

## RECOMMENDATION

**Date:** April 10, 2014  
**To:** IUPAP Council  
**From:** Study Group on Soft Matter (Chair: Y. Fujii)  
**Subject:** Soft Matter in IUPAP

The Study Group on Soft Matter formed at the last IUPAP C&CC Meeting (Oct. 1-2, 2013; CERN, Geneva) has discussed intensively a way to formally accommodate the research field of “Soft Matter” in IUPAP among nominated members including soft matter scientists. It has been unanimously recommended that a new “Commission on Soft Matter (tentatively called)” shall be formed in IUPAP.

### 1. Background

At the IUPAP General Assembly (London, Nov. 2011), German delegates claimed that there is a substantial overlap between the Commissions C5 (Low Temperature Physics), C6 (Biological Physics), C8 (Semiconductors), C9 (Magnetism) and C10 (Structure and Dynamics of Condensed Matter) all covering aspects of condensed matter physics. They proposed to dedicate C10 specifically to the emerging field of soft matter physics. The name could be either “Commission on Soft Matter” or “Commission on the Structure and Dynamics of Condensed and Soft Matter”.

### 2. Assignment given to C10

In order to bring a recommendation on the action to be taken with this proposal, the IUPAP Council recommended that Chair of C10 (Y. Fujii) should consult C10 members and broader community.

C10 members (Appendix 1) exchanged their opinions on this issue mostly via e-mail and tentatively concluded as follows:

- (1) C10 has recognized the emerging soft matter as an important research field but nobody has agreed to such a proposal as C10 will be dedicated to soft matter, because C10 has covered important research fields, which are not covered by any other Commissions, such as superconductors, strongly-correlated systems, ferroelectrics, nano-materials, surface/interfaces, crystal growth, and defect/dislocation/impurities as well as large-scale facilities such as synchrotron radiation, neutron scattering and electron microscopes essentially important for the condensed matter physics.
- (2) The mandate of the C10 (Appendix 2) has explicitly stated research of ‘solid’ and ‘liquid’ states to be covered. Since ‘soft matter’ is situated between these two extremes, it is reasonable to understand that the present mandate covers implicitly ‘soft matter’ being a sub-field of condensed matter. Therefore, C10 welcomes soft matter by modifying its title and mandate so as to explicitly state the involvement of soft matter in C10.
- (3) However, any present C10 member’s research field surveyed is related neither to liquid nor to soft matter so that all are solid state physicists. Therefore, we should consult soft matter scientists and related Commission members for deeper consideration.

### 3. Study Group on Soft Matter

Under such a situation, the Study Group was formed at the last C&CC Meeting in CERN to come up with its recommendation to accommodate Soft Matter in IUPAP and report to the IUPAP Council as soon as possible. The relevant part of the Minutes is copied as below:

6.2.3. The issue of the need to accommodate the “Soft Matter Physics Community” cannot currently be addressed by creating a new working group as this would be too big a step to undertake without a mandate of the General Assembly. It is instead resolved that a “Study Group” on Soft Matter be created with the chair of C10 as its convener. The group should after further consultation with the relevant community table its report in the form of a recommendation to the council by the end of 2013. The recommendation could further be discussed before a final recommendation to the 2014 GA in line with Resolution 5 of the 2011 General Assembly.

#### (1) Members (14)

Soft matter scientists nominated by relevant Commissions are underlined with their affiliation while current Commission members are posted on the IUPAP Web site.

- Leihan Tang Nominated by C3 (Statistical Physics)  
(Hong Kong Baptist Univ., Hong Kong)
- Jean-Francois Joanny Nominated by C3  
(Institut Curie, France)
- Michael Rubinstein Nominated by C3  
(Univ. of North Carolina, USA)
- Kenichi Yoshikawa (Japan) Chair of C6 (Biological Physics)
- Aihua Xie (USA) Vice Chair of C6
- Helmut Grubmuller (Germany) Secretary of C6
- Robin Nicholas (UK) Chair of C8 (Semiconductors)
- Yasuhiko Fujii (Japan) : Chair Chair of C10 (Structure and Dynamics of Condensed Matter)
- Jiří Erhart (Czech Republic) Vice Chair of C10
- J. Raynien Kwo (Taiwan) Secretary of C10
- Sunil Sinha Nominated by C10  
(Univ. of California at San Diego, USA)
- Dieter Richter Nominated by C10  
(Jülich Centre for Neutron Science, Germany)
- Mahn Won Kim Nominated by C10  
(Gwangju Institute of Science and Technology (GIST), Korea)
- Alex Hansen (Norway) Chair of C20 (Computational Physics)

#### (2) Observers (2)

- Stefano Ruffo (Italy) Chair of C3
- Fridtjof Nüsslin (Germany) Chair of AC-4 (International Commission on Medical Physics)

### 4. Discussion and Conclusion

(1) All members of the Study Group were finalized in December 2013 based on nomination from relevant

Commissions as listed in Sec. 3.

- (2) The Chair of Study Group e-mailed all information on its mission and what was discussed in IUPAP previously to all members and observers (January 8, 2014).
- (3) Strong and prompt responses from members have been shared through e-mails (January – April, 2014) and their opinions are summarized as follows:
  - a. The fact that soft matter is highly interdisciplinary and soft matter community doesn't have a home in existing professional societies has created a major problem for exchange of ideas, collaboration etc. at the international level. Therefore, the current action of IUPAP's Study Group is highly appreciated by the soft matter community.
  - b. The partial involvement of soft matter in the present C10 is only a temporary step and will squeeze activities of the important research fields currently covered by C10 while the soft matter activities within C10 will be restricted.
  - c. According to the previous experience in the American Physical Society (APS), historically soft matter has been distributed among many units including Division of Condensed Matter Physics and then not properly represented. Recently the APS has established the Topical Group on Soft Matter (GSOFT).. It's also well known that the Physical Review E as an APS Journal has been dedicated to **statistical, nonlinear, and soft matter physics** since 1993.
  - d. In Europe the recognition of the importance of soft matter initiated by de Gennes et al. resulted in the formation of the European Network of Excellence SoftComp in 2004 as a platform for soft matter community. Under this network, there have been a series of the triennial International Soft Matter Conferences since 2007 with about 800 participants. This fact has led us to such a recognition as soft matter is now a well matured field.
- (4) Accordingly the present Study Group has reached the unanimous recommendation to the IUPAP Council that a new "Commission on Soft Matter" (tentatively called) shall be formed in IUPAP to promote this important field. Detailed structure, topics to be covered and relation to other Commissions must be more carefully considered to draft its mandate once the direction of this recommendation is approved.

**Appendix 1. Members of C10 (Commission on the Structure and Dynamics of Condensed Matter)**

(Term: 3 years, General Assembly in November 2011 – GA in November 2014)

Officers (3) :

Chair	Yasuhiko Fujii	(Japan)
Vice Chair	Jiří Erhart	(Czech Republic)
Secretary	J. Raynien Kwo	(Taiwan)

Members (11) :

Rob Robinson	(Australia)
Philippe Lambin	(Belgium)
Mu Wang	(China)
Claude Lecomte	(France)
Hartmut S. Leipner	(Germany)
Istvan Groma	(Hungary)
Vitaly Kveder	(Russia)
Joaquin Garcia-Ruiz	(Spain)
Jonas Fransson	(Sweden)
Najeh Thabet Mliki	(Tunisia)
Laura H. Greene	(USA)

Associate Member (1) :

TaeWon Noh	(Korea)
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## **Appendix 2. Mandate of C10**

### **Art. 1**

To promote the exchange of information and views among the members of the international scientific community in the general field of Condensed Matter Physics including:

1. the properties and behaviour of atoms and molecules in the liquid and solid states;
2. the characteristics of the solid and liquid states of matter including reduced dimensionality systems (in collaboration with other commissions as appropriate);
3. the modelling of condensed matter;
4. the application of condensed matter physics to technology.

### **Art. 2**

To recommend for Union sponsorship international conferences which qualify for support under Union regulations ([see IUPAP Coutumier](#)).

To initiate such conferences as their need arises from the evolution of the Commission field.

To assist in the organization of such conferences when practical. To ensure the compatibility of international conferences in its field and to discourage clashes and incompatibility of dates.

### **Art. 3**

To promote the free circulation of scientists; to assist conference organizers in ensuring such free circulation and in resolving potential infringements.

### **Art. 4**

To organize where feasible the award of medals or other testimonials of excellence in its field.

### **Art. 5**

To publish where feasible newsletters, circulars, occasional books, journals or handbooks in its area.

### **Art. 6**

To maintain liaison with other IUPAP Commissions, with the Commissions or Committees of other Unions or of the International Council of Scientific Unions (ICSU) or other scientific organizations, with a view to collaborating and cooperating in sponsoring joint conferences and to participating in joint projects when need arises.

In particular to maintain close liaison with the General Commissions of IUPAP (SUNAMCO, Physics Education and Development), so as to ensure suitable input from its field into these physics-wide activities.

**Art.**

**7**

To make available to each General Assembly of the Union a summary of activities and progress in its field since the previous Assembly.