



**The International Academy for Production Engineering**

# **NEWSLETTER**

**N° 66 – Autumn 2023**

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# From the President

Dear Colleagues,

I wish to express my heartfelt appreciation to all of you for your unwavering dedication and commitment, which has led to the International Academy for Production Engineering (CIRP) to be universally acknowledged as the premier organization in this field. My deepest gratitude to the members of the Board, Council, Committees, and Working Groups for their tireless professional efforts. I would also like to thank my predecessor, Professor Bert Lauwers, who adeptly led the Academy in the past year. I warmly welcome our new Vice President Elect, Professor Alessandro Balsamo. It is my great pleasure and honour to work with you all to further enhance this remarkable Academy, a place we regard as both an institution and a close-knit family.



The recent General Assembly (GA) in Dublin was an inspirational gathering. It showcased the remarkable progress our community has made in manufacturing and associated areas, underscoring the significance of our cutting-edge research. I am enormously proud to be a member of this community.

I have had the privilege of gaining a profound understanding of this esteemed organization over the past three decades. In my view, CIRP is not just an Academy, it is also a School and a Professional Family. Drawing from my own experiences, I would like to share the following perspectives:

- As an Academy, CIRP fosters and advances science and technology in production engineering, and thus provides leadership within the scientific community.
- As a School, we are all perpetual learners, and I, in particular, continue to learn from each of you, both in terms of technical expertise and innovative approaches.
- As a Family, CIRP cultivates understanding, mutual support, and friendship within our community, which are vital components of our shared humanity.

CIRP members have played a leading role in developing cutting edge research in manufacturing technology, including digitization, digital twins, artificial intelligence and sustainability in manufacturing. In the recent years, there is a new trend arising in the recognition and application of three different paradigms of manufacturing advancement: I. Artisan and craftsmanship-based manufacturing. II. Manufacturing via classically established theories and methods, and III. Manufacturing at the atomic and close-to-atomic scale, using quantum physics (where classical theories no longer hold). Synergistical combination of these three paradigms promises sustainable development in vital sectors like information technology, energy, and life sciences. This

assertion is based on an in-depth analysis of the intrinsic capabilities of these three paradigms, as we are now at the dawn of "Manufacturing Paradigm III". Its deployment will surely introduce transformative new products that will enhance our daily lives.

Beyond providing leadership in research and development, CIRP should also leverage its influence in education within the field of manufacturing. It is imperative that we continue to shape the future of production engineering through the development of high-quality educational programmes. I fondly recall my time as Chair of the Manufacturing Curriculum Committee in 2015. In the subsequent years, we have witnessed significant changes in educational needs, and it is now time for us to further the educational contributions of CIRP. To this end, we must bolster our support for manufacturing-related courses and curricula. These programmes should not only be comprehensive, but adaptable to the rapidly changing landscape of production engineering. We must equip students with the knowledge and skills needed to thrive in an increasingly revolutionized manufacturing world.

To maximize CIRP's impact, we must work towards increasing the Academy's visibility and diversity among professionals in production engineering. It is also imperative that we continue to attract the brightest young minds to our community, as they represent the future of our Academy. CIRP is working on concrete actions aimed at connecting young researchers and students with our esteemed members, e.g. the idea of a Summer School. A Task Force has been set up to develop this initiative to enhance CIRP's activities and presence in education, and to inspire the next generation of leaders in production engineering.

Recently, I personally conducted an on-site inspection for the 2024 CIRP General Assembly. The Organizing Committee is extremely dedicated and I am confident that the next GA will be a resounding success. Also once more, I would like to extend my heartfelt thanks to the organizers of this year's GA in Dublin for their dedication and hard work.

I eagerly anticipate the opportunity to meet you during the upcoming Winter Meetings in Paris and the General Assembly in Thessaloniki.

Finally, as we approach the end of 2023, I would like to take this opportunity to wish you and your loved ones,

a Healthy, Enjoyable, and Prosperous New Year!

Fengzhou Fang  
President of CIRP 2023-2024

# From the Editor

Dear CIRP colleagues,



Once again, warm greetings from Canada! It is an honor to connect with you via the CIRP Newsletter. It was a treat to see so many friends and colleagues during the CIRP 2023 General Assembly in Dublin. We now look forward to our next gathering for scientific discussions and exchange of ideas at the upcoming 2024 Winter Meetings in Paris.

As the Editor of the CIRP Newsletter, I invite all members to submit their news relevant to our academy (e.g., news from members, awards, books written by members, etc.). Organizers of CIRP conferences are also asked to send a brief report (with highlights, pictures, etc.), to be featured in the Newsletter. The material can be sent to the CIRP office ([cirp@cirp.net](mailto:cirp@cirp.net)) or directly to myself ([kaane@uwaterloo.ca](mailto:kaane@uwaterloo.ca)).

With my best regards,

Kaan Erkorkmaz  
CIRP Technical Secretary

# News from Members

## Professor Mamoru Mitsuishi Elected President of the Science Council of Japan (SCJ)



Prof. Mamoru Mitsuishi.

Professor Mamoru Mitsuishi, former President of CIRP (2019-2021), has been elected the new President of the Science Council of Japan (SCJ). His term as the President is from 2023 to 2026. The Science Council of Japan is the representative organization of the Japanese scientists' community ranging over all fields of sciences, subsuming humanities, social sciences, life sciences, natural sciences, and engineering. Established in 1949 as a "special organization" under the jurisdiction of the Prime Minister, it operates independently of the government, for the purpose of promoting and enhancing the field of science, and having science reflected in and permeated into administration, industries, and people's lives.

Prof. Mitsuishi joined the University of Tokyo in 1986. Following promotion to Associate Professor (1989) and Professor (1999), he served as the Dean of the School of Engineering (2014-2017), councilor on the Education and Research Council (2013-2017), and as Executive Director and Vice President of the University of Tokyo (2017-2021). Upon his retirement from the University of Tokyo, in 2022 he became the Vice-President of the National Institution for Academic Degrees and Quality Enhancement of Higher Education (NIAD-QE) in Japan. Prof. Mitsuishi's areas of interest are manufacturing systems (including multi-sensor integrated intelligent manufacturing systems and biomanufacturing) and biomedical robotics (including computer-integrated surgical systems). He is a member of various international societies, like CIRP, where he is currently an Honorary Fellow, and the IEEE Robotics and Automation Society. He is also an Honorary Member and a Fellow of the Japan Society of Mechanical Engineering and a Fellow of the Robotics Society of Japan.

<https://www.scj.go.jp/en/index.html>

<https://www8.cao.go.jp/cstp/english/policy/members.html>

## Professor Shreyes Melkote awarded the SME Gold Medal



James W. Schlusemann, Shreyes N. Melkote, and Robert Willig.

Professor Shreyes N. Melkote, who holds the Morris M. Bryan, Jr. Professorship in the George W. Woodruff School of Mechanical Engineering at the Georgia Institute of Technology, won the 2023 Society of Manufacturing Engineers (SME) Gold Medal which recognizes outstanding service to the manufacturing engineering profession in technical communications through published literature, technical writings, or lectures.

Melkote was among seven 2023 SME International Honor Award winners recognized for their significant contributions to manufacturing in the areas of manufacturing technologies, processes, technical writing, education, research and management, and service to SME. The 2023 SME International Awards Gala was held on June 5 at the Royal Park Hotel in Rochester, Michigan.

Melkote also serves as executive director of the Novelis Innovation Hub at Georgia Tech and as associate director of the Georgia Tech Manufacturing Institute. Melkote's research focuses on the science and technology of manufacturing processes, industrial robotics for manufacturing, and data-driven methods for cyber manufacturing. He has published over 280 technical papers on these topics, has one U.S. patent and has successfully transitioned technology to industry. Melkote is a recipient of the SME Outstanding Young Manufacturing Engineer Award, the ASME Blackall Machine Tool and Gage Award and several best paper awards. He served as president of SME's North American Manufacturing Research Institution (NAMRI) from 2014-15, and as ASME Swanson fellow and assistant director for Technology at the Advanced Manufacturing National Program Office at NIST from 2015-16. Melkote is a fellow of SME, ASME and CIRP.

<https://www.sme.org/aboutsme/awards/international-honor-awards/2023-sme-international-honor-award-winners/>  
<https://research.gatech.edu/melkote-awarded-2023-sme-gold-medal>

## Professor Sami Kara Elected as Fellow of the German National Academy of Science and Engineering (ACATECH)



Prof. Sami Kara (center) receiving the acatech fellowship.  
Photo: ©acatech/David Ausserhofer.

Professor Sami Kara has been elected as a Fellow of the German National Academy of Science and Engineering (acatech) in recognition of his academic achievements in life-cycle engineering, circular economy, and sustainability in manufacturing. The acatech fellowship was awarded by Prof. Jan Wörner and Prof. Thomas Weber, the presidents of acatech, at the acatech annual meeting in Berlin on Oct. 10, 2023.

Prof Kara has a professional background of more than 30 years in industry, research, and tertiary education, including several engineering and management positions in manufacturing companies in Australia and around the world. His research interest is in developing technology solutions with a life cycle view, by using circular economy strategies to decarbonize and reduce environmental impact of manufacturing industry while helping them create value. He is regularly invited as a Subject Matter Expert to review Australian and international government proposals in decarbonization of the manufacturing industry and environmental sustainability. He also works as an advisor for various international organizations in providing strategic directions to decarbonize their organizations towards achieving their net-zero targets.

Professor Kara is an elected fellow of the International Academy of Production Engineering (CIRP), Royal society of New South Wales, UNSW Scientia Education Academy, and the International Academy of Engineering and Technology (AET). He currently serves as the Chair of the Editorial Committee of the CIRP Annals and as Vice-Chair of CIRP's Collaborative Working Group (CWG) on Manufacturing for Sustainability. Prof Kara also served as the Chair of CIRP's Scientific and Technical Committee on Life Cycle Engineering and Assembly, Co-chair of the CIRP's Cross-STC, as well as a CIRP Council member.

## **Dr. Scott Smith named Corporate Fellow of Oak Ridge National Laboratory (ORNL)**

The US Department of Energy's Oak Ridge National Laboratory has named Dr. Scott Smith a Corporate Fellow in recognition of significant career accomplishments and continued leadership in his scientific field. Corporate Fellow is the highest recognition for members of the ORNL research staff. Scott Smith has been recognized by the laboratory for his standing in the international scientific community as an exceptional and influential researcher, and as a role model and mentor among peers and early career researchers.



Dr. Scott Smith.

From the ORNL announcement:

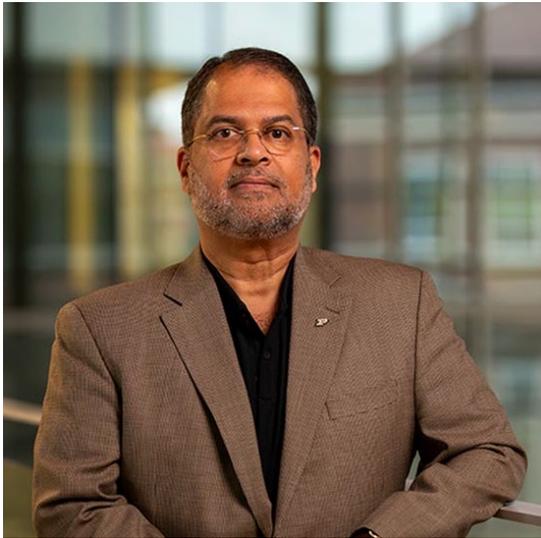
“Scott Smith is an internationally recognized leader in the areas of manufacturing and machine tools, with seminal impacts in machine tool research. He is cited for his fundamental and translational research including development of leading systems, processes, sensors and controls. His technical excellence, international reputation of accomplishment and the team of researchers that he has assembled at ORNL have been crucial for building a multi-million-dollar, multi-year machine tool research program focused on supply chain issues for defense and energy systems.

Smith's work in the dynamics and vibration of machine tool systems has resulted in fundamental insights, related to high-speed machining and the machining of thin structures, with commercial and national security impacts. The technologies and methods Smith has developed have enabled the machining of thin parts with a thickness an order of magnitude below previous capabilities, as well as economical machining of complex monolithic parts that replace assemblies comprising hundreds to thousands of parts.

Smith, who leads the Manufacturing Science Division's Precision Manufacturing and Machining Section, is a fellow of three professional societies: the American Society of Mechanical Engineers, the Society of Manufacturing Engineers and the International Academy for Production Engineering. He has more than 100 technical publications, 10 professional society awards, co-authorship of two textbooks and 14 patents.”

<https://www.ornl.gov/news/cable-dunlap-chi-smith-and-thornton-named-ornl-corporate-fellows>

## Professor Ajay Malshe Appointed as President's Fellow at Purdue University



Prof. Ajay Malshe.

Ajay P. Malshe, the R. Eugene and Susie E. Goodson Distinguished Professor of Mechanical Engineering, has been appointed as a President's Fellow by Purdue University.

Malshe joined Purdue University in January 2020. He has gained a national and international recognition in academia, entrepreneurship, and industries for advanced manufacturing, bio-inspired design, functional multi-materials, and system integration and productization. Over the decades, application areas of his interest and contributions have included heterogeneous microelectronics for high-density systems; nanomanufacturing for

extreme machines; in-space servicing, assembly and manufacturing (ISAM); and biomanufacturing for future foods for equity.

He is co-directing a new initiative, the eXcellence in Manufacturing and Operations Purdue Engineering Initiative (XMO PEI), positioned to strengthen the U.S. manufacturing industry's supply chain resilience in the 21st century across multiple sectors, such as semiconductors, aerospace, defense, biomanufacturing for agriculture, and transportation and logistics. XMO recently held its first Purdue manufacturing summit in Washington, DC. Purdue is also establishing a state-of-the-art manufacturing research facility called the Manufacturing and Materials Research Laboratories (MMRL), a community of over 15 faculty and staff. Malshe serves as the MMRL's inaugural director.

Malshe has published over 225 articles, delivered over 100 keynote talks worldwide, received over 25 patents (US and foreign) resulting in breakthrough award winning products, and over 45 awards. He has trained over 65 graduate and 1250 undergraduate students, and mentored professional engineers in the industries. He was recently named a Fellow of the American Association for the Advancement of Sciences (AAAS) and National Academy of Inventors (NAI). He has also worked extensively with high school students and teachers to advance student learning success. Many of his students lead at corporations such as Apple, Caterpillar, Google, Tesla, Texas Instruments, Lockheed Martin, Schlumberger, Walmart, and more, as well as in the academic world.

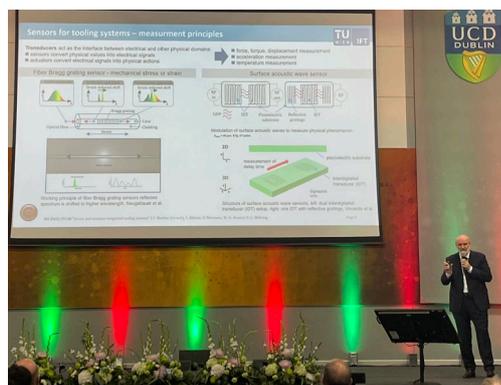
<https://engineering.purdue.edu/ME/News/2023/ajay-malshe-appointed-as-presidents-fellow>

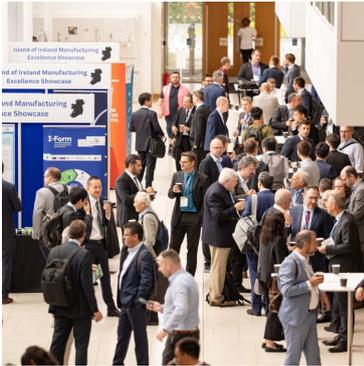
# General Assembly 2023

The 72nd CIRP General Assembly (GA) was held in University College Dublin and was successfully managed by the organizing team, chaired by Prof. Nikos Papakostas from University College Dublin, co-chaired by Prof. Rocco Lupoi, from Trinity College Dublin, and by Prof. Gerry Byrne as Honorary Chair, from University College Dublin.

Spread over seven days, the GA was attended by 622 participants, including 220 Members, 80 Corporate members, 36 Research Affiliates, 234 Guests and 52 Accompanying persons. The GA featured 11 Keynote papers, and 127 research paper sessions.

The participants enjoyed not only intensive scientific exchanges and networking opportunities, but were also treated to Irish culture, music, and hospitality.





CIRP Presidents  
Prof. Fengzhou Fang (2023-24) and  
Prof. Bert Lauwers (2022-23)  
after the Assembly Meeting.





Comments from the GA participants:

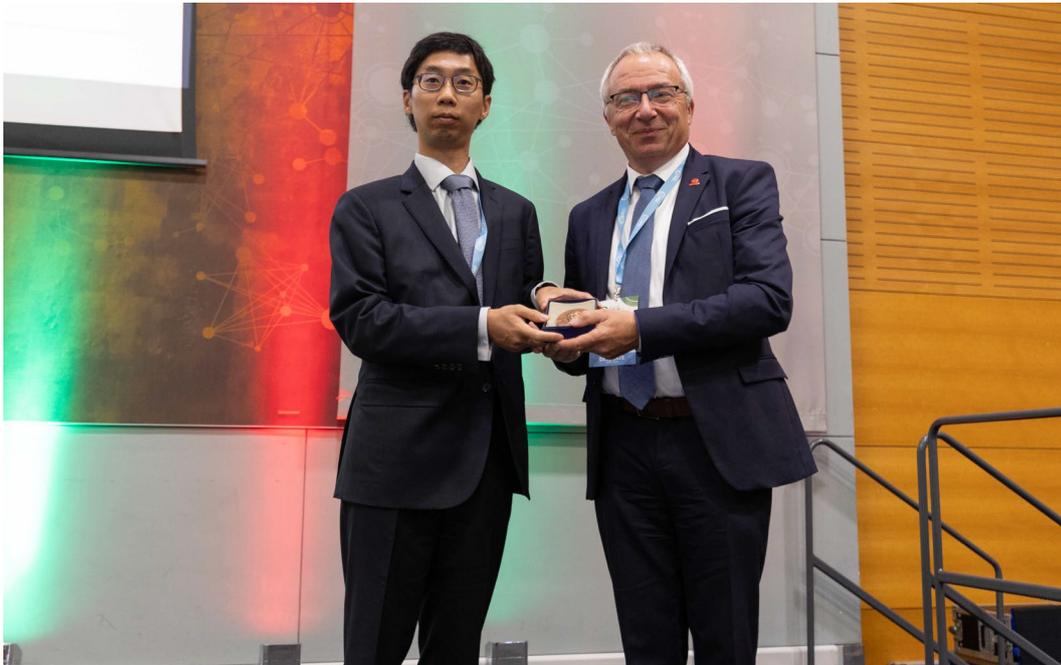
- "Thanks for being excellent hosts at Dublin. The organization was excellent, and you did a fantastic job."
- "Many thanks for having organized a wonderful CIRP General Assembly."
- "It was a great opportunity for us to showcase our work and engage with an international audience."
- "Thanks for organising the CIRP GA in Dublin, it was a great event."
- "Congratulations to the entire CIRP team for creating such a wonderful event here in Ireland and bringing so many international experts here!"
- "Congratulations on the successful organization of the GA!"



Big thanks to the organizing team!

# CIRP Awards

The **F.W. Taylor Medal for 2023** has been awarded to **Professor Ping Guo, Northwestern University, USA**, for his paper: “One step machining of hierarchical optical structures for autostereoscopic images”, presented in the STC-P session of the CIRP General Assembly held in Bilbao in 2022.



Prof. Guo receiving the F.W. Taylor Medal from the President of CIRP, Prof. Bert Lauwers.

The paper was co-authored by Prof. Wang and sponsored by Prof. Jian Cao, who also nominated professor Guo for the Taylor Medal Award.

Prof. Guo’s work presents the use of ultraprecision machining to create “hierarchical optical structures” on a flat surface to achieve autostereoscopic effects. A new ultraprecision machining process that can generate the designed multi-scale surface structures in one step was demonstrated.

We sincerely congratulate Professor Ping Guo on his outstanding scientific work, which has been recognized by the CIRP F.W. Taylor Medal.



# Elections approved at the General Assembly Meeting 2023

## 2023-2024 Board and Council members

President	Prof. F. Fang
Vice President	Prof. B. Denkena
Vice President Elect	Dr. A. Balsamo
Past President	Prof. B. Lauwers
Secretary General Treasurer	Prof. D. Dumur
Technical Secretary	Prof. K. Erkorkmaz
Council Members	Prof. D. Biermann
	Prof. M. Davies – substituted by Prof. J. Sutherland
	Prof. M. Hauschild
	Prof. A. Matsubara
	Prof. T. Tolio
	Prof. J. Vancza

## Elected Fellows

Prof. N. Anwer (France)  
Prof. A. Clare (UK)  
Prof. J. Krüger (Germany)  
Prof. T. Kuboki (Japan)  
Prof. M. Schmidt (Germany)  
Prof. N. Sugita (Japan)  
Prof. D. Umbrello (Italy)  
Prof. A. Valente (Switzerland)  
Prof. H. Yamaguchi (USA)

## New Associate Members

Dr. B. Bergmann (Germany)  
Dr. C. Courbon (France)  
Prof. F. Dietrich (Germany)  
Dr. L. Gu (China)  
Prof. S. Ihlenfeldt (Germany)  
Dr. S. Kim (Korea)  
Dr. Y-J Kim (Korea)  
Prof. H. Kishawy (Canada)  
Dr. M. Law (India)  
Prof. T. Schmitz (USA)  
Dr. B. Sencer (USA)  
Dr. A. Shokrani (UK)  
Dr. G Vogl (USA)  
Dr. Y. Zhang (Denmark)

## **Fellows Emeritus**

Prof. D. Aspinwall (UK)  
Prof. C. Boer (Switzerland)  
Prof. G. Hirt (Germany)  
Prof. M. Kleiner (Germany)  
Prof. W. Knapp ((Switzerland)  
Prof. M. Kunieda (Japan)  
Prof. B. Scholz-Reiter (Germany)  
Dr. J.P. Van Griethuysen (Switzerland)

## **New Corporate Members**

ALP Aviation (Turkey)  
DN Solutions (Korea)  
Doowon Heavy Industrial (Korea)  
EIT Manufacturing South East Single Member P.C. (Greece)  
EXAPT Systemtechnik GmbH (Germany)  
Fraunhofer Austria Research GmbH (Austria)  
Helmholtz-Zentrum Hereon – Germany  
KCNSC - Kansas City National Security Campus (USA)  
Sandvik Coromant (Sweden)  
YG-1 (Korea)

## **New Research Affiliates**

Dr. K. Berenji (Turkey)  
Dr. X. Chen (UK)  
Dr. F. Galizia (Italy)  
Asst. Prof. Gonzalez Barrio (Spain)  
Asst. Prof. J. Ha (Korea)  
Dr. C. Hartmann (Germany)  
Mr. M. Hassan (Canada)  
Dr. Y. Ito (Japan)  
Dr. B. Montavon (Germany)  
Dr. F. Stamer (Germany)  
Dr. W. Wang (UK)  
Asst. Prof. S. Wolff (USA)

## **New STC Officers**

STC A: Prof. Y. Umeda (Ch), Prof. L. Wang (V-Ch), Prof. S. Thiede (Sec)  
STC E: Prof. F. Pfefferkorn (Ch), Prof. A. Clare (V-Ch), Dr. W. Wits (Sec)  
STC O: Prof. T. Tolio (Ch), Prof. A. Nassehi (V-Ch), Prof. T. Kaihara (Sec)  
STC S: Prof. H. Haitjema (Ch), Dr. G. Tosello (V-Ch), Dr. D. Meyer (Sec)

## **New Editor-in-Chief of the CIRP JMST**

**(CIRP Journal of Manufacturing Science & Technology):** Prof. Y. Altintas

## **CIRP Committees**

### Finance Committee:

Profs. H. Hansen, J.-M. Linares, D. Lucca (Chairman)

### Membership Committee - Credentials Subcommittee:

Profs. P. Arrazola, M. Merklein, N. Michailidis, J. Sutherland, Y. Takaya

### Membership Committee - Nominations Subcommittee:

Profs. D. Biermann, S. Bruschi, J. Duflou, A. Matsubara, S. Smith

### Editorial Committee:

Profs. J. Aurich, P. Bartolo, M. Davies, K. Erkorkmaz, X. Jiang, S. Kara (Chair), I. Lazoglu, D. Lucca, P. Martins, N. Michailidis, R. M'Saoubi, M. Nakao, S. Newman, J. Vancza (Vice-Chair)

### Taylor Medal Committee:

Profs. C. Brecher, S. Bruschi, K. Erkorkmaz, Y. Takaya (Chair), R. Wilhelm

# From the Editorial Committee

(by Prof. S. Kara, EC Chair)



Once again, Dublin General Assembly in August 2023 was a wonderful opportunity to catch up with the CIRP and the Editorial Committee colleagues in-person. The organizers put together an excellent general assembly to create a fruitful networking environment for the participants.

The Editorial Committee has had one change in the last year. Professor Kamlakar Rajurkar completed his term in the Editorial Committee. It has been an immense pleasure working with him during the difficult COVID times. His experience and knowledge were an invaluable asset for the committee.

Therefore, I would like to take this opportunity to thank him for his excellent service, collegiality, and support over the years. Professor Paulo Bartolo has kindly accepted to join the Editorial Committee. I welcome him in his new role and look forward to working with him, together with the rest of the EC, to serve the CIRP.

## **The 2024 EC review process**

The 2023 review process went smoothly with the successful implementation of the Elsevier Editorial Manager System (EEMS). Planning of the 2024 paper review process is underway and we are looking forward to the 2024 Winter meeting.

## **CIRP Annals publications**

As reported at the Dublin General Assembly, the CIRP Annals Vol 1 and 2 authorship rules have been changed and the changes have been approved by the CIRP Council. A new CReDiT form has been developed and introduced, starting from Vol 1 and 2 paper submissions in 2024. Authorship and contributions are the responsibility of the lead authors, therefore it is up to the lead authors to complete the CReDiT form which can be obtained from: <https://www.cirp.net/how-to-submit-a-paper.html>.

For Vol. 1 papers, it will be uploaded together with manuscript to the Elsevier Editorial System. As for the Vol. 2 papers, the new CReDiT form will be a live document which will be first filled upon approval of the keynote by the supporting STC, and will require updating whenever there is a change in the proposed authorship and the authorship contributions. The final form will be uploaded together with the Vol. 2 paper through the EEMS for the perusal of the Editorial Committee.

# From the CMAG Group



Dr. Yavuz Murtezaoglu  
Chair



Dr. Luis Uriarte  
Vice-Chair

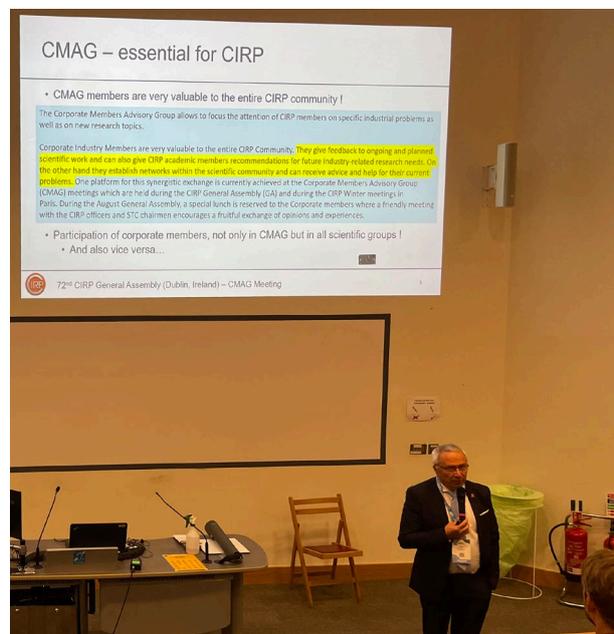


Dr. Youichi Nonaka  
Secretary

The Corporate Members Advisory Group (CMAG) meeting took place at the General Assembly in Dublin on August 22<sup>nd</sup>. The first part of the meeting featured two CIRP Industrial Technical Papers (ITPs):

1. Lightweight tool concept for E-mobility  
by A. Bookheimer, L. Semnisky, A. (Kennametal Inc.)
2. Highspeed videos of chip formation submerged in metalworking fluids  
by L. Meier, T. Mathys, V. Berger, M. Eglin, and M. Manikowski (Blaser Swisslube)

Afterwards, Prof. Lauwers (CIRP President) welcomed the CMAG members and local industry representatives. He highlighted the importance of CMAG within CIRP, and its critical role through interactions with the STCs, such as providing feedback towards on-going and planned scientific activities, or recommendations on the research needs of the industry to the academic members. Prof. Lauwers also introduced new CIRP initiatives regarding Manufacturing for Sustainability and on Diversity, Equity, and Inclusion (DEI), inviting the participation of CMAG and all CIRP members.



This was followed by the introduction of new corporate members who had joined CIRP during January to April in 2023.

The meeting continued with four technical presentations:

1. Tool condition visualizing technology for digitalization  
by Mr. Kenta Kanto (DMG Mori)
2. Cross Japanese-German pre-development of manufacturing technology  
by Dr.-Ing. Thorsten Augspurger (Makino Int. Innovation Center Aachen (IIC))
3. Fostering academia-industry collaboration  
by Dr.-Ing. Christian Bölling (EIT-Manufacturing)
4. Some cases of applied research to improve sustainability in industry  
by Dr. Luis Uriarte, Tekniker

Dr. Murtezaoglu introduced the next CMAG meeting, which will be held during the CIRP Winter Meetings in, Paris, France during February 2024.

Corporate members are organized by 172 organizations and companies.

The CMAG Officers encourage contributions from CMAG members, particularly on the topics of sustainability, diversity, automation, digitalization, digital twins, and industry / academia collaborations.



A snapshot from the CMAG meeting in Dublin (August 2023).

We are looking forward to seeing you at the CMAG session that will be held on February 22<sup>nd</sup> in Paris.

# From the Research Affiliates

## Message from the RA Steering Committee



Dr. Till Clausmeyer  
Chair



Dr. Amir Malakizadi  
Vice-Chair



Prof. François Ducobu  
Secretary

Dear Research Affiliates, dear CIRP Colleagues,

It was great to be able to meet and interact with colleagues and friends again in person at the CIRP General Assembly in Dublin, Ireland. The RA (Research Affiliate) meeting was held on site with 19 attendees. The meeting started with the introduction of new RAs and the RA board reports, followed by reports on the CIRP RA workshops, CIRPe conferences, and RA collaborative working groups.



2023 RA meeting at the General Assembly in Dublin, Ireland, conducted in person.

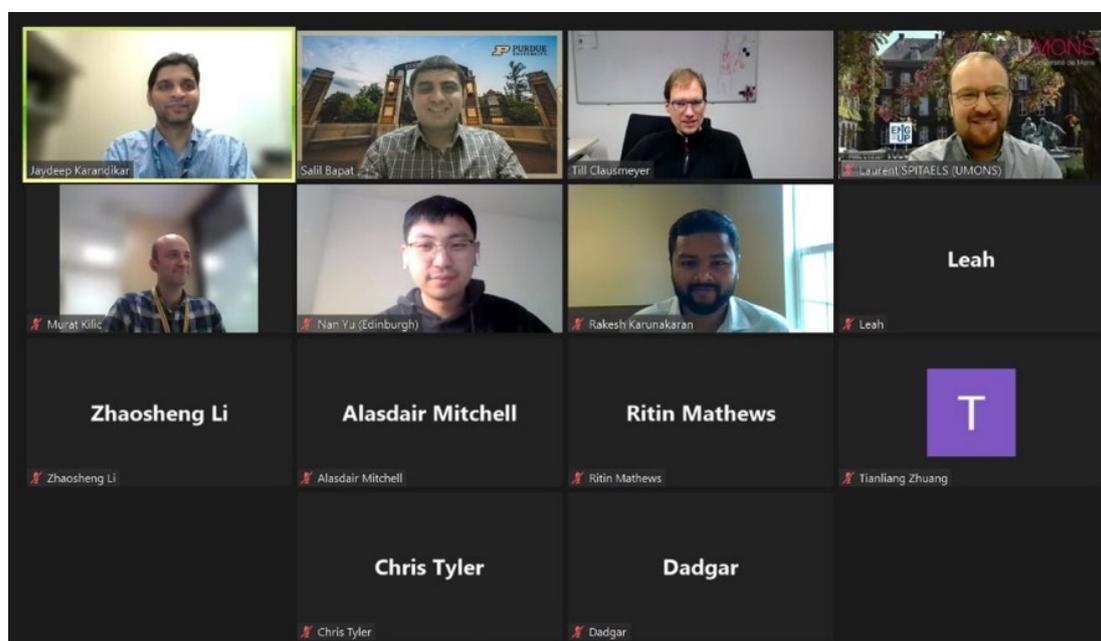
The RAs approved the RA workshop 2025 to be hosted by Chalmers University of Technology and the CIRPe Global Web Conference 2025 to be hosted by Hong Kong

Polytechnic University. The RA workshop and the CIRPe conference are important activities of the RA community for networking, collaborations, cooperative works and initiating publications. The RAs appreciated the opportunity to discuss their views on outreach and visibility of CIRP with the council and contribute to the diversity, equity and inclusion activities.

The RA Steering Committee.

## 11th CIRPe Global Web Conference 2023

The 11th CIRP Global Web Conference (CIRPe 2023) took place from October 24 to 26, 2023. CIRPe is an initiative driven by the Research Affiliate (RA) community. The conference was jointly organized by Salil Bapat (RA, Purdue University, USA) and Jaydeep Karandikar (RA, Oak Ridge National Laboratory, USA). In total, there were 51 manuscripts submitted for the conference, out of which a total of 40 papers were selected for publication after peer review. The papers were virtually presented during the conference by authors/co-authors with participations and engaged discussions from the attendees and the CIRP RA community. The 3-day event included keynote presentations from CIRP Fellows, Professors Ajay P. Malshe and Scott Smith, on the first two days. There were two parallel technical sessions on all three days covering broad topic areas of the CIRP community, including digital manufacturing, smart manufacturing, process optimization, manufacturing processes, and hybrid manufacturing. In addition to 40 presenters, there were 60 attendees registered for the event. The conference concluded with a preview of the CIRPe Conference 2024.



Session screenshot from the 11<sup>th</sup> CIRPe Global Web Conference, 2023.

## 12<sup>th</sup> CIRPe Global Web Conference 2024

The 12<sup>th</sup> CIRPe Global Web Conference (CIRPe 2024) is tentatively scheduled for October 22 to 24, 2024 (subject to approval by the Liaison Committee and Council during the upcoming Winter Meetings in Paris). The theme of the conference is

“Advances in cross-scale processing technologies: from ACSM to large-scale digital manufacturing” (ACSM: Atomic and Close-to-atomic Scale Manufacturing). State-of-the-art reviews and original research advancements will focus on subtractive/additive manufacturing, hybrid manufacturing and surface engineering at the atomic, close-to-atomic, nano-, micro-, and meso-scale, as well as macro-scale manufacturing. All submissions will be peer reviewed by the CIRPe 2024 International Scientific Committee, comprising of esteemed CIRP Fellows, Associate Members, and Research Affiliates. The organizing committee has been formed jointly by the University of Edinburgh and the University of Manchester, chaired by Dr. Nan Yu and Dr. Murat Kilic, sponsored by the four CIRP Fellows, Professors Stephen Newman, Joe McGeough, Paulo Bartolo, and Wei Gao. The call for papers and the website will be posted before the upcoming CIRP Winter Meetings in February 2024. For further information and suggestions, please contact the aforementioned organizers from Edinburgh University and Manchester University or the RA Steering Committee.

### **16<sup>th</sup> CIRP RA Workshop 2024**

The date for the 16<sup>th</sup> CIRP RA Workshop 2024 has now been set for July 1-4, 2024. The workshop will be held in Kyoto, Japan. For questions and feedback, also regarding a notification of planned attendance, please contact Dr. Kotaro Mori. It is a great opportunity as it is, as mentioned in the previous CIRP Newsletter, the first workshop outside Europe and therefore a great advancement for the international RA community and its networking. The event duration is extended to a 3-day meeting, taking into consideration the travel time of most expected attendees. The local organizer is Dr. Kotaro Mori (Kyoto University), being supported by CIRP Fellow Prof. Atsushi Matsubara (Kyoto University).

### **Save the date for the 17<sup>th</sup> CIRP RA Workshop 2025**

The CIRP RA Workshop 2025 will be hosted by Chalmers University of Technology, Sweden. The tentative date is end of May 2025. The local organizers will be Dr. Roham Sadeghi Tabar and Dr. Amir Malakizadi, supported by CIRP Fellow Prof. Rikard Söderberg (Fellow), all from Chalmers Department of Industrial and Materials Science.

### **Updates on RA collaborative working groups**

The RA Community currently has two collaborative working groups on the following topics: 1) Robot-assisted additive manufacturing for aerospace applications (contact: Dr. N. Li) and 2) Engineering education (contact: Dr. R.G.J. Damgrave).

# CIRP Keynote Papers

Our keynote papers are the result of an intensive collaboration between specialists working together during several years within an STC or CWG. They are important state of the art papers on important (new) technological areas. CIRP members who are willing to contribute are invited to contact the coordinator of each keynote paper.

## 2024 Keynote Papers submitted

### STC A

**Implementing circular economy activities in manufacturing for environmental sustainability** - T. Sakao (2) - Contact: [tomohiko.sakao@liu.se](mailto:tomohiko.sakao@liu.se)

### STC C

**Sustainable machining** - A. Shokrani (2) - Contact: [a.shokrani@bath.ac.uk](mailto:a.shokrani@bath.ac.uk)

### STC Dn

**Scientific foundation of data science for engineering design** - A. Liu (2)  
Contact: [ang.liu@unsw.edu.au](mailto:ang.liu@unsw.edu.au)

### STC E

**Dynamic beam shaping in laser processes** - M. Schmidt (2) -  
Contact: [michael.schmidt@lpt.uni-erlangen.de](mailto:michael.schmidt@lpt.uni-erlangen.de)

### STC F

**Artificial intelligence in metal forming (data integration and sensors in metal forming)** - J. Cao (1), M. Merklein (1) - Contacts: [jcao@northwestern.edu](mailto:jcao@northwestern.edu); [marion.merklein@fau.de](mailto:marion.merklein@fau.de)

### STC G

**Advances in modelling of fixed abrasive processes** - P. Krajnik (2) -  
Contact: [krajnik@chalmers.se](mailto:krajnik@chalmers.se)

### STC M

**Hybrid metal additive-subtractive machine tools and applications** - S. Smith (1) -  
Contact: [smithss@ornl.gov](mailto:smithss@ornl.gov)

### STC P

**Integrated metrology for advanced manufacturing systems** - A. Archenti (2) -  
Contact: [archenti@kth.se](mailto:archenti@kth.se)

### STC S

**Surface conditioning in cutting and abrasive processes** - V. Schulze (2) -  
Contact: [volker.schulze@kit.edu](mailto:volker.schulze@kit.edu)

### Cross-STC

**Artificial intelligence in manufacturing** – R. Gao (1) –  
Contact: [robert.gao@case.edu](mailto:robert.gao@case.edu)

### Cross-STC

**Industrial symbiosis in discrete manufacturing** – J. Duflou (1) –  
Contact: [Joost.Duflou@kuleuven.be](mailto:Joost.Duflou@kuleuven.be)

# 2025 Keynote Paper proposals

## STC A

**Human-centric assembly in smart factories** - L. Wang (1) -

Contact: [lihui.wang@iip.kth.se](mailto:lihui.wang@iip.kth.se)

## STC C

**Integrated machining performance for assess. of cutting tools (IMPACT)** -

I.S. Jawahir (1) - Contact: [is.jawahir@uky.edu](mailto:is.jawahir@uky.edu)

## STC Dn

**Developing and leveraging digital twins for engineering design** - N. Anwer (2) -

Contact: [nabil.anwer@ens-paris-saclay.fr](mailto:nabil.anwer@ens-paris-saclay.fr)

## STC E

**Overcoming barriers to the implementation of multi-material additive manuf. (MMAM)** -

A. Clare (2) - Contact: [adam.clare@nottingham.ac.uk](mailto:adam.clare@nottingham.ac.uk)

## STC F

**Cut the scrap: using less material** - J. Allwood (1) -

Contact: [Allwood-Office@eng.cam.ac.uk](mailto:Allwood-Office@eng.cam.ac.uk)

## STC G

**Advances in magnetic-field assisted finishing** - H. Yamaguchi (2) -

Contact: [hitomiy@ufl.edu](mailto:hitomiy@ufl.edu)

## STC M

**Fixtures and clamping systems in machining** - H.C. Möhring (2) -

Contact: [hc.moehring@ifw.uni-stuttgart.de](mailto:hc.moehring@ifw.uni-stuttgart.de)

## STC O

**Future-proof production scheduling and control** - M. Urgo (2) -

Contact: [marcello.urgo@polimi.it](mailto:marcello.urgo@polimi.it)

## STC P

**Dimensional metrology based on ultrashort pulse laser and optical frequency comb**

- W. Gao (1) - Contact: [gaowei@cc.mech.tohoku.ac.jp](mailto:gaowei@cc.mech.tohoku.ac.jp)

## STC S

**Surface finishing by shape-adaptive processes** - J. Yan (2) -

Contact: [yan@mech.keio.ac.jp](mailto:yan@mech.keio.ac.jp)

## Cross-STC

**Production technologies and systems for e-mobility**

# 2026 Keynote Paper proposals

## STC A

**Decarbonisation of manufacturing towards net zero** - S. Thiede (2) -  
Contact: [s.thiede@utwente.nl](mailto:s.thiede@utwente.nl)

## STC C

**Part distortion in machining: prediction, measurement, and control** - J. Outeiro (1) -  
Contact: [jose.outeiro@ensam.eu](mailto:jose.outeiro@ensam.eu)

## STC Dn

**Industrial Metaverse for future factory design and operations** - D. Mourtzis (1) -  
Contact: [mourtzis@lms.mech.upatras.gr](mailto:mourtzis@lms.mech.upatras.gr)

## STC E

**Laser based manufacturing for electric machines, batteries, and fuel cells** -  
A. Fortunato (3) - Contact: [alessandro.fortunato@unibo.it](mailto:alessandro.fortunato@unibo.it)

## STC F

**Shear-dominated processes and mechanics in forming and blanking** - W. Volk (1) –  
Contact: [wolfram.volk@utg.de](mailto:wolfram.volk@utg.de)

## STC G

**Abrasive finishing of components made by additive manufacturing** - J. Aurich (1) –  
Contact: [jan.aurich@mv.uni-kl.de](mailto:jan.aurich@mv.uni-kl.de)

## STC M

**Digital twins for machine tools** - A. Verl (2) –  
Contact: [alexander.verl@isw.uni-stuttgart.de](mailto:alexander.verl@isw.uni-stuttgart.de)

## STC O

**Digitally optimised maintenance: path towards sustainability and intelligence** -  
J. Erkoyuncu (2) - Contact: [j.a.erkoyuncu@cranfield.ac.uk](mailto:j.a.erkoyuncu@cranfield.ac.uk)

## STC P

**Machine learning for metrology in manufacturing** - G. Lanza (1) –  
Contact: [gisela.lanza@kit.edu](mailto:gisela.lanza@kit.edu)

## STC S

**Manufacturing of structured surfaces for tissue engineering** - G. Lucchetta (2) -  
Contact: [giovanni.lucchetta@unipd.it](mailto:giovanni.lucchetta@unipd.it)

## 2027 Keynote Paper proposals

### STC C

**Advanced methods for application and modelling of cooling lubricants in metal-cutting processes** - D. Biermann (1) - Contact: [Biermann@isf.de](mailto:Biermann@isf.de)

### STC M

**Machining of metallic flexible parts** - L.T. Tunc (2) - Contact: [ttunc@sabanciuniv.edu](mailto:ttunc@sabanciuniv.edu)

## 2028 Keynote Paper proposals

### STC C

**Role of additive manufacturing in cutting** - F. Zanger (2) -  
Contact: [frederik.zanger@kit.edu](mailto:frederik.zanger@kit.edu)

# Our CIRP Conferences

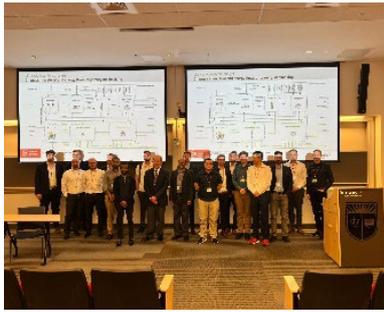
## 30<sup>th</sup> CIRP Life Cycle Engineering Conference (LCE, May 2023, USA)

The 30<sup>th</sup> CIRP Life Cycle Engineering Conference (LCE 2023) was held during 15-17 May 2023 in New Brunswick, NJ hosted by Rutgers University. The conference was co-organized by Prof. Yuebin Guo of Rutgers University and Prof. Moneer Helu of the University of Maryland. The theme of the conference was “enabling absolute sustainability and the circular economy using data and insights” and focused on fostering technology innovation through Industry 4.0 and smart manufacturing to realize the fundamental goal of life cycle engineering. The technical program included four keynotes and 124 technical presentations over four parallel tracks during the two and a half days of the conference. Over 130 attendees participated in the conference, which further highlights the level of interest in this important area of research.



The four keynotes included academic, government, and industry perspectives on the topic of technology innovation in enabling sustainability. These keynotes helped provide important context to support the interdisciplinary discussions that occurred over the course of the conference. All participants also enjoyed a tour of the New Jersey Advanced Manufacturing Institute before the conference banquet, held as an outdoor grilling cookout to enjoy the seasonal weather. The conference banquet also included the presentation of the Leo Award, which honors the contributions of Prof. Leo Alting to the life cycle engineering community and conference. Given to the best paper presented by an early career researcher, the Leo Award was awarded to Dr. Sidi Deng of Purdue University for the paper entitled “Integrating line balancing with network topology to support the planning of a remanufacturing system for electric vehicles”.





Overall, LCE 2023 was very successful. The quality of the submissions to and presentations at LCE 2023 continues to be quite high. The technical program of LCE 2023 continued the tradition of strong contributions from the manufacturing community, which really contributed to the success of the conference. The social program, helped by good weather and moderate temperatures, proved to be engaging and enjoyable. To sum, the CIRP Life Cycle Engineering Conference remains a key annual event for members of the community, and is anticipated to continue in good health over another 30 or more years.

# 19<sup>th</sup> CIRP Conference on Modeling of Machining Operations (CMMO, May-Jun 2023, Germany)

The 19<sup>th</sup> CIRP Conference on Modelling of Machining Operations took place from May 31<sup>st</sup> to June 2<sup>nd</sup> 2023 in Karlsruhe, Germany. The conference was held exclusively in person, with the exception of a single presentation that had to be delivered online at short notice. The conference was international with about 120 participants from 19 countries, European as well as American and Asian. The conference included 78 papers from a wide range of modelling fields. In addition to representatives from academia, representatives from industry were present and introduced the latest research results. They were also represented as sponsors of the conferences, thus facilitating the scientific exchange between industry and academic research.



The presentations of scientific results were accompanied by four keynote speeches from experienced scientists, who provided inspiration for the new research.

*Modeling in the production cycle – The role of the digital shadow and the digital twin*

Prof. Dr.-Ing. Thomas Bergs MBA  
WZL, RWTH Aachen University, Germany

*Control of product properties in metal forming and additive manufacturing*

Prof. Dr.-Ing. habil. Markus Bambach  
Advanced Manufacturing Lab, ETH Zürich, Switzerland

### *Software defined manufacturing*

Jun.-Prof. Dr. rer. nat. habil Andreas Wortmann

Institute for Control Engineering of Machine Tools and Manufacturing Units,  
University of Stuttgart, Germany

### *Meshfree SPH-approaches for fluid-structure coupling*

Prof. Dr.-Ing. Prof. E.h. Peter Eberhard

Institute of Engineering and Computational Mechanics, University of Stuttgart,  
Germany

The research presented included classical approaches using FEM simulation, as well as mesh-free methods, and a variety of approaches using artificial intelligence to solve modeling problems in manufacturing science. The submitted papers were presented and discussed in a total of 22 sessions, which were composed as follows:

- 4x Surface conditioning in machining
- 3x Grinding and non-conventional processes
- 3x Dynamics and stability of machining
- 3x Artificial intelligence for modeling of machining
- 2x Modeling approach
- 2x Material behaviour and tribological aspects in cutting
- 1x Fluid-dynamic simulation
- 1x Additive manufacturing and finishing of parts with complex surfaces and materials
- 1x High performance and hard machining
- 1x Multiphysics, multiscale, and kinematics modeling
- 1x Non-conventional processes, ultra-precision and micro-machining

After the 15-minute presentation, the session participants had 5 minutes for discussions and questions. The session and discussions were moderated by the Session Chairs. In addition to the session leaders, organisers were also present to provide technical assistance. The Session Chairs, in addition to leading the sessions, were engaged with the technical questions. Overall, a lively exchange of ideas was achieved through the three parallel sessions, which all had high attendance.



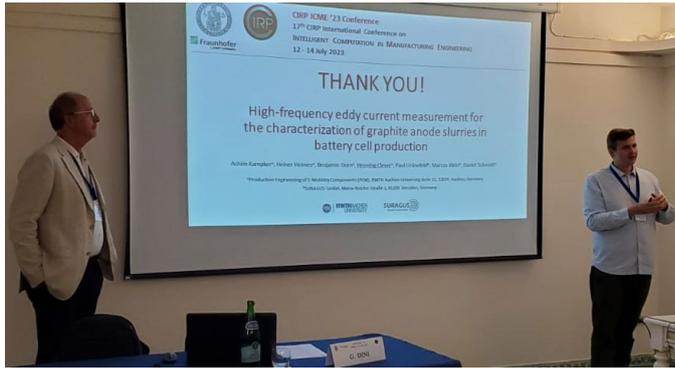
## 17<sup>th</sup> CIRP Conference on Intelligent Computation in Manufacturing Engineering (ICME, July 2023, Italy)

The 17<sup>th</sup> CIRP Conference on Intelligent Computation in Manufacturing Engineering (CIRP ICME '23), 12-14 July 2023, Ischia (Gulf of Naples), Italy, offered the opportunity to visit (or re-visit) the Green Island of Ischia in the Gulf of Naples, worldwide famous for its beauty and enchantment, that confirmed to be an ideal location to hold a conference such as the CIRP ICME '23.



The response to the 17<sup>th</sup> edition of the CIRP ICME Conference in terms of number of submitted papers and their quality has confirmed the widespread interest in Intelligent Computation in Manufacturing Engineering, covering the whole of production engineering research. CIRP ICME '23 attracted more than 200 delegates with 4 Keynote papers in the Plenary Session and 179 papers in the Symposium and Technical Sessions presented by authors from 22 countries and 4 continents.

The topics dealt with ranged from manufacturing systems (production system modeling, design, planning and control; machine tools and special machinery; assembly systems; battery production; robotics and human-robot collaboration; maintenance systems) to manufacturing technology (cutting technologies; grinding and abrasive processes; non-traditional machining; gear manufacturing; forming; welding; additive manufacturing; quality assurance, metrology and testing) as well as Emerging Technological Topics (smart production; ecosystems; biological transformation; sustainability; machine learning and deep learning; energy efficiency; intelligent and digital factory; virtual and augmented reality; cyber physical systems; digital twins; big data; cloud manufacturing; human factors).



A Special Symposium was also organised within the CIRP ICME '23, in collaboration with Prof. Nariaki Nishino from Japan, relating to the International Workshop on Emergent Synthesis (IWES) in honour of its founder Prof. Kanji Ueda, Past President of the CIRP.

Through this wide range of topics, CIRP ICME '23 aimed at providing an international forum for the exchange of up-to-date knowledge, experience, results, as well as the review of progress, and discussions on the state-of-the-art and future trends in various sectors of advanced manufacturing technology and systems.

Deep appreciation is due to the people and organisations that contributed to success of the CIRP ICME '23: Prof. S. Melkote for his Keynote presentation “Enabling intelligent manufacturing systems: From industrial robotics to future cyber manufacturing services”; Prof. N. Nishino for his Keynote “From optimisation to equilibrium concept in production: An emergent synthesis approach” and for organizing and chairing of the IWES Symposium; Dr. D. Santoro, Prof. L. Nele and Dr. A. Caggiano for their Keynote presentation “Assembly & data management technologies for factory automation - R&D Top project”; Prof. R. Teti for his Keynote “A modular framework for designing and producing biohybrid machines – BioMeld, EC Horizon Europe Project”; Prof. G. Putnik for chairing the “BioMeld” special session; members of the Organizing Committee: Prof. D. D’Addona, Dr. A. Caggiano, Dr. A. Simeone, Dr. T. Segreto; and finally, all of the Session Chairs for their efforts and management help.

Particular recognition is due to the International Academy for Production Engineering (CIRP), the main scientific sponsor of the CIRP ICME Conference Series; the University of Naples Federico II for its strong organisational support; and the co-sponsor of the event, the Fraunhofer Joint Laboratory of Excellence on Advanced Manufacturing Technology (Fh J\_LEAPT UniNaples) participating with representation from Germany and Italy.

# Future CIRP Meetings, Conferences and Sponsored Conferences

For the dates and locations of next **CIRP General Assemblies**  
go to “EVENTS” → [Next CIRP General Assemblies](#)

For the dates of next **CIRP Winter Meetings** in Paris  
go to “EVENTS” → [Next CIRP Winter Meetings](#)

For the most recent overview of our coming **CIRP Conferences**  
go to “EVENTS” → [Next CIRP Conferences](#)

For the most recent overview of our coming **CIRP Sponsored Conferences**  
go to “EVENTS” → [Next CIRP Sponsored Conferences](#)

You can find all CIRP Conferences and Sponsored Conferences **past events** through  
the link EVENTS → [CIRP Past Events](#)

# New books from our members

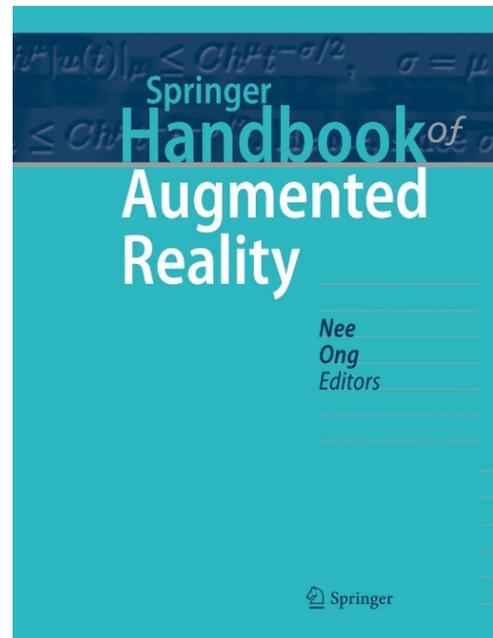
## Springer Handbook of Augmented Reality

**Editors:** Andrew Yeh Ching Nee, Soh Khim Ong

**Highlights:**

- Provides a complete, thorough overview of augmented reality
- Offers a unique reference text for AR experts and non-experts alike
- Presents each topic in a detailed, step-by-step manner

The Springer Handbook of Augmented Reality presents a comprehensive and authoritative guide to augmented reality (AR) technology, its numerous applications, and its intersection with emerging technologies. This book traces the history of AR from its early development, discussing the fundamentals of AR and its associated science.



The handbook begins by presenting the development of AR over the last few years, mentioning the key pioneers and important milestones. It then moves to the fundamentals and principles of AR, such as photogrammetry, optics, motion and objects tracking, and marker-based and marker-less registration. The book discusses both software toolkits and techniques and hardware related to AR, before presenting the applications of AR. This includes both end-user applications, like education and cultural heritage, and professional applications within engineering fields, medicine, and architecture, amongst others. The book concludes with the convergence of AR with other emerging technologies, such as Industrial Internet of Things and Digital Twins.

The handbook presents a comprehensive reference on AR technology from an academic, industrial, and commercial perspective, making it an invaluable resource for audiences from a variety of backgrounds.

<https://link.springer.com/book/10.1007/978-3-030-67822-7>

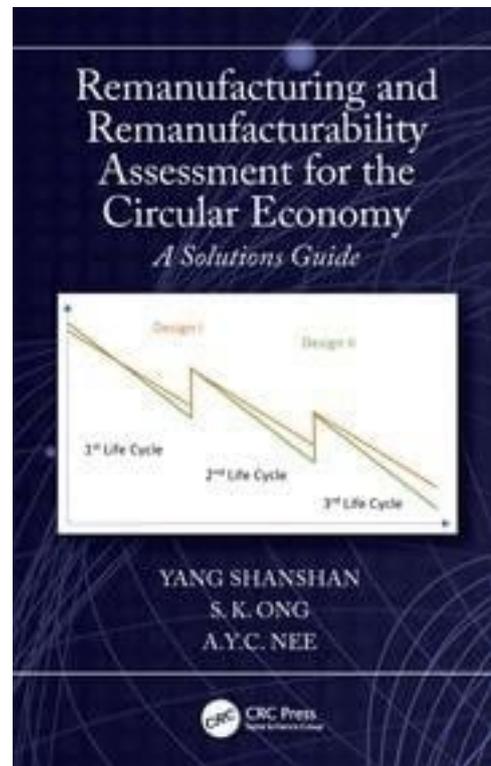
# Remanufacturing and Remanufacturability Assessment for the Circular Economy - A Solutions Guide

**By:** Yang Shanshan, S. K. Ong, A.Y.C. Nee

Sustainable Product Design and Manufacturing is crucial to achieving Circular Economy and thus Sustainable Development.

This book presents decision support tools that can be used in the early design stage to analyze the feasibility of a product and its components for remanufacturing. It also covers how to design a product specifically for remanufacturing and offers supporting case studies.

This is a comprehensive solutions guide for remanufacturing decision-making. The book illustrates an approach that can be used at the product End-of-Life (EOL) stage to generate optimized recovery plans for the returned products. Opportunities for Industry 4.0 to support remanufacturing along with case studies are included to showcase the decision-making tools.



Remanufacturing and Remanufacturability Assessment for the Circular Economy: A Solutions Guide will be of interest to practitioners, business professionals, and researchers that work in the industrial and manufacturing sectors. Those involved with supply chain management and advanced technologies associated with Industry 4.0, sustainability, and integrated techniques of circular supply chains will also find this book very useful.

<https://www.routledge.com/Remanufacturing-and-Remanufacturability-Assessment-for-the-Circular-Economy/Shanshan-Ong-Nee/p/book/9781032230856#>

# From the CIRP Office



***Chantal Timar-Schubert***

CIRP Annals' submissions & publications process, CIRP meetings, guests, CIRP website, candidatures for membership, Internal Regulations and any other internal matters.



***Agnès Chelet***

Financial aspects: accountancy, membership fees, conferences sponsorships' fees & reports, Winter meetings' registrations. Agendas & minutes of the scientific meetings.

## News

- We draw your attention on the modifications to the Internal Regulations voted during last General Meeting in Dublin:
  - New rule concerning the paper submissions to CIRP Annals: A CIRP CreDiT statement must be included for the paper authorship. It is the responsibility of the corresponding author to fill it in and upload it together with the paper submission.
  - A new name has been voted for STC E: "Electro-Physical, Chemical, Laser, and related Additive Manufacturing Processes".
  - For a General Nicolau Award proposal, a letter of support from at least two-thirds of the Fellows and Honorary Fellows of the country of the person(s) nominated (if applicable) should be joined to the candidature.
- We kindly remind CIRP Fellows, Honorary and Emeritus, that they can propose candidates for Fellow or Associate membership up to December 1<sup>st</sup> 2023 (Nominations Forms available online through your Dashboard).
- All information for the next [2024 Winter Meetings](#) held in Paris is provided online on our Website.