

## 4M/IWMF 2016 Conference

11<sup>th</sup> International Conference on Multi-Material Micro Manufacture (4M2016) co-organised with 10<sup>th</sup> International Workshop on Microfactories (IWMF2016)

**Conference Chair:** Guido Tosello, DTU, Denmark

**Conference Co-Chair:** Hans Nørgaard Hansen, DTU, Denmark  
Kornel Ehmann, Northwestern University, USA  
Stefan Dimov, Birmingham University, UK



**13<sup>th</sup>-15<sup>th</sup> September 2016**

**Kgs. Lyngby, Denmark**

Organised by DTU, 4M Association, IWMF and University of Birmingham



## Scope

In today's market, miniaturised and microsystems-based products represent key value-adding elements for many industrial sectors and thus are an important contributor to a sustainable economy. Following the silicon-based microelectronics revolution of the late twentieth century, a number of micro and nano manufacturing technologies have been developed and implemented into process chains for the fabrication of Micro Electro Mechanical Systems (MEMS). Especially, these technology developments have targeted niche markets and as a consequence, a number of MEMS devices are now being effectively exploited commercially. To address the continuing trend for product miniaturisation and the constantly growing demand for novel products enabled by Micro and Nano Technologies (MNTs) the 4M Conference series has, since 2005, been bringing together researchers and industrialists engaged in multi-disciplinary research and development of micro and nano manufacturing platforms and their various existing and emerging application areas.



**4M2016** will once again create a forum for the presentation of, and discussions about, the latest advances in manufacturing capabilities to meet the demands for:

- **Product miniaturisation** through innovative integration and development of knowledge-based technologies and production concepts (especially micro and nano) for the processing of non-silicon materials;
- **Prediction of product and process performance** to reduce/manage the risk during product development and production, and to reduce time to market for the next generation of microsystems-based products;
- **Future product platforms** to meet the requirements of the next generation of microsystems-based products, and of more stringent regulations and environmental legislation; and
- **Production scale-up** to ensure effective and efficient transfer of product and technology ideas from laboratories to serial production.

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## Themes

Papers are invited that present original research and development in processes and process chains for multi-material micro and nano manufacture, in particular but not limited to:

- **Components:** fabrication and assembly technologies
- **Systems:** novel product and system designs
- **Process modelling and simulation**
- **Process characterisation** including process chains
- **Metrology:** inspection and characterisation methods
- **Novel materials:** characterisation and processing
- **Micro and Nano Additive Manufacturing Technologies**

In addition, contributions to the International Workshop on Microfactories (IWMF2016) on the following topics are invited:

- **Micro and Desktop Factory Concepts, Systems, Components and Modules**

- **Standardization in Micro Manufacturing and Micro Factories**
- **High Precision Production of 3D Micro-parts**
- **Micro-assembly and Micro-handling**

These topics represent the intended content of the 4M/IWMF 2016 thematic sessions, to which the authors are invited to submit papers. The Conference will also feature invited special sessions focussed on the latest technology and application advances achieved in major EC-funded and national programmes. The follow special session has already been agreed:

- **High throughput Integrated technologies for multi-material functional Micro Components** (EU FP7 HINMICO project)
- **Micro Technologies for Hearing-Aid Systems**

### Invited Speakers:

**Ole Sigmund**, Technical University of Denmark, Denmark  
**Placid Ferreira**, University of Illinois, USA  
**Helmut Schiff**, Paul Scherrer Institute, Switzerland

### Joint 4M/IWMF Programme Committee:

**Chair:** Guido Tosello, DTU, Denmark

**Co-Chairs:** Hans Nørgaard Hansen, DTU, Denmark  
 Kornel Ehmann, Northwestern University, USA  
 Stefan Dimov, University of Birmingham, UK

Nadja Adamovich, TUWien, Austria  
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 Jian Cao, Northwestern University, USA  
 Antony H.C.Lee, MIRDC, Taiwan  
 Michael-Fu, MIRDC, Taiwan  
 G. Maccarini, Università Degli Studi Di Bergamo, Italy  
 Thomas Velten, Fraunhofer IBMT, Germany  
 Susan Anson, KIT, Germany  
 Kiwamu Ashida, AIST, Japan  
 Dong-Woo Cho, Postech, Korea  
 Kai Cheng, Brunel University, UK  
 Nico de Rooij, EPFL, Switzerland  
 Kuniaki Doda, Northwestern University, USA  
 Fengzhou Fang, Singapore Inst. of Manuf. Tech  
 Sergej Fatikow, University of Oldenburg, Germany  
 Ho-chung Fu Metal Industries Research & Development Centre, Taiwan  
 Dae-Gab Gweon, Korea Adv. Institute of Science and Tech  
 Yong Huang, University of Florida, USA  
 Shiv Kapoor, Univ. of Illinois at Urbana/Champaign, USA  
 Byeong-Hee Kim, Kangwon University, Korea  
 Jongwon Kim, Seoul National University, Korea  
 Tae-Jo Ko, Youngnam University, Korea  
 Liu Kui, Singapore Institute of Manufacturing Tech.  
 Thomas R. Kurfess, Georgia Institute of Technology, USA

Y.S. Liao, National Taiwan University  
 Ming-Chyuan Lu, Nat. Chung Hsing Univ., Taiwan  
 Akihiro Matsumoto, Toyo University, Japan  
 Bernd Michel, Fraunhofer Institute, Germany  
 Bradley Nelson, ETH Zurich  
 Jun Ni, University of Michigan, USA  
 Hitoshi Ohmori, Riken, Japan  
 Yuichi Okazaki, AIST, Japan  
 Simon Park, University of Calgary, Canada  
 Hyung-Wook Park, UNIST, Korea  
 Jong-Kweon Park, KIMM, Korea  
 Duc-Truong Pham, University of Birmingham, UK  
 Svetan Ratchev, University of Nottingham, UK  
 Stephane Regnier, Universite Marie-Curie, France  
 Steffen Scholz, KIT, Germany  
 Lars Mattsson, KTH, Sweden  
 Rhett Mayor, Georgia Institute of Technology, USA  
 Eleonora Ferraris, KU Leuven, Belgium  
 Martin Richter, FhG EMFT, Germany  
 Andreas Schoth, University of Freiburg, Germany  
 Volker Schulze, KIT, Germany  
 Holger Reinecke, HSG-IMIT & IMTEK, Germany  
 Pieter Bolt, TNO, Netherlands  
 Maurice van der Beek, Philips, Netherlands  
 Iban Quintana, TEKNIKER, Spain  
 Xabier Mendibil, TEKNIKER, Spain  
 Jose Ignacio Esmoris, TEKNIKER, Spain  
 Luis Gerardo Uriarte, TEKNIKER, Spain  
 Elis Carlström, Swerea-IVF, Sweden  
 Helmut Loibl, FOTEC, Austria  
 Samuel Bigot, Cardiff University, UK  
 Emmanuel Brousseau, Cardiff University, UK  
 David Gardner, C-Tech Innovation, UK  
 Seung-Kook Ro, KIMM, Korea  
 Mitchell Tseng, Hong Kong Univ. of Sc. and Tech.  
 Reijo Tuokko, Tampere Univ. of Tech., Finland  
 Min-Yang Yang KAIST, Korea  
 Quan Zhou, Aalto University, Finland

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### Submission of Full Papers

- Submission site opens: **1<sup>st</sup> of January 2016** **Deadline: 25<sup>th</sup> March 2016**
- Submission site: <http://conference.4m-association.org/openconf.php>

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### Paper Review

To ensure a high-quality Conference all papers will be reviewed by fellow authors under the leadership of the Session Chairs.

### Oral and Poster presentation

Submitted papers may be selected for oral or poster presentation. All oral and poster presentations will be included in the Conference Proceedings.

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### Important Dates:

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| ○ Submission <b>site will open:</b>                | <b>1<sup>st</sup> of January 2016</b> |
| ○ Submission <b>deadline for full papers:</b>      | <b>25<sup>th</sup> of March 2016</b>  |
| ○ Feedback from the peer review to authors:        | 16 <sup>th</sup> May 2016             |
| ○ Submission deadline of revised final paper:      | 3 <sup>rd</sup> June 2016             |
| ○ Notification of acceptance in Final Publication: | 24 <sup>th</sup> June 2016            |
| ○ Authors Final Registration:                      | 8 <sup>th</sup> July 2016             |
| ○ Public Final Registration:                       | 31 <sup>st</sup> August 2016          |

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### Proceedings:

All final papers accepted for presentation may be included in the 4M2016 Proceedings to be published by Research Publishing Services. Selected papers may be considered for publication in Special Issues.

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### Conference Secretary

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