

# International Union of Theoretical and Applied Mechanics (IUTAM)

## Activities' Report - Year 2023

Enrico De Bernardis

### 1. Introduction

IUTAM became a fully incorporated Association on 4 November 2022, and held the first General Meeting of Members (GMM) in Amsterdam on 12 December 2022. So, 2022 was the year of IUTAM Union into the new IUTAM Association, while 2023 has been the first full year of IUTAM running under the new rules.

### 2. Main activities carried on by IUTAM during 2023 relevant for Italy and for CNR

Due to the breadth of disciplinary interests of CNR and the involvement on topics of Mechanics, the whole body of the activities (Symposia and Summer Schools) carried out, or sponsored, annually by IUTAM, is the object of potential interest for this part of the Italian scientific community. The initiatives carried out during 2023 are listed, in chronological order, grouped by type.

#### IUTAM Symposia

##### *IUTAM Symposium on Ultralarge-scale topology optimization*

Place: Kongens Lyngby, Denmark. Date: April 24 – April 26, 2023.

Chair: Prof. O. Sigmund, Technical University of Denmark, Kongens Lyngby, Denmark

Email: [sigmund@mek.dtu.dk](mailto:sigmund@mek.dtu.dk)

IUTAM Representative on Scientific Committee: Prof. V. Tvergaard

##### *IUTAM Symposium on Data-driven nonlinear and stochastic dynamics with the control*

Place: Xi'an, China. Date: June 5 – June 9, 2023.

Chair: Prof. Y. Xu, Northwestern Polytechnical University, School of Mathematics and Statistics, Xi'an, Shaanxi, China

Email: [hsux3@nwpu.edu.cn](mailto:hsux3@nwpu.edu.cn)

co-Chair: Prof. J. Kurths Humboldt-University Berlin, Institute of Physics, Berlin, Germany

Email: [juergen.kurths@pik-potsdam.de](mailto:juergen.kurths@pik-potsdam.de)

IUTAM Representative on Scientific Committee: Prof. G. Stépán

##### *IUTAM Symposium on Interface mechanics of complex flows and soft matter*

Place: Beijing, China. Date: June 25 – June 28, 2023.

Chair: Prof. H. Duan Peking University, Department of Mechanics and Engineering Science, Beijing, China

Email: [hlduan@pku.edu.cn](mailto:hlduan@pku.edu.cn)

co-Chair: Prof. C. Sun, Tsinghua University, Beijing, China

Email: [chaosun@tsinghua.edu.cn](mailto:chaosun@tsinghua.edu.cn)

IUTAM Representative on Scientific Committee: Prof. G. McKinley

##### *IUTAM Symposium on Turbulent structure and particles-turbulence interaction*

Place: Lanzhou, China. Date: July 7 – July 9, 2023.

Chair: Prof. X.J. Zheng, Xidian University, Xi'an, Shaanxi, China

Email: [xjzheng@xidian.edu.cn](mailto:xjzheng@xidian.edu.cn)

co-Chair: Prof. S. Balachandar, University of Florida, Department of Mechanical & Aerospace Engineering, Gainesville, FL 32611, USA

Email: [bala1s@ufl.edu](mailto:bala1s@ufl.edu)

IUTAM Representative on Scientific Committee: Prof. H.K. Moffatt

***IUTAM Symposium on Nonlinear dynamics for design of mechanical systems across different length/time scales***

Place: Tsukuba, Japan. Date: July 31 – August 4, 2023.

Chair: Prof. H. Yabuno University of Tsukuba, Tsukuba, Japan

Email: [yabuno@esys.tsukuba.ac.jp](mailto:yabuno@esys.tsukuba.ac.jp)

IUTAM Representative on Scientific Committee: Prof. G. Rega

***IUTAM Symposium on Creep in structures***

Place: Magdeburg, Germany. Date: September 18 – September 22, 2023.

Chair: Prof. H. Altenbach Otto-von-Guericke-Universitaet Magdeburg, Institute for Mechanics,  
Magdeburg, Germany

Email: [holm.altenbach@ovgu.de](mailto:holm.altenbach@ovgu.de)

IUTAM Representative on Scientific Committee: Prof. B.A. Schrefler

***IUTAM Symposium on Dynamics and interface phenomena of bubbles and droplets at multiple scales***

Place: Tokyo, Japan. Date: December 3 – December 5, 2023.

Chair: Prof. S. Takagi, The University of Tokyo, Tokyo, Japan

Email: [akagi@mech.t.u-tokyo.ac.jp](mailto:akagi@mech.t.u-tokyo.ac.jp)

IUTAM Representative on Scientific Committee: Prof. A.P.S. Freire

***IUTAM Symposium on Dynamics of capsules, vesicles and cells in flow***

Place: Compiègne, France. Date: July 10 – July 13, 2023.

Chair: Prof. A.-V. Salsac, Université de Technologie de Compiègne, Biomechanics and Bioengineering  
Laboratory, Compiègne, France

Email: [a.salsac@utc.fr](mailto:a.salsac@utc.fr)

IUTAM Representative on Scientific Committee: Prof. T.J. Pedley

**3. Activities carried on by Enrico De Bernardis within the Union during 2023 and impact on the Italian scientific community**

The activity carried out within the frame of institutional commitments was the participation in the General Meeting of Members, held – in hybrid mode – on June 5, 2023.

1. The President started the meeting at 14.30. The agenda was adopted.

2.1 The minutes of the IUTAM General Meeting of Members held in Amsterdam on December 12, 2022 were approved.

2.2 The President noted that he has compiled a document containing a summary of resolutions passed by the General Assembly of IUTAM over the years. This document will be uploaded to the IUTAM website.

2.3 The Secretary-General noted that the IUTAM website now has a 'New Horizons' page, i.e., examples of developments in Theoretical and Applied Mechanics that point to the future. He encouraged submissions for contributions to the New Horizons segment.

2.4 The Secretary-General summarized the current Status of IUTAM Members-at-Large, i.e., those elected in 2020. It is as follows, with the statement “Agreed to resign” indicating that the individual has agreed to resign as a member of the incorporated IUTAM at the end of the current period for which the individual was elected unless given a continuing membership role in IUTAM Inc. at the subsequent election; i.e., the individual agreed to resign effective October 31, 2024 unless elected at ICTAM2024 to an IUTAM position that gives the individual IUTAM Inc. membership for the period November 1, 2024 to October 31, 2028.

***Status of IUTAM Members-at-Large, i.e., those elected in 2020***

- Yilong Bai: Agreed to resign - was appointed MaL of IUTAM Inc. at GMM in December, 2022.

- Peter Eberhard: Agreed to resign - was appointed MaL of IUTAM Inc. at GMM in December, 2022.

- Giulio Maier: Declined appointment as MaL of IUTAM Inc.

- Robert McMeeking: Became a member of IUTAM Inc. in November, 2022 as its Secretary-General.

- Keith Moffatt: Resigned as Member-at-Large in 2021.

- Niels Olhoff: Did not respond to e-mails. Remains MaL of IUTAM union but not of IUTAM Inc.

- Timothy Pedley: Agreed to resign - was appointed MaL of IUTAM Inc. at GMM in December, 2022.
- Jean Salençon: Agreed to resign - was appointed MaL of IUTAM Inc. at GMM in December, 2022.
- Werner Schiehlen: IUTAM had an out-of-date e-mail address for him that is now rectified - has now agreed to resign and is eligible for MaL appointment to IUTAM Inc.
- Bernhard Schrefler: IUTAM had an out-of-date e-mail address for him that has now been rectified - has now agreed to resign and is eligible for MaL appointment to IUTAM Inc.
- Viggo Tvergaard - Was not responding to e-mails and was recently informed verbally. Has now agreed to resign and is eligible for MaL appointment.

The Secretary-General commented that other members of IUTAM Inc. are Adhering Organisations plus Norman Fleck (President), Nadine Aubry (Vice President), Pilar Ariza (Treasurer), Atila Freire, Irina Goryacheva, Kikuo Kishimoto, Detlef Lohse (Directors), Sanjay Mittal (Secretary of the Congress Committee), Huajian Gao (Chair of a Symposia Panel).

### 3. Report by the Treasurer

3.1 The Treasurer reported income and expenditure for the net cash flow for 2022 and for 2023 to date.

3.2 The Treasurer's financial report for 2022 of the unincorporated IUTAM union is attached to the minutes of GMM.

3.3 The Treasurer reported that the first 3 directors of IUTAM Inc (President Fleck, Treasurer Ariza, Secretary-General McMeeking) are already registered in the Netherlands and have IUTAM Ultimate Beneficial Owner (UBO) status: The process of registering the remaining 5 members of the Board of Directors (BoD) is currently underway. When that is completed, they will acquire UBO status.

4. The Chair Helen Wilson of the IUTAM Diversity Advocacy Group (DAG) reported verbally on the recent DAG activity, including the creation of a modified application form for Symposia and Summer Schools. The minutes of the DAG meeting that was held on April 20, 2023 are attached to the minutes of GMM.

5. The President reported that the Egyptian Committee for Theoretical and Applied Mechanics wishes to apply to become a Category I adhering organisation of IUTAM Inc., according to Article XV of the IUTAM Internal Regulations, with one representative on the IUTAM General Meeting of Members (GMM).

This application was discussed and approved by a vote. The Egyptian Committee for Theoretical and Applied Mechanics is admitted as an adhering organisation, effective immediately.

6. After due discussion Treasurer Ariza proposed and Director Freire seconded a motion to admit IUTAM Union Members-at-Large, who have responded to and accepted IUTAM's invitation, to become Members-at-Large of the IUTAM Association. The motion was carried by a substantial majority. These individuals, therefore, become Members-at-Large of IUTAM Inc. effective immediately. These individuals are Professors Werner Schiehlen, Bernhard Schrefler and Viggo Tvergaard.

After due discussion, Treasurer Ariza proposed and Director Freire seconded a motion to admit Members-at-Large of the IUTAM Association as Members of the IUTAM Association in category I. The motion was carried by a substantial majority.

The outcome of this procedure was that Professors Werner Schiehlen, Bernhard Schrefler and Viggo Tvergaard become Members-at-Large and Category I Members of IUTAM Inc, effective immediately. They join those who are already Members-at-Large and Category I Members of IUTAM Inc., namely Professors Yilong Bai, Peter Eberhard, Timothy Pedley and Jean Salençon.

7. The President reported that the Batchelor and Hill prize committees have met for ICTAM2024. He also reported that Cambridge University Press and Assessment wishes to renew its contract with IUTAM for the Batchelor Prize for 2028 and 2032, and that Elsevier wishes to renew its contract with IUTAM for the Hill Prize for 2028 and probably for 2032.

8. After due discussion, Treasurer Ariza proposed and Secretary-General McMeeking seconded a motion to postpone the next GMM to coincide with ICTAM 2024. The motion was carried without dissent.

9. Any Other Business: Secretary Mittal of the IUTAM Congress Committee gave an update on ICTAM 2024, with the following outline.

There will be an Opening Lecture, a Closing Lecture, 16 Sectional Lectures and 8 Mini-Symposia.

There will be 18 Thematic Sessions in Solids, 18 in Fluids and 9 in Solids-Fluids.

Details of the Congress can be found at: <http://ictam.cjint.kr/index.php>.

There will be a 2-Page abstract submission process Sept 1, 2023 to Jan 15, 2024.

The International Papers Committee will evaluate all submissions.

Notification of Acceptance: April 12, 2024

Early Bird Registration Deadline: May 3, 2024

Final Registration Deadline: June 30, 2024

Selected papers to be published in Special Issues of Journals.

The Local Organising Committee is working on Hotels, Shuttle Buses, Tours, Social and Partner Program, Support Grants, etc.

10. The meeting adjourned at 15.46.

#### **4. Evaluation of the participation in terms of benefits and membership cost**

The quality and size of Italian participation to IUTAM initiative is an issue to be seriously considered by CNR.

#### **5. Evaluation of Italians' attendance and how to improve interest and involvement**

There is not enough information – at the moment – to assess the overall attendance by the Italian scientific community in scientific initiatives mentioned above, organized or sponsored by IUTAM in 2023.

#### **6. Italian experts with important roles within the Union or within related Commissions and Programs (if known)**

- Maria Vittoria Salvetti, Congress Committee member, appointed by the General Assembly at ICTAM 2016 (see page 7 of the Newsletter N-2016-2);
- Stefano Lenci, Congress Committee Member, appointed by the General Assembly in 2022;
- Davide Bigoni, Congress Committee member, appointed by the General Assembly in 2014 (see page 8 of the Newsletter N-2014-2), confirmed in office in 2018 (see page 8 of the Newsletter N-2018-2); member of the Symposia Panel for Solid Mechanics, appointed by the General Assembly in 2020 (see page 6 of the Newsletter N-2020-2);
- Alberto Corigliano, President of ICTAM 2020, member of the Executive Committee of the Congress Committee, appointed by the General Assembly in 2020 (see page 9 of the Newsletter N-2020-2);
- Bernhard Schrefler, Member-at-Large for the period 2020-2024, appointed by the General Assembly in 2020 (see page 5 of the Newsletter N-2020-2).

#### **7. If Union with CNR Commission, short summary about the 2023 CNR Commission activities**

There is no Commission for IUTAM.

#### **8. Conclusions**

It is hoped that 2024 will see the expression of interest by CNR people toward initiatives planned for the following years. In particular, it will be important to observe the participation in the 26th ICTAM conference.

