



## TC ANNUAL REPORTING FORM

### IMS Technical Committee

#### TC-42 Photonic Technology in Instrumentation and Measurement

#### Reporting period

Starting date (dd/mm/yy)	Ending date (dd/mm/yy)	Date of submission (dd/mm/yy)
01/01/24	31/12/24	31/01/25

<b>Website</b>	<a href="https://iee-ims.org/technical-committee/tc-42-photonic-technology-instrumentation-and-measurement">https://iee-ims.org/technical-committee/tc-42-photonic-technology-instrumentation-and-measurement</a>	<b>Last update (mm/yy)</b>
		01/23

#### TC Chair or co-Chairs

First Name	Second Name	Family Name	Affiliation /Address	Membership number	Phone	e-mail address	Date of election
George		Xiao	National Research Council (Canada)	90530871 (FIEEE)	613-991-6159	George.Xiao@nrc-cnrc.gc.ca	14/07/17
Tuan		Guo	Jinan University (China)	90754842 (SMIEEE)	+86-13450415860	tuanguo@jnu.edu.cn	14/07/17

**Secretary (check the right box)**      Present       Not Present

First Name	Second Name	Family Name	Affiliation /Address	Membership number	Phone	e-mail address	Date of election
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#### TC Membership list<sup>(\*)</sup>

First Name	Second Name	Family Name	Affiliation /Address	Membership number	Phone	e-mail address	TC assignments (joining year)
Zheng	Liu		University of British Columbia			zheng.liu@ieee.org	
Alberto	Vallan		Politecnico di Torino			alberto.vallan@polito.it	
Wojtek	Bock		Université du Québec en Outaouais			wojtek.bock@uqo.ca	

\* Please add as many rows as needed

Zuyuan	He	Shanghai Jiaotong University	zuyuanhe@sjtu.edu.cn
Xingyu	Fan	Shanghai Jiaotong University	fan.xinyu@sjtu.edu.cn
Jianping	Yao	University of Ottawa	jpiao@uottawa.ca
Hwa-yaw	Tam	Hong Kong Polytechnic University	eehytam@polyu.edu.hk
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Tongyu	Liu	Qilu Technology University	tongyu.liu@vip.iss-ms.com
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Tonglei	Cheng	Northeastern University	chengtonglei@ise.neu.edu.cn
Xinyu	Fan	Shanghai Jiaotong University	fan.xinyu@sjtu.edu.cn

## TC mission – field of expertise (max. 1000 char. Including spaces)

\* Please add as many rows as needed

**The goals of this committee are:**

- Promote and disseminate technical information related to the fields listed below via workshops, lectures, and technical papers.
  - Physical, mechanical, acoustic and electromagnetic sensors and instrumentation
  - Chemical, environmental, biological and energy sensors and instrumentation
  - Interferometric, polarimetric and laser-based sensors and instrumentation (including gyroscopes and resonators, et al)
  - Micro- and nano-structured fiber sensors and instrumentation (including photonic crystal fiber and grating-based sensors, et al)
  - Distributed and multiplexed sensing and sensor networking (including OTDR, Brillouin and Raman technologies, et al)
  - Other technologies (including imaging-related, spectroscopic and those based on smart-phone platforms, et al).
  - Industrial, energy, transportation, clinical, environmental, security and defense, applications
  - Smart structures (including structural health monitoring and photonics in additive manufacturing, et al)
  - New concepts and elements (e.g., fibers and waveguide devices, integrated and subsystems), effects (e.g., plasmonics, optomechanics, and quantum sensing), technologies (including nanophotonics, frequency combs) and materials (e.g., meta and structured materials) for photonic measurement and instrumentation
- Technology commercialization and standardization.
- Develop standards in the field as appropriate.
- Maintain liaison with other groups, societies and organizations working in the same/similar area.
- Organize special sessions during the I2MTC and publish special issues in IMS sponsored IEEE/OSA Journal of Lightwave Technology.

**TC meetings in the reporting period<sup>(\*)</sup>**

Date (dd/mm/yy)	Online / Face2Face	Attendance (number)	TC Members	Information sent within 4 months to (Yes/No)		
				Chair of TSAC	IM Magazine	Other (specify)
08/02/2024	online	2	George Xiao, Tuan Guo	Special issue of JLT	None	Yes
20/05/2024	Face2Face	4	George Xiao, Tuan Guo, Luigi Rovati, Zheng Liu	I2MTC	None	Yes
15/08/2024	Face2Face	2	Tuan Guo, Zuyuan He, Xinyu Fan	JLT behalf of IMS	None	Yes
20/09/2024	Face2Face	2	Tuan Guo, Zuyuan He, Fei Xu, Jianzhong Zhang	Optical fiber sensor China (OFSC)	None	Yes

**Minutes of the yearly meeting (separate file)<sup>1</sup>:**

**Participation in Society sponsored Events (Conferences, Symposia, Workshops)<sup>(\*)</sup>**

<sup>1</sup> Yes/No, date of the yearly meeting;

<sup>\*</sup> Please add as many rows as needed



Name of the Event	Starting date (event) (dd/mm/yy)	Ending date (event) (dd/mm/yy)	Date Participation (dd/mm/yy)	Type of participation (Yes/No)			
				Sponsorship	Session	Tutorial	Other (specify) <sup>2</sup>
I2MTC 2024	20/05/2024	23/05/2024	22/05/2024	None		None	Associate TCP & Section Chair of Optical fiber sensor

### Involvement in standard development<sup>(\*)</sup>

Standard	Working Group	Revision	Activity in the reporting period, including dates	Notes, attendance
None				

### Participation in the development of Society Educational Programs<sup>(\*)</sup>

Program name	Involvement of chapters and sections	Activity in the reporting period, including dates	Notes, attendance
None			

### Other Activities (tutorials, teaching, career, cooperation, publications, joint activity with chapters or sections) <sup>(\*)</sup>

Type of activity	Starting date (dd/mm/yy)	Ending date (dd/mm/yy)	Activity in the reporting period	Notes, attendance
Photonics Research (Research Article)	09/06/2022	01/11/2024	Article Author (Tuan Guo, George Xiao)	Superfine multiresonant fiber grating sensors assisted with silica capillary
Light: Science & Applications (Research Article)	10/02/2022	13/01/2024	Article Author (Tuan Guo, George Xiao)	Operando monitoring of dendrite formation in lithium metal batteries via ultrasensitive tilted fiber Bragg grating sensors
IEEE Transactions on Instrumentation and Measurements (Invited Article)	09/08/2022	23/02/2024	Article Author (Tuan Guo, George Xiao)	State of Charge Estimation for Commercial Li-Ion Battery Based on Simultaneously Strain and Temperature Monitoring Over Optical Fiber Sensors

<sup>2</sup> For example, Involvement in reviewing papers (and indicate approximate number of paper reviews for the listed event)

\* Please add as many rows as needed



## Recommended candidates<sup>(\*)</sup>

Type (ADCOM, Fellow, Award –specify-)	First Name	Second Name	Family Name	Affiliation /Address	Motivation
IEEE-IMS Career Excellence Award	George		Xiao	National Research Council Canada	For outstanding contributions to energy storage monitoring using optical fiber sensing technologies.

## TC operating Plan: near-term plans for the upcoming year, including scheduled meetings, activities, and so on (max. 1000 char. Including spaces)

- TC-42 meeting during I2MTC 2025
- Organize a special session for 2025 IEEE International Instrumentation and Measurement Technology Conference (I2MTC 2025).
- Prepare the Technical Committees report and published in IEEE Instrumentation & Measurement Magazine.
- Organize a new special session in the journal of IEEE/OSA Journal of Lightwave Technology behalf of IEEE-IMS.
- The special issue is "GUIDED LIGHTWAVES FOR SENSORS & MEASUREMENT SYSTEMS: ADVANCED TECHNIQUES and APPLICATIONS". (This will be the 5th one following our previous 2017, 2019, 2021, and 2023)

## TC operating plan: long term vision from 2-5 years out, based on IMS Strategic Plan, including areas of strength, areas for improvement, how is the subject area going to change, planned actions for lifting achievement succession plans etc. (max. 1000 char. Including spaces)

- Develop standards in the field as appropriate.
- Organize special session I2MTC for 2025–2026.
- Organize IEEE-IMS special session in the journal of IEEE/OSA Journal of Lightwave Technology.

## TC convergence, synergy, cooperation with other TC, from I&M or other societies (max. 1000 char. Including spaces)

- Maintain liaison with other groups, societies and organizations working in the same/similar area.
- To help IEEE-IMS to expand its potentials, and increase attention as the professional home to the instrumentation and measurement experts and engineers worldwide.

## Comments/Suggestions (max. 1000 char. Including spaces)

None

\* Please add as many rows as needed