

AMENDMENT "1 June 2023"

to the

MEMORANDUM OF UNDERSTANDING

on the

**"Investigation of novel materials, thin films, and
chemical physics of solids"**

between

the National Tsing Hua University

No. 101, Section 2, Kuang Fu Road, Hsinchu 300044, Taiwan

represented by

the College of Science of the National Tsing Hua University

No. 101, Section 2, Kuang Fu Road, Hsinchu 300044, Taiwan

and

the Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V.

Hofgartenstrasse 8, 80539 München, Germany

represented by

the Max-Planck-Institute for Chemical Physics of Solids

Nöthnitzerstrasse 40, 01187 Dresden, Germany

Purpose : The purpose of this Amendment to the MOU is to attach "Annex 2" which contains the resumption and extension of the MOU, the inclusion of the National Tsing Hua University / College of Engineering (hereafter referred to 'NTHU/CoE'), and / Center For Nanotechnology, Materials Science, and Microsystems (hereafter referred to 'NTHU/CNMM'), and an update of the MPI CPfS experimental facilities at the National Synchrotron Radiation Research Center.

The parties hereby agree to the terms in the Annex 2 (Attachment).

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED AND IN FULL FORCE AND EFFECT.

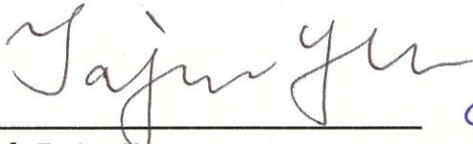
IN WITNESS WHEREOF, the parties have executed this Amendment this 1st June, 2023.

Place and date :

Hsinchu, Taiwan

On behalf of the

National Tsing Hua University



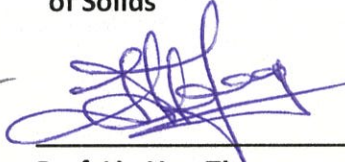
Prof. Ta-Jen Yen
(Vice President for Global Affairs)

Place and date :

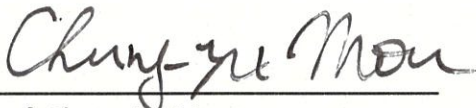
Dresden, Germany

On behalf of the

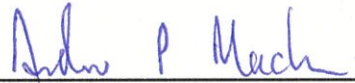
Max-Planck-Institute for Chemical Physics
of Solids



Prof. Liu Hao Tjeng
(Managing Director)



Prof. Chung-Yu Mou
(Dean, College of Science)



Prof. Andrew P. Mackenzie
(Director)



Prof. Hung-Yin Tsai
(Dean, College of Engineering)



Prof. Ying-Hua Chu
(Director, Center for Nanotechnology,
Materials Science, and Microsystems)

Annex 2

The purpose of the Annex 2 is to describe the resumption and extension of the Memorandum of Understanding (MoU), the inclusion of the National Tsing Hua University / College of Engineering (hereafter referred to 'NTHU/CoE'), and / Center For Nanotechnology, Materials Science, and Microsystems (hereafter referred to 'NTHU/CNMM'), and an update of the MPI CPfS experimental facilities at the National Synchrotron Radiation Research Center (NSRRC).

- (1) The MPI CPfS and the NTHU/CoS agree to resume the MoU and to extend the MoU for another 5 years: 01.06.2023 – 31.05.2028.
- (2) The MPI CPfS, the NTHU/CoE, and the NTHU/CNMM agree that the NTHU/CoE and the NTHU/CNMM participate in the research program on the "Investigation of novel materials, thin films, and chemical physics of solids" under the conditions of the aforementioned MoU concluded between the MPI CPfS and the NTHU/CoS on February 18, 2016.
- (3) The MPI CPfS, the NTHU/CoS, the NTHU/CoE, and the NTHU/CNMM agree to update of the MPI CPfS experimental facilities listed in the Annex 1.

The Annex 1 -- Access to the MPI CPfS Experimental Stations at NSRRC:

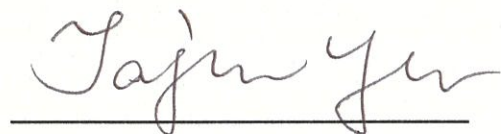
The MPI CPfS has several experimental facilities at the NSRRC. An ultra-high-vacuum (UHV) soft-x-ray absorption (XAS) system is stationed at the Dragon beamline of the NSRRC Taiwan Light Source. The MPI CPfS has a hard-x-ray photoelectron spectroscopy (HAXPES) system at the BL12XU beamline of the NSRRC at Spring-8 in Japan. The MPI CPfS has also a new sub-micron and ultra-high resolution soft-x-ray spectroscopy beamline (TPS 45A1) at the new NSRRC Taiwan Photon Source. This beamline is equipped with a UHV angle-resolved photoemission (ARPES) system with 2D mapping capability and a molecular-beam-epitaxy (MBE) chamber for the in-situ preparation of oxide thin films. Two versatile and user-friendly in-vacuum transferring systems are installed as well, facilitating NTHU parties to dock their own preparation chambers and/or thin film growth systems. Furthermore, the MPI CPfS and the NSRRC are currently constructing a beamline branch (TPS 45A3). In the near future, the MPI CPfS will be installing a 2-D Vector Superconducting Magnet end station, and a Spin-resolved ARPES end station at the TPS 45A3. These modern experimental facilities will be made available to the qualified PhD students for carrying out their thesis research programs.

Place and date :

Hsinchu, Taiwan

On behalf of the

National Tsing Hua University



Prof. Ta-Jen Yen

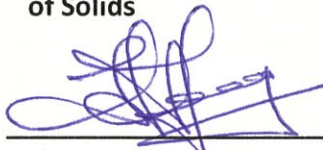
(Vice President for Global Affairs)

Place and date :

Dresden, Germany

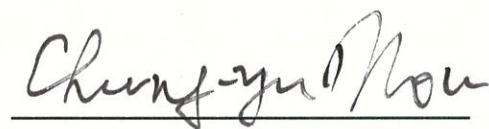
On behalf of the

Max-Planck-Institute for Chemical Physics
of Solids



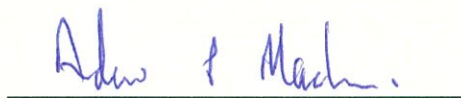
Prof. Liu Hao Tjeng

(Managing Director)



Prof. Chung-Yu Mou

(Dean, College of Science)



Prof. Andrew P. Mackenzie

(Director)



Prof. Hung-Yin Tsai

(Dean, College of Engineering)



Prof. Ying-Hao Chu

(Director, Center for Nanotechnology,
Materials Science, and Microsystems)

FEBRUARY 23, 2016

MEMORANDUM OF UNDERSTANDING

on the

**"Investigation of novel materials, thin films, and
chemical physics of solids"**

between

**the National Tsing Hua University
No. 101, Section 2, Kuang Fu Road, Hsinchu 30013, Taiwan
represented by
the College of Science of the National Tsing Hua University
No. 101, Section 2, Kuang Fu Road, Hsinchu 30013, Taiwan**

and

**the Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V.
Hofgartenstrasse 8, 80539 München, Germany (referred to as 'MPG')
represented by the Managing Director of
the Max-Planck-Institute for Chemical Physics of Solids
Nöthnitzerstrasse 40, 01187 Dresden, Germany**

The National Tsing Hua University / College of Science (hereafter referred to as 'NTHU/CoS') and the Max-Planck-Gesellschaft zur Förderung der Wissenschaften e.V./ Max Planck Institute for Chemical Physics of Solids (hereafter referred to as 'MPI-CPfS'), (NTHU/CoS and MPI-CPfS hereafter referred to as 'Parties') recognizing the high potential of cooperation between the NTHU/CoS and the MPI-CPfS in the field of novel materials, thin films and chemical physics of solids, and recognizing the desire of the scientists of these Parties to conduct joint research and training of PhD students, agree to support and strengthen cooperation by the establishment of the research program on the "Investigation of novel materials, thin films and chemical physics of solids".

Article I

The research program will deal with research and training of PhD students in novel materials, thin films and chemical physics of solids. The objectives as well as the scientists, research units, institutes and departments of the Parties participating in the research program and their respective intended contributions are specified in Annex 1.

Article II (Collaborative Activities)

Under this MOU, the following collaborative activities are planned:

- a) joint research projects and PhD training conducted by scientists or groups of scientists of both Parties;
- b) joint seminars, symposia, and other scientific meetings;
- c) exchange of scientists between the research institutes involved;
- d) other cooperative activities needed for implementing the joint research.

The initiative for and the planning of the collaborative activities will be taken by scientists of both Parties and coordinated by them.

Contact person for the MPI-CPfS is : Prof. Dr. L. H. Tjeng

Contact person for the NTHU/CoS is : Prof. Dr. R. S. Liu

Article III (Reciprocity)

All collaborative activities shall be based on reciprocity and should be performed on a basis of mutuality and equality insofar as possible.

Article IV (Implementation)

The operation of the collaboration is subject to the budgetary appropriations available to each Party and the applicable laws and regulations of both Parties. Neither Party is obligated to perform any activities under this MOU unless and until adequate and appropriate funding has been secured. Both Parties have approved and assigned funding for the project collaboration within the term of this MOU (see Art. VIII).

Article V (Confidentiality and Handling of Information)

The Parties undertake to treat all documents marked "secret", "proprietary" or the like in whatever language and other details which are made accessible bilaterally in a confidential manner and to keep them secret from any third party. The Parties shall ensure that its employees, Grant holders and interns are bound to the non-disclosure and confidentiality obligations set out hereunder. The Parties shall be obliged to keep such information confidential during the term of this MOU. This restriction shall not apply in case the information is or has become common knowledge through publications issued by third parties or in another manner, the respective Party to the MOU has explicitly consented to publication or the confidential information has been developed by the receiving Party as evidenced by its records.

All information and/or research materials held by one Party prior to the commencement of, during or outside the scope of the collaborative activities and provided to the other Party in the course of the collaborative activities shall remain the property of the providing Party, shall be kept confidential by the receiving Party, and shall not be disclosed to any third party or used for any purpose other than the collaborative activities hereunder without prior written approval from the providing Party.

Article VI (Publication)

In principle, both Parties shall jointly publish the results of their joint activities. In the event of sole publication by either Party, the written consent of the other institution shall be obtained prior to such publication; such consent shall not unreasonably be withheld. In such a case, the contribution of the other Party shall be acknowledged in accordance with internationally accepted practice.

Article VII (Intellectual Property Rights)

All intellectual property solely conceived and/or developed by the MPG during the course of this MOU shall be owned by the MPG. Following individual agreements with Grant holders and interns, the MPG will acquire nonexclusive, transferable, and cost-free exploitation rights to the research results of the Grant holders done in conjunction with the Institute for its own scientific purposes (research and teaching). All intellectual property solely conceived and/or developed by the NTHU during the course of this MOU shall be owned by the NTHU. Intellectual property jointly conceived and/or developed by the MPG and the NTHU will be jointly owned by the MPG and the NTHU. Their contributions to the jointly generated intellectual property shall be determined by the importance of their intellectual contribution to the jointly generated work result of the collaborative activities. Each Party may use such property for research and scholarly purposes. Both Parties agree to collaborate in the protection, if appropriate, and application of such intellectual property for commercial or other purposes on mutually acceptable terms to be negotiated in good faith between the Parties.

Article VIII (Term of the MOU)

This MOU shall be valid for a period of five years – April 1, 2016 until March 31, 2021 - based on the signatures of the representatives of both Parties. The MOU is extendable upon mutual written agreement.

Article IX (Amendment)


This MOU may be amended by mutual written agreement of both Parties.

This MOU is documented in two originals in English, both texts being equally valid.

Place and date:

Hsinchu, Taiwan

On behalf of the
National Tsing Hua University



Prof. Dr. Rai-Shung Liu
(Dean, College of Science)



Prof. Dr. Cheng-Wen Wu
(Senior Vice President of Academic Affairs)

Place and date: 23 Feb 2016

Dresden, Germany

On behalf of the
Max-Planck-Gesellschaft / Max-Planck-
Institute for Chemical Physics of Solids



Prof. Dr. Liu Hao Tjeng (Director)



Prof. Dr. Claudia Felser (Managing Director)

Annex 1

The Purpose of the Memorandum

The objective of this Memorandum is to establish a framework of cooperation between the MPG/MPI-CPfS and the NTHU/CoS for research in the field of solid state physics and chemical physics of solids. Included is also the corresponding development of advanced methodologies using synchrotron radiation. In focus is the investigation of novel materials, including thin films, with new properties. Training of PhD students is an important part of the cooperation.

Co-Supervision of PhD Students

The MPI-CPfS will offer stipends to up to three qualified PhD students from the NTHU/CoS at any particular time to do their research at the MPI-CPfS under co-supervision. The students accepted in this program should have passed the NTHU/CoS departmental qualification with identified thesis research advisors. The students will receive the PhD diploma from the NTHU/CoS together with a certificate from the MPI-CPfS. The MPI-CPfS will also offer internships to up to six qualified undergraduate and graduate students from the NTHU/CoS per annum to do their summer internship at the MPI-CPfS.

Access to the MPI-CPfS Experimental Stations at NSRRC

The MPI-CPfS has several experimental facilities at the NSRRC. A multi-purpose ultra-high-vacuum soft-x-ray absorption (XAS) and angle-resolved photoelectron spectroscopy (ARPES) system is stationed at the Dragon beamline of the NSRRC Taiwan Light Source. This system is also equipped with a molecular-beam-epitaxy (MBE) chamber for the in-situ preparation of the oxide thin films. The MPI-CPfS has recently also constructed and commissioned a new polarization-dependent hard-x-ray photoelectron spectroscopy (HAXPES) system at the BL12XU beamline of the NSRRC at Spring-8 in Japan. Furthermore, the MPI-CPfS is currently constructing a new sub-micron ultra-high resolution soft-x-ray spectroscopy beamline at the new NSRRC Taiwan Photon Source. This beamline will be equipped with an ultra-high-vacuum spin-resolved and angle-resolved photoemission chamber. These modern experimental facilities will be made available to the qualified PhD students for carrying out their thesis research program.

Participating Institutes

- The National Tsing Hua University in Hsinchu, Taiwan
The College of Science
- The Max Planck Institute for Chemical Physics of Solids in Dresden, Germany
Physics of Correlated Matter Department (Tjeng)

Place and date:

Hsinchu, Taiwan

On behalf of the
National Tsing Hua University

.....
Prof. Dr. Rai-Shung Liu
(Dean, College of Science)

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Prof. Dr. Cheng-Wen Wu
(Senior Vice President of Academic Affairs)

Place and date: 23 Feb 2016

Dresden, Germany

On behalf of the
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Prof. Dr. Hao Tjeng Liu (Director)

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Prof. Dr. Claudia Felser (Managing Director)