え制度があります。詳しくはナノプログラム事務局にお問い合わせください。

■ 申し込み方法： 単位を希望する場合は以下の URL から期日までに登録ください。

▶ <https://forms.cloud.microsoft/r/ENcesVExYK?origin=lpLink>

登録された方には、講義資料、講義へのアクセス方法をお知らせします。

登録締切： 7月15日（水）

■ 講義日程 (about 90 minutes per one lecture)

Dr. Simon Chouteau, Dr. Pierre Vinchon Dr. Nicolas Mauchamp, Dr. Lucas Spiske Prof. Marie D'angelo	Live-hybrid (on site and online)	Lectures from Osaka
Prof. Marie D'angelo	Live-hybrid (on site and online)	

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■ 講師と講義内容

講義名：国際ナノ理工学特論 B

Lecture name: International Exchange Lecture on
Nanoscience and Nanoengineering B
(International Exchange Special Lecture 2)

**Fundamentals of Material Modifications by
Low-Pressure Plasma : Experimental and
Theoretical Perspectives**

**Dr. Simon Chouteau, Dr. Pierre Vinchon, Dr.
Nicolas Mauchamp, and Dr. Lucas Spiske
(R3 Institute of Newly-Emerging Science Design, The
University of Osaka)**

- Introduction to plasma physics
- Plasma-surfaces interactions
- Atomic-scale modeling: Introduction to molecular dynamics
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- Molecular dynamics: Application to plasma-surfaces interactions
- 2D materials modifications by low-pressure plasma
- Low-pressure plasma modeling and diagnostics.

講義名：国際ナノ理工学特論 C

Lecture name: International Exchange Lecture on
Nanoscience and Nanoengineering C
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**Probing Electrons in Solids: A Comprehensive
Lecture Series on Photoemission Spectroscopy**

Prof. Marie D'angelo

(Institute for NanoSciences of Paris, Sorbonne University,
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- Fundamentals of photoemission: Basic principles and experimental aspects, including X-ray generation
- Core-level photoemission: Probing localized electronic states for the chemical analysis of solids
- Band dispersion: Angle-resolved photoemission spectroscopy for determining the electronic structure of crystalline materials
- Advanced methods: Recent developments in photoemission, including time-resolved, spin-resolved, and near-ambient- pressure photoemission

問い合わせ先
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