

# **Agreement of Friendship and Cooperation**

*Between*

**CNR-DMD**

*And*

**ROMA TOR VERGATA UNIVERSITY**

*And*

**SUN YAT-SEN UNIVERSITY**

*Concerning*

## **SCIENTIFIC COLLABORATION IN NEUTRON-SCATTERING RESEARCH, NUCLEAR SCIENCES & TECHNOLOGIES, AND TRAINING**

### **Purpose**

CNR-DMD and Roma Tor Vergata University (URTV) on behalf of *Centro NAST* and Sun Yat-Sen University (SYSU) on behalf of *the School of Physics and Engineering* (henceforth known as the parties) wish to collaborate in the area of neutron-scattering research, nuclear sciences & technologies and training as described below.

The collaboration adopts a philosophy of open communication, collaboration and leveraging of joint resources and expertise within the Parties.

The Parties, wishing to establish and stipulate the present understanding in view of the mutual interests and benefits through strengthening scientific collaborations, agree to the following:

### **Article 1 – Purpose**

SYSU, CNR-DMD and URTV wish to collaborate in the areas of neutron-scattering research, nuclear sciences & technologies, and training. Such collaboration will be effected on terms of equality and of reciprocal advantage, allowing the possibility of enhancing research capabilities by mutual consent in view of the resources available and experience acquired by the staffs of the Parties.

### **Article 2 – Areas of collaboration**

Collaboration may be in the areas of:

- Joint research on advanced materials using neutron scattering and development of nuclear instrumentation and methods including theory and computation;
- Mutual visits by faculty members and experts;

- Exchange of graduate students;
- Organization of educational meetings, seminars and courses on subject matters foreseen by the Parties;
- Sharing of information, documentation, and scientific publications.

### Article 3 – Approvals

This MOU will be subjected to approval of the competent offices and will come into force upon its stipulation, according to specific Work Plans.

### Article 4 - Funding

While the Parties intend to pursue the objectives defined in this Agreement, this Agreement does not constitute a commitment of funding or other resources by either Party. The Parties will provide the support for their staff to participate in agreed events. The Parties will be jointly responsible for facility costs when a school or meeting is held at the respective institutions.

### Article 5 - Duration

This agreement becomes effective when signed by the representatives of the all parties. It shall remain in effect for a period of five years, unless either university sends the other written notice of its intention to discontinue no less than one year in advance of the anniversary date.

### Authorized Signatures

Those individuals whose signatures appear below hereby certify that they are authorized to sign on behalf of the respective Parties to this Agreement. This Agreement will be executed in duplicate, and it is not effective until signed by both Parties.

SUN YAT-SEN UNIVERSITY  
on behalf of

School of Physics and Engineering  
Guangzhou 510275, China


By:   
  
 Name: Biao Wang  
 Title: Dean  
 Date: 2012.05.21

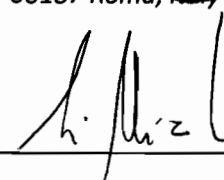
Roma Tor Vergata University  
on behalf of

Centro NAST  
00133 Roma, Italy

By:   
  
 Name: Renato Lauro  
 Title: Rector  
 Date: 21-05-2012

CNR-DMD  
Via Taurini

  
00187 Roma, Italy

By:   
 Name: LUIGI NICOLAIS  
 Title: PRESIDENT CNR  
 Date: 18/5/2012

## ANNEX I to MOU

2012.4.16. draft

1. The CNR-DMD and University of Rome Tor Vergata (UNITOV) on the Italy side and the Sun Yat-Sen University (SYSU) on the China side, hereafter known as the Parties, agree to collaborate in the research and development of supercritical water (SW), chip irradiation, and neutron imaging related programs in the interests of the Parties, the spallation source facility in UK (ISIS), the Sino-French Institute of Nuclear Engineering and Technology (SINET), and other participating organizations. CNR/UNITOV will act as a facilitator, enabling SYSU to access the ISIS beam time through joint experiment proposals submitted via the established ISIS *call for proposal gateway* within the CNR-STFC Agreement No. 06/20018 concerning collaboration in scientific research at ISIS.
2. As the first step, both parties will co-develop ancillary equipment for experiments to study the  $S(q, \omega)$  and  $n(p)$  of SW using the MARI and VESUVIO spectrometer, respectively, over a pressure-temperature range encompassing the thermodynamic pseudo-critical phase line. The Italy side will call on its expertise to aid the SW neutron measurements at ISIS. The China side will supplement its in-house research on coolant-fuel neutronics and thermohydraulics of SW-cooled reactors at SINET with the neutron data whenever deemed appropriate so as to enhance the impact of neutron-scattering application.  

The Parties will coordinate the research activities so as to meet the standard and requirement for using the ISIS beam lines. The Parties will communicate experimental results and data analysis, share expertise and jointly publish the research outcome.
3. The Parties recognize the expertise in neutron scattering on the Italy side and in nuclear power technology on the China side, hence the mutual benefit of exchange activities. Each party will seek funding to support exchange of staff and graduated students on short and long term basis for its own side.
4. In the second phase, the Parties will continue to further the collaboration to neutron chip irradiation and imaging technologies.