



The International Academy for Production Engineering

NEWSLETTER

N° 63 – Spring 2022

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From the President

Dear CIRP Colleagues,

We are approaching the main event of CIRP – the General Assembly. And for the first time since February 2020 we have the possibility to meet in person in Bilbao. The Organizing Committee has put a tremendous effort into making this event very special. A professional conference center will form the physical surroundings of our meetings and Bilbao will offer endless opportunities to dive into Spanish food and culture. For the first time in CIRP's history the General Assembly will be held as a hybrid event so colleagues not able to attend in person can still participate. But still, the majority of colleagues will attend in person.



The challenges that the world has been facing during the last 2-3 years call for dialogue and solutions across scientific disciplines, national interests, and different standpoints. And CIRP embodies this approach by the intention of our founding fathers. In the late 1940s it was becoming increasingly clear that the development of new production techniques was being hampered by the lack of appropriate analysis methods. There was evidently an urgent need for fundamental research to be undertaken in this area. It was realized that, in view of the importance and scale of the problems to be tackled, only international cooperative action would be effective. A meeting was held to discuss these problems, which was attended by Messrs E. Bickel (Switzerland), D.F. Galloway (UK), P. Nicolau (France) and O. Peters (Belgium). It was decided that efforts should be made to bring together research workers studying the application of scientific methods to production technology. This initiative led to the foundation of the International Institution for Production Engineering Research (CIRP's former English name) in 1951.

As the leading academy in production engineering, CIRP must shape the future from a scientific point of view. But also, CIRP must demonstrate how collaboration in science and technology will benefit all of us.

I look so much forward to seeing you all in Bilbao!

With best regards,

Hans Nørgaard Hansen
President of CIRP 2021-2022

From the Editor

Dear CIRP colleagues,



Once again it is an honor to connect with you via the CIRP Newsletter. As our 71st CIRP General Assembly in Bilbao fast approaches, we are all eager to reunite with our colleagues and friends, and reengage with inspiring scientific and technical discussions with one another.

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) or directly to myself (kaane@uwaterloo.ca).

I would also like to draw your attention to the section on our website “Education Portal”, meant as a medium to share relevant information related to manufacturing education.

Any member who wants to contribute to this section is welcome to do so. Any relevant information can be sent to the CIRP Secretariat (cirp@cirp.net).



With best regards,

Kaan Erkorkmaz
CIRP Technical Secretary

News from Members

Professor Erman Tekkaya receives the SME Gold Medal



Prof. Erman Tekkaya

Prof. Tekkaya has been awarded the SME Gold Medal for his fundamental contributions to the development of science-based manufacturing, his technological innovations, unifying international networking, world-wide promotion of young scientists and contributions to teaching.

Prof. Tekkaya is professor at the Institute for Metal Forming and Lightweight Components (IUL) of the TU Dortmund University in Dortmund/Germany. He studied mechanical engineering in Ankara/Turkey and completed his doctoral studies in Stuttgart/Germany. His research interests cover fundamentals and technology of novel metal forming processes, as well as material characterization for modelling plastic deformations.

Prof. Tekkaya was recipient of the International Prize for Research & Development in Precision Forging of the Japan Society for Technology of Plasticity in 2014. He has been appointed as an Honorary Professor of the Xi'an Jiatong University in 2019 and serves since 2015 as a Visiting Professor of the Ohio State University.

Prof. Tekkaya is Fellow member of the CIRP, member of the SME, the German Materials Society (DGM), the Japanese Society for Technology of Plasticity (JSTP), the International Cold Forging Group (ICFG) and the International Impulse Forming Group (I2FG). He is editor-in-chief of the gold access journal Advances in Industrial and Manufacturing Engineering (AIME) and member of the Board of Trustees of the German Research Association for Steel Application (FOSTA).

Professor Tekkaya was member of the CIRP Editorial Committee from 2013 to 2021, where he served as the Chair from 2018 to 2021. Since 2021, he has been chairing the CIRP Task Force "Future Publishing".

<https://www.sme.org/aboutsme/newsroom/press-releases/2022/sme-selects-manufacturing-leaders-for-2022-international-honor-awards/>

Professor Jian Cao Elected to the National Academy of Engineering



Prof. Jian Cao (left)

Prof. Jian Cao of Northwestern University, whose work has led to innovative manufacturing processes and systems that have resulted in increased material manufacturability and more flexible, energy-efficient manufacturing, has been elected to the National Academy of Engineering (NAE). Election to the academy is among the highest professional distinctions accorded to an engineer. Cao is one of 111 new members and 22 international members announced by the NAE. Prof. Cao was cited by NAE for “pioneering a flexible sheet forming system and for leadership in manufacturing.” She will be inducted during the NAE’s annual meeting on October 2.

Cao’s research interests in manufacturing focus on deformation-based and laser additive processes. Her work has made fundamental contributions to the characterization of the effects of material structure on forming behavior of metals and woven composites. Her research group has designed unique manufacturing equipment for microforming, dieless sheet forming, and additive manufacturing. Her current work has direct impacts on energy-efficient manufacturing, surface engineering, and distributed manufacturing.

Prof. Cao, who directs the Northwestern Initiative for Manufacturing Science and Innovation (NIMSI), has received several awards, including the Milton C. Shaw Manufacturing Research Medal and the ASME Blackall Machine Tool and Gage Award from the American Society of Mechanical Engineers. Her other honors include SME’s Gold Medal and Taylor Medal and the Charles Russ Richards Memorial Award from ASME and Pi Tau Sigma. In 2019, the US Department of Defense named Cao a Vannevar Bush Faculty Fellow, the most prestigious and competitive single investigator research award given by the defense department. She was also named a 2019 fellow by the American Association for the Advancement of Science.

Professor Yusuf Altintas Elected Member of the National Academy of Engineering (USA) and of ACATECH (Germany)

Prof. Yusuf Altintas, Past President of CIRP (2016-2017), has recently been elected an international member to two prestigious academic organizations, the US National Academy of Engineering (NAE), and German National Academy of Science and Engineering (ACATECH).

Prof. Altintas' membership in the NAE recognizes his leadership in the field of "metal-cutting mechanics and machine tool systems research and industry applications." The NAE is part of the National Academies of Sciences, Engineering, and Medicine in the USA. It has 2698 members, of which Dr. Altintas joins as one of the 22 international members elected this year. NAE has a total of 310 international members recognized with this prestigious honor.



Prof. Yusuf Altintas

The German academy, ACATECH brings together expertise from various science and engineering fields. With around 600 members, Dr. Altintas is one of only three academic members to ACATECH from Canada.

At UBC, Prof. Altintas holds the NSERC–P&WC-Sandvik Coromant Industrial Research Chair, where he conducts research on the development of digital models of machining physics integrated with machine tool structural dynamics and the computer control system. His publications have received about 34,500 citations with an h-index of 96 on Google Scholar. His digital manufacturing technology is used by more than 300 companies in the aerospace, machine tool, and machining industries, globally. He has also trained numerous academics and engineers in the field of manufacturing.

Professor Ajay Malshe named Fellow of the National Academy of Inventors



Prof. Ajay Malshe

Prof. Malshe, R. Eugene and Susie E. Goodson Distinguished Professor of Mechanical Engineering at Purdue University, has been named a Fellow of the prestigious National Academy of Inventors (NAI). The NAI Fellows Program highlights academic inventors who have demonstrated a prolific spirit of innovation in creating or facilitating inventions that have made a tangible impact on quality of life, economic development, and the welfare of society.

Election to NAI Fellow status is the highest professional distinction accorded solely to academic inventors. The organization designated 164 fellows for its 2021 class. Prof. Malshe was inducted Fellow during a ceremony held in June 2022 in Phoenix.

NAI boasts more than 1,400 fellows worldwide representing more than 250 universities and governmental non-profit research institutes. The recipients hold more than 48,000 issued US patents, which have generated more than 13,000 licensed technologies, 3,200 companies, and created more than 1 million jobs. Additionally, more than \$3 trillion in revenue has been generated from NAI Fellow discoveries.

Prof. Malshe's research areas and contributions include advanced manufacturing, bio-inspired design, multifunctional materials, science and frugal engineering for equitable technologies and products. Areas of his application interest and contributions are advanced agriculture and food manufacturing, in-space manufacturing, heterogeneous microelectronics packaging and high-performance mechanical machines.

Malshe currently holds 26 U.S. patents. He was inducted to the National Academy of Engineering in 2018, "for innovations in nanomanufacturing with impact in multiple industry sectors." He was named one of the 20 Most Influential Professors in Smart Manufacturing by the Society of Manufacturing Engineers (SME) in 2020. Other accolades received by Prof. Malshe include the NanoBusiness Alliance's Lifetime Achievement Award (2018), the Small Business Association Tibbetts Award (2014), the R&D 100 Award for his TuffTek® tool coating, and three Edison Awards (2017, 2016, 2014). He is Fellow of the American Society of Mechanical Engineering, American Society of Materials, International Academy of Production Engineering (CIRP), and the Institute of Physics in UK.

Winter Meeting 2022

Through the highly dedicated and successful organization of the CIRP Office, the 2022 CIRP Winter Meeting was held virtually during February 16-18. Over 372 members, research affiliates, and guests participated on-line. In spite of the time zone difference faced by the attendees from all around the world, the sessions took place in an atmosphere of lively engagement, and with fruitful technical discussions.



A snapshot from the CIRP Winter Meeting - the STC-M participants saying "machines".

From the Editorial Committee

(by Prof. S. Kara, EC Chair)



COVID has continued to affect our operations, as a result, no physical Editorial Committee (EC) meeting was held in Paris. Majority of the reviews were done off-line remotely, and the critical discussions, such as resolving conflicts and paper decisions, were made through on-line EC meetings. The new Elsevier Editorial Manager system made the remote review process easier. Although the EC managed to complete the reviews in a timely manner, there has been a unanimous agreement within the EC that a shorter, in-person meeting in Paris would be extremely valuable for the EC members, in particular, for those who are just starting their EC terms.

The Editorial Committee has had only few changes in the last year. Our colleague, Paulo Martins joined as a new EC member. In addition, our colleague József Vancza has kindly accepted the EC Vice-Chair role. I welcome both in their new role and look forward to working with both, together with the rest of the EC, to serve the CIRP.

As the EC Chair, I would like to thank the members of the Editorial Committee as well as the STC officers for doing their reviews in a timely manner, and for their support despite the significantly increased workload and the COVID related challenges. It is without doubt that their collegiality and continuing support have made the running of the EC tasks easier and enjoyable. I would also like to thank all the authors for their patience and understanding during the transition to the new review system.

The 2022 EC review process

With the Elsevier Editorial Manager system successfully updated, the 2022 paper reviews were carried out fully on-line via the new Elsevier platform. In the new system, abstract submissions are no longer required. Therefore, 236 regular paper submissions (four more than 2021) were received in 2022. 20 papers were cooperative work papers and 24 submissions were sponsored. Including the 10 Keynotes, 512 Volume 1-equivalent reviews have been performed by the Editorial Committee. In addition, each STC-Chair and Vice-Chair reviewed and ranked all the paper submissions independently in their own STC. Hence, every paper submission received at least 4 independent peer reviews. Each paper was screened for original content using iThenticate software, and as applicable, through literature surveys relevant to the proposed paper. The iThenticate scores ranged from 2% to 35% with an average of 10%. Again, most of the papers with an iThenticate score above 25% were carefully checked, and those above 30% rejected due to unacceptable similarity with existing publications. Also, papers which presented only marginal contribution beyond earlier published work were rejected.

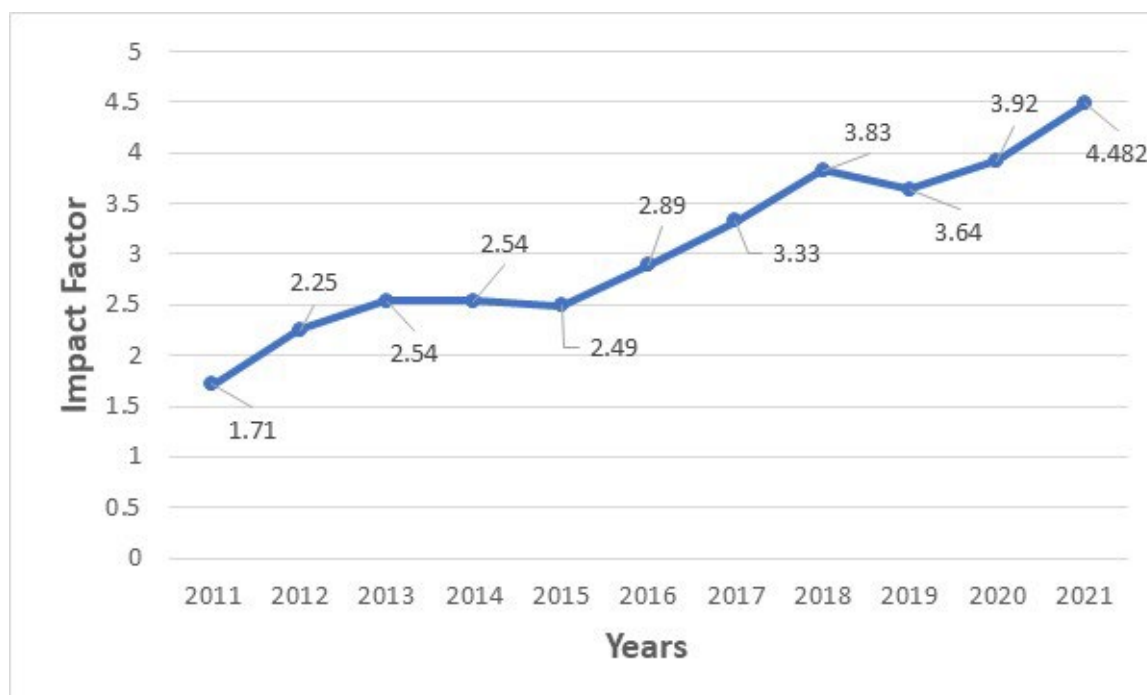
In all, 53.3% of the submitted papers have been accepted, with the acceptance rates across the STCs varying between 38% to 68%. As in the past, the papers have been judged purely on quality, not based on the available presentation slots.

**Submitted and accepted regular papers in 2022 over the STCs
(six papers have been transferred between STCs)**

	Submitted Papers	Accepted Papers	Acceptance Rate
STC A	26	11	42%
STC C	25	17	68%
STC Dn	15	7	46%
STC E	40	19	47%
STC F	22	14	63%
STC G	19	10	53%
STC M	24	16	66%
STC O	27	14	52%
STC P	13	5	38%
STC S	25	13	52%
Overall	236	126	53%

CIRP Annals Impact Factor

The impact factor has continued to increase from 3.92 in 2020 to 4.482 in 2021. Based on the estimation of Elsevier, we may expect further increase of the impact factor in 2022.



With the implementation of the new Elsevier EM system, the efficiency, reliability, quality, transparency, and flexibility of the CIRP EC paper review process have been improved. In addition, a new task force has been set up to develop and propose new measures in consultation with the CIRP community, to improve the quality of papers and the review system further.

From the CIRP Journal of Manufacturing Science and Technology

(by Prof.-Dr. Bernhard Karpuschewski, Editor-in-Chief)

Since the inclusion of the CIRP JMST in the Science Citation index in 2018 the journal has received fast-rising international attention. The Covid-19 pandemic based lockdown has further increased the attention of scientists worldwide to submit their work to our journal. Since 2019 worldwide the number of submitted papers to all journals has gone up significantly, because writing papers (as well as scientific project proposals) was one of the most efficient things scientists could do while staying in their home office. With the rise of submissions, the number of finally accepted papers has also been growing as shown in Fig. 1. Looking to the continuous high submissions, we might expect to exceed 1000 submitted manuscripts already in 2022.



Fig. 1: Submitted manuscripts to CIRP JMST.

We, as a team of dedicated editors, have done our best to handle this increasing workload. Currently, the team consists of 21 Associate Editors, as shown in Fig. 2.

Editor-in-Chief: Bernhard Karpuschewski		Founding Editor-in-Chief: Laszlo Monostori	
STC A: Michael Hauschild		Jack Hu	
STC C: Thomas Bergs		Kostas Bouzakis	
Paul Mativenga			
STC Dn: Alain Bernard		Eric Lutters	
STC E: Ajay Malshe		Michael Schmidt	
STC F: Markus Bambach		Livan Fratini	
STC G: Jan Aurich		Konrad Wegener	
STC M: Yusuf Altintas		Erhan Budak	
STC O: Tullio Tolio		Jozsef Vancza	
STC P: Alkan Donmez		Wei Gao	
STC S: Han Haitjema		Enrico Savio	

Fig. 2: The whole editorial board of CIRP JMST 2022.

As a very positive development, we can communicate that we managed to deal with these increasing submissions while decreasing the handling time per manuscript. Fig. 3 shows the results of our efforts over the last years. The time from submission to first online dissemination was reduced to some 23 weeks.

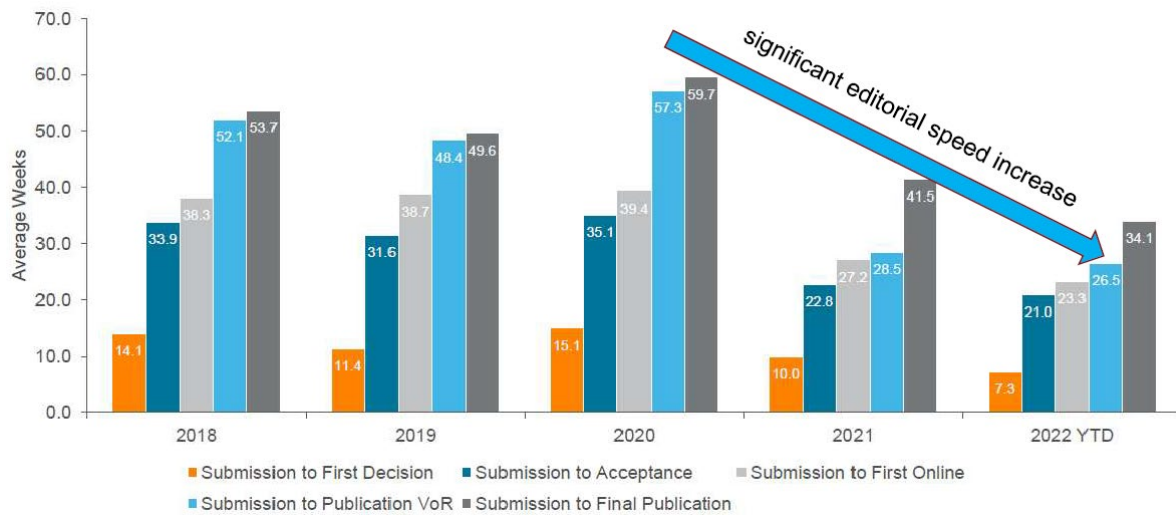


Fig. 3: Average editorial and publication durations.

Currently a dedicated task force is discussing the future publication strategy of our academy, of course also addressing the CIRP JMST. We will keep the academy updated once further progress is made.

From the CMAG Group



Dr. M. Fujishima
Chair



Mr. Yavuz Murtezaoglu
Vice-Chair



Dr. Luis Uriarte
Secretary

The CMAG Winter meeting was held remotely on February 17th. At the beginning of the meeting Prof. Hansen (CIRP President) addressed the importance of cooperation between industry and academia, and brought attention to CIRP initiatives on digitalization, using AI in advanced manufacturing, and sustainable manufacturing. He also emphasized the importance of future publication as a task of CIRP and encouraged us to receive feedback from the industry.

Dr. Fujishima and Prof. Byrne acknowledge that sustainability is a key issue for the manufacturing industry.

We had four technical presentations. The contributions to CO₂ reduction, requested by the CMAG Chairperson at the last summer meeting, were presented. Good technical discussions were held after each presentation. These can be summarized as follows:

1. “Energy efficient Machine Tool”, by Prof. Berend Denkena (IFW)

Prof. Denkena presented the energy efficiency at machine tools which is one of the most important challenges of CMAG. Major components of machine tools, which consume energy, are used to keep the machine running stably. Using the demand-oriented cooling method and other improvements saves 20-75% of energy consumed by the cooling system. The supply of cutting fluid also could be saved by up to 75%. The supply of cutting fluid can be optimized for tooling by finding a sweet spot in machine operation, while a decent length of tool life is still retained. With the CAM-based approach, up to 20% energy consumption can be reduced. With further (advanced) simulations, even up to 45% energy consumption can be reduced. The NC program can be modified with the practical or simulation-based approach.

2. “Design for additive manufacture of complex fluid flow components”, by Dr. Vimal Dhokia (Gen3D)

Gen3D moved its original focus on structural optimization for additive manufacturing to a more specific focus as design for complex fluid systems produced by additive manufacturing. Significant reduction of 85% in weight has been achieved by using optimized parts manufactured in the additive manufacturing process. Using single

iteration design with the optimized fluid paths demonstrated that the process from design to prototype took seven days, which also provided an important advantage.

3. “Manufacturing technologies applied to the industrial development of PEM electrolyzers”, by Dr. Luis Uriarte (Tekniker)

Tekniker is a technology center specialized in Advanced Manufacturing, Surface Engineering, Product Engineering and ICTs for manufacturing. Dr. Uriarte presented the main challenge in the massive use of H₂ PEM electrolyzers as the reduction of costs, especially the manufacturing costs being significant. The development of new materials by using sputtering technologies and advanced laser manufacturing will be the key to cost reduction. A constant balance between the performance and cost of the electrolyzer must be maintained so that decarbonization by using H₂ PEM electrolyzers can become more widespread and cost-efficient.

4. “Quality Implications of Applying 3+2 Axis Toolpaths in 3D Printing”, by Dr. Yavuz Murtezaoglu (ModuleWorks GmbH)

Dr. Murtezaoglu, President of ModuleWorks, presented the proposal of eliminating the support for workpieces in the additive manufacturing process so that waste can be reduced, which is also beneficial to the environment. With an algorithm for 5-axis additive manufacturing, the printing direction can be automatically, continuously updated, to improve the distribution of cusp heights and reduce the number of support structures. This approach can also further minimize waste generated in the additive manufacturing process while the quality is being maximized.

The current Chairperson, Dr. Fujishima, will request the members of CMAG to approve the current Vice-Chair to be the next Chairperson and the current Secretary to be the new Vice-Chair during the upcoming CMAG meeting, which will be held in Bilbao. The election for the new Secretary will be proposed accordingly.

Corporate members are organized by 171 organizations and companies.

We are looking forward to seeing you at the CMAG session that will be held on August 23rd in Bilbao.

From the Research Affiliates

Message from the RA Steering Committee



Dr. Alborz Shokrani
Chair



Dr. Till Clausmeyer
Vice-Chair



Dr. Amir Malakizadi
Secretary

Dear Research Affiliates and CIRP Colleagues,

This year, online meetings was the new norm and it was great to see that colleagues felt more comfortable to participate in online discussions. Following the continued COVID-19 restrictions, the RA Winter meeting was organised online and the ongoing collaborations and the organisation of the RA workshop and CIRPe conference in 2022 were discussed. Prof. Adam Claire presented the new initiative on the CIRP publication strategy which was followed by a discussion with the RAs. The RAs welcomed the colleagues who have recently joined the community. At the end of the meeting, the Research Affiliates elected the new RA board as Alborz Shokrani (Chair), Till Clausmeyer (Vice-Chair) and Amir Malakizadi (Secretary). The new steering committee would like to thank the outgoing Chair, Dr. Xi Vincent Wang for their support and leadership over the past year.



In March 2022, we received the very sad news that our RA colleague, Dr Johannes Lohmar has passed away. Johannes was an active member of the RA community and was present in our last Winter meeting. He will be greatly missed.

The two main events organized by the RA community are the annual RA Workshop and the CIRPe Global Conference. The 2022 RA workshop was held in a hybrid format by our colleagues Dr. Till Clausmeyer and Dr. Peer Woizeschke at TU Dortmund University in May. It included discussion and collaboration sessions as well as a tour of the facilities at the TU Dortmund University.

Further upcoming events are the CIRPe 2022 Global Web Conference led by Dr Amir Malakizadi and colleagues at the Chalmers University of Technology. The planning for the CIRPe 2023 is ongoing and it is expected to be organized by Dr. Salil Bapat, Purdue University. We would like to take this opportunity to encourage our CIRP colleagues to contribute to these conferences.

Now that the COVID-19 restrictions are easing around the world, we are looking forward to meeting our colleagues and friends in person again. Specially, we hope to meet those colleagues who have joined the RA community in the past two years and have not yet had an opportunity to attend one of the CIRP events in person.

The RA Steering Committee.

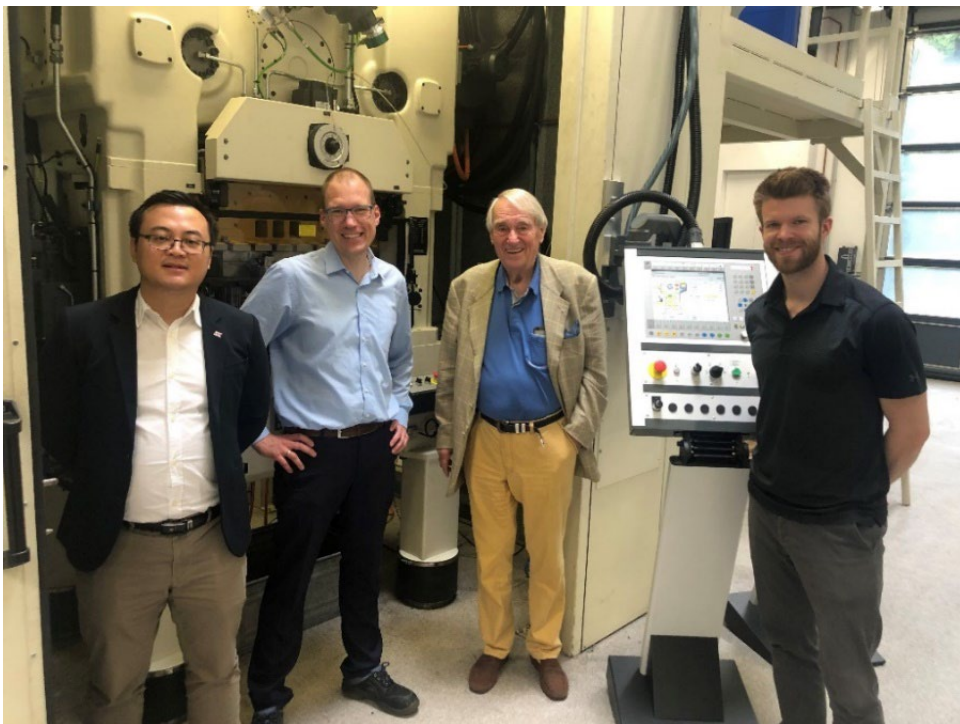
Report of RA Workshop (hybrid): “Manufacturing for our children: technology and engineering education”

During the 2-day event from May 19 until May 20, RAs participated either in-person in Dortmund or digitally, in different activities organized by Till Clausmeyer and Peer Woizeschke from TU Dortmund University. Prof. Dirk Biermann (Scientific-Technical Committee Cutting/STC-C) and Prof. A. Erman Tekkaya (STC Forming/STC-F) sponsored the event. The program started with a hybrid tour through the laboratories of Institute of Forming Technology and Lightweight Components (IUL) and Institute of Machining Technology (ISF). Prof. Biermann introduced TU Dortmund University, the Faculty of Mechanical Engineering and the ISF. He continued to present valuable insights into CIRP from his experience as chair of STC-C and member of the Nomination Committee. He encouraged the RAs to contribute to the new CIRP publication: “Novel Topics in Production Engineering” in his function as representative of STC-C.

The second day started with Prof. Tekkaya’s presentation on “Scientific contributions for the manufacturing community”, providing assessments based on his experience as Chairman of the Editorial Committee of the CIRP Annals and member of the CIRP Task Force “Future Publishing”. The RAs discussed their needs as junior colleagues of the CIRP community with him. The program continued with an interesting visit at KIST e.V., Dortmund, a local association focusing on expertise in punching and stamping. KIST representative Adolf Edler von Graeve (see picture) guided the visitors and provided valuable information on stamping technology. During the impressive tour, the digital

and in-person participants saw two presses in operation manufacturing a complete electrical connector used in cars, and the combined stamping and joining of an assembled stack of electrical sheets for the rotor of an electrical engine.

The workshop continued with an exchange on the roles of junior researchers in different countries. The RAs intend to create a documentation to help future RAs and members to identify the privileges and duties of specific positions in manufacturing science in different countries. The participants also started a collection of technical resources, which serves to initiate future collaborations. Finally, an exchange was initiated to identify changes in the past years in engineering education, which arise from technological challenges due to global trends, but also due to changing expectations in students.



Dr. Li Yi (RA from Technische Universität Kaiserslautern), Dr. Till Clausmeyer (workshop co-organiser), KIST representative Adolf Edler von Graeve and Joshua Grodotzki (IUL) from left to right in front of a Bruderer stamping press.

10th CIRPe Global Web Conference 2022

The 10th CIRP Global Web Conference – CIRPe 2022 will be held on October 25-27, 2022. Dr. Amir Malakizadi is Head of the organising committee and Chair of CIRPe 2022. The theme of the conference is “Material aspects of manufacturing processes”. With regard to the cross-disciplinary structure of the CIRP establishment, the scientific sponsors and organising committee specified the conference topics spanning from modelling and characterisation of material behaviours during manufacturing processes to design, assembly, life cycle engineering, process monitoring and data science aspects addressing the material utilization in production engineering.

The conference theme has been well-appreciated, and 64 abstracts from leading universities in 12 countries across the globe have been received. In addition, the organising committee has received two highlighted (review) article proposals originating from CIRP Research Affiliates collaborative initiatives. Down from here All submissions will be peer-reviewed by the CIRPe 2022 Scientific Committee, comprising of esteemed CIRP Fellows, Associate Members, and Research Affiliates.

Obituary for Dr.-Ing. Johannes Lohmar, Research Affiliate

We bid farewell to Dr.-Ing. Johannes Lohmar, our fellow Research Affiliate, colleague and friend who passed away completely unexpectedly on March 16, 2022 at the age of 36. Johannes Lohmar has worked at Institute of Metal Forming at RWTH Aachen University since 2008. From his start, employed as student assistant, he progressed continuously to his last position as senior engineer (Oberingenieur). He thus became a supporting pillar for the institute and left a lasting mark on it.

With Johannes Lohmar, we have not only lost a valuable member of the CIRP community, an extremely valued colleague and a good friend, but also a passionate scientist and a multi-faceted personality. His passing leaves a painful gap.

What remains is the memory of a wonderful person and the fruits that his scientific legacy will bear. We will keep Johannes Lohmar in honourable memory.

(Excerpt from the obituary of Institute of Metal Forming, RWTH Aachen University)

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.

2022 Keynote Papers

STC A

Closed-Loop systems to circular economy: A pathway to environmental sustainability? - S. Kara (1) - Contact: S.Kara@unsw.edu.au

STC C

Process monitoring of machining - R. Teti (1) - Contact: roberto.teti@unina.it

STC Dn

Designing value-driven solutions: The past and future of industrial product-service systems - D. Brissaud (1) - Contact: daniel.brissaud@grenoble-inp.fr

STC E

Bioprinting: materials, processes and applications - P. Bartolo (1) - Contact: paulojorge.dasilvabartolo@manchester.ac.uk

STC F

Simulation of metal forming - Visualization of forming phenomena in a digitized era - J. Yanagimoto (1) - Contact: jun.52074.yanagimoto@cem.t.u-tokyo.ac.jp

STC G

Advances in grinding tools and abrasives - A. Beaucamp (2) - Contact: beaucamp@me.kyoto-u.ac.jp

STC M

Mechanical interfaces in machine tools - E. Budak (1) - Contact: ebudak@sabanciuniv.edu

STC O

Daydreaming factories - A. Nassehi (2) - Contact: aydin.nassehi@bristol.ac.uk

STC P

Advances in metrological performance and traceability of X-ray computed tomography - W. Dewulf (1) - Contact: wim.dewulf@kuleuven.be

STC S

The implication and evaluation of geometrical imperfections on manufactured surfaces - B. Mullany (1) - Contact: bamullan@uncc.edu

2023 Keynote Paper Proposals

STC A

Automated assembly of non-rigid objects - S. Makris (2) - Contact: makris@lms.mech.upatras.gr

STC C

Digital twin for cutting processes - T. Bergs (2) - Contact: t.bergs@wzl.rwth-aachen.de

STC Dn

Biologicalization driven product designs - A. Malshe (1) Contact: amalshe@purdue.edu

STC E

Digital twin for electro-physical and chemical processes - Y. Guo (1)
Contact: yuebin.guo@rutgers.edu

STC F

Plasticity and future of stress superposition in metal forming - E. Tekkaya (1) - Contact: Erman.Tekkaya@iul.tu-dortmund.de

STC G

Grinding of composites materials - B. Zhang (1) - Contact: zhangb@sustech.edu.cn

STC M

Sensor and actuator integrated tooling systems - F. Bleicher (2) Contact: bleicher@ift.at

STC O

Platform based manufacturing - T. Tolio (1) - Contact: tullio.tolio@polimi.it

STC P

Gear metrology - An update - G. Goch (1) - Contact: fgoch@uncc.edu

STC S

Modelling and simulation of surface generation in manufacturing processes -
G. Tosello (2) - Contact: guto@mek.dtu.dk

Cross-STC

Biologicalisation in manufacturing - Current state and future trends - K. Wegener (1) -
Contact: wegener@iwf.mavt.ethz.ch

2024 Keynote Paper Proposals

STC A

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

STC C

Sustainable machining - P. Arrazola (1) - Contact: pjarrazola@mondragon.edu

STC Dn

Scientific foundation of data science for engineering design - A. Liu (2)

Contact: ang.liu@unsw.edu.au

STC E

Dynamic beam shaping in laser processes - M. Schmidt (2) - Contact:

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; marion.merklein@fau.de

STC G

Advances in modelling of fixed abrasive processes - P. Krajnik (2) – Contact:

krajnik@chalmers.se

STC M

Hybrid metal additive-subtractive machine tools and applications - S. Smith (1) -

Contact: smithss@ornl.gov

STC O

Virtualization and autonomy in manufacturing systems - G. Putnik (2) -

Contact: putnikgd@dps.uminho.pt

STC P

Integrated metrology for advanced manufacturing systems - A. Archenti (2) - Contact:

archenti@kth.se

STC S

Surface conditioning in machining processes - V. Schulze (2) - Contact:

volker.schulze@kit.edu

Cross-STC

Artificial intelligence in manufacturing

Cross-STC

Industrial symbiosis in discrete manufacturing

2025 Keynote Paper Proposals

STC A

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

STC Dn

Digital twins for engineering design – N. Anwer (2) –

Contact: nabil.anwer@ens-paris-saclay.fr

STC G

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

Contact: hitomiy@ufl.edu

STC M

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

Contact: hc.moehring@ifw.uni-stuttgart.de

STC P

Dimensional metrology based on ultrashort pulse laser and optical frequency comb

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

Cross-STC

Production technologies and systems for e-mobility

2026 Keynote Paper Proposals

STC P

Machine learning in production metrology - G. Lanza (1) - Contact: gisela.lanza@kit.edu

Our CIRP Conferences

6th CIRP Conference on Surface Integrity (CSI, June 2022, France)

The conference started with a cocktail party on 7 June at 17:00 in a hotel near the congress centre. Pre-registration of participants was organised. The conference officially started on Wednesday 8 June at 09:00 and ended on Friday 10 June at 13:00.

The conference started with an opening ceremony. Then the traditional round table was organised with 5 experts in the plenary session (Prof. Brinksmeier, Prof. Arrazola, Dr. M'Saoubi, Prof. Rech, Dr. Dorlin) under the leadership of Dr. Meyer.

The conference was organised in hybrid mode with 3 or 4 sessions. All events (including opening and closing ceremonies, keynotes and scientific presentations) were streamed live via the TEAMS platform. In the programme, all participants were gathered at the beginning of each halfday for an opening session in the main auditorium. Afterwards, participants were asked to take part in one of 3 or 4 parallel sessions.

Speakers had the choice to present their work in one of three formats:

- Presenting their work in the room (traditional method). At the same time, the presentation was broadcast on TEAMS for remote participants. After the presentation, the participants in the room could interact with the speaker. The remote participants could ask questions via the chat. The session chairman had to find a balance between questions from the floor and from the remote participants.
- Presenting via video conference (TEAMS) and to interact with the audience (physically present in Lyon or connected remotely). Remote presentations from Asia were scheduled in the morning and remote presentations from America were scheduled in the afternoon.
- Showing a pre-recorded video of the presentation. All speakers were asked to prepare a pre-recorded video. These videos were stored on a dedicated website. In case the speaker was not present in the room, or the remote participant was not able to connect in time, the corresponding video was projected in the room and broadcast on TEAMS.

Thus, with these 3 modes of communication, 100% of the presentations were delivered on time (+/- 2 min.) according to the programme. Of the 162 oral presentations, 152 pre-recorded videos were received. Thanks to these pre-recorded videos, remote participants from Asia were able to watch the presentations in the afternoon (European time). Vice versa, participants from America were able to watch the presentation scheduled in the morning.

The organisation of the hybrid mode, combined with the pre-recorded videos, was a challenge. However, it made the conference reliable and accessible to participants, even in case of last-minute problems (pandemic, travel problems, etc.).

The conference ended with the closing ceremony by the two conference chairs and the award ceremony.

During the conference, participants were able to vote for a contribution for the "Best paper award" and a contribution for the "best young scientist award". For the latter, candidates had to be under 30 years of age on 1 January 2022 and candidates had to clearly state their intention to apply for an award when registering. A pre-selection of papers was made by the chairpersons on the basis of the review of the papers by the scientific committee.

The best paper award has been given to:

Effects of the Manufacturing Chain on the Surface Integrity when Machining Fir Tree Slots with Alternative Manufacturing Processes

U.Küpper, T.Seelbach, L.Heidemanns, S.Prinz, T.Herrig, T.Bergs

The best young scientist award has been given to the primary author of:

Influence of the reaming process on hole's surface integrity and geometry

T.Leveille, F.Valiorgue, C.Claudin, J.Rech, A.Van-Robaeys, U.Masciantonio, A.Brosse, T.Dorlin



29th CIRP Conference on Life Cycle Engineering (LCE, April 2022, Belgium)

Engineering Sustainability. With this ambition, 250 delegates from 27 countries shared visions, recent developments, and research findings during LCE2022: the 29th CIRP Conference on Life Cycle Engineering. Experts from industry and academia met to discuss how we can assess and improve sustainability throughout all phases of production and the product life cycle. Increasing frequency of extreme weather conditions, skyrocketing material footprints, higher risks of global pandemics... there are ample indications that addressing the sustainability challenge is more urgent than ever. By joining the LCE2022 conference, CIRP members, colleagues and friends have shown once more that CIRP is joining this worldwide quest for engineering a development that meets the needs of the present, while safeguarding the abilities of future generations.



LCE2022 was offered in a hybrid format, hence increasing robustness with respect to the COVID pandemic, while simultaneously reducing environmental impact of long-distance travel. During the sessions as well as during coffee breaks, opportunities for exchange of visions and experiences with both onsite (ca. 65%) and online (ca. 35%) delegates have been offered. The technical programme featured 149 technical talks and 6 keynote speakers from industry (Airbus, Umicore, BSH Appliances) and academia (TU Braunschweig, Leiden University, KU Leuven). In addition, on-site participants were offered additional opportunities for interaction during 3 workshops (Sustainable engineering education; Industrial Symbiosis; and Product passports) as well as during conference social events in the finest medieval locations of Leuven.



On 6 April, LCE2022 (4 – 6 April) and CATS2022 (6 – 8 April, organized at the same KU Leuven premises) joined forces. For the first time, both STC-A sponsored conferences were organized with coordinated agendas, enabling colleagues from all related fields to meet and further strengthen collaboration. Joint technical sessions concerned e.g. Disassembly & Recycling 4.0; Batteries; and Sustainable Manufacturing Systems. Moreover, keynotes and a subsequent panel discussion highlighted visions from academia and industry on the sustainable factory of the future.

9th CIRP Conference on Assembly Technology and Systems (CATS, April 2022, Belgium)

The 9th CIRP Conference on Assembly Technology and Systems - CATS 2022 - was held from April 6-8, 2022 and hosted by the Department of Mechanical Engineering, KU Leuven, Belgium.

The central theme of this edition was “**Flexible Assembly and Disassembly Systems**”. Experts from industry and academia met to present and discuss the latest developments and trends in the wide field from manual towards fully automated (dis)assembly technologies in a hybrid setting with 75 participants in Leuven and 30 online. The conference covered a range of keynotes and technical sessions including, but not limited to, flexible and reconfigurable (dis)assembly concepts and systems, human-robot interaction and collaboration, handling technologies, mobile and multi-robot systems, as well as operator support and ergonomics.

The CIRP CATS 2022 conference on Assembly Technologies and Systems (6-8 April 2022) has been organized back-to-back with the CIRP LCE 2022 conference on Life Cycle Engineering (4-6 April 2022). Delegates of both conferences had the opportunity to meet in a joint keynote session with panel discussion as well as 11 joint technical sessions on Wednesday 6 April, 2022 to foster cross-fertilization between both domains. Contributions presented during these joint sessions include, among others, design for assembly and disassembly, disassembly technologies, re- and de-manufacturing, and automation solutions for lightweight structure manufacturing.



CATS 2022 – Keynotes + Panel



On Thursday 7 April 2022 in the afternoon, an industrial forum on “Flexible Product Manipulation” was organized during which 9 companies presented and demonstrated their latest technological innovations.

The CIRP CATS 2022 international scientific committee has, as a result of the double peer-review process, accepted 47 papers for presentation and publication out of 72 submitted abstracts.

Thanks to all authors, presenters, and conference attendees for their valuable and interesting contributions.



CATS 2022 – Technical Presentations



Furthermore, the conference co-chairs would like to thank both scientific CIRP sponsors Prof. em. Hendrik Van Brussel (Honorary Chair, KU Leuven, Belgium) and Prof. em. Günther Seliger (TU Berlin, Germany), as well as all members of the International Scientific Committee and Local Organising Committee. Their support was key to the success of the CIRP CATS 2022 conference.

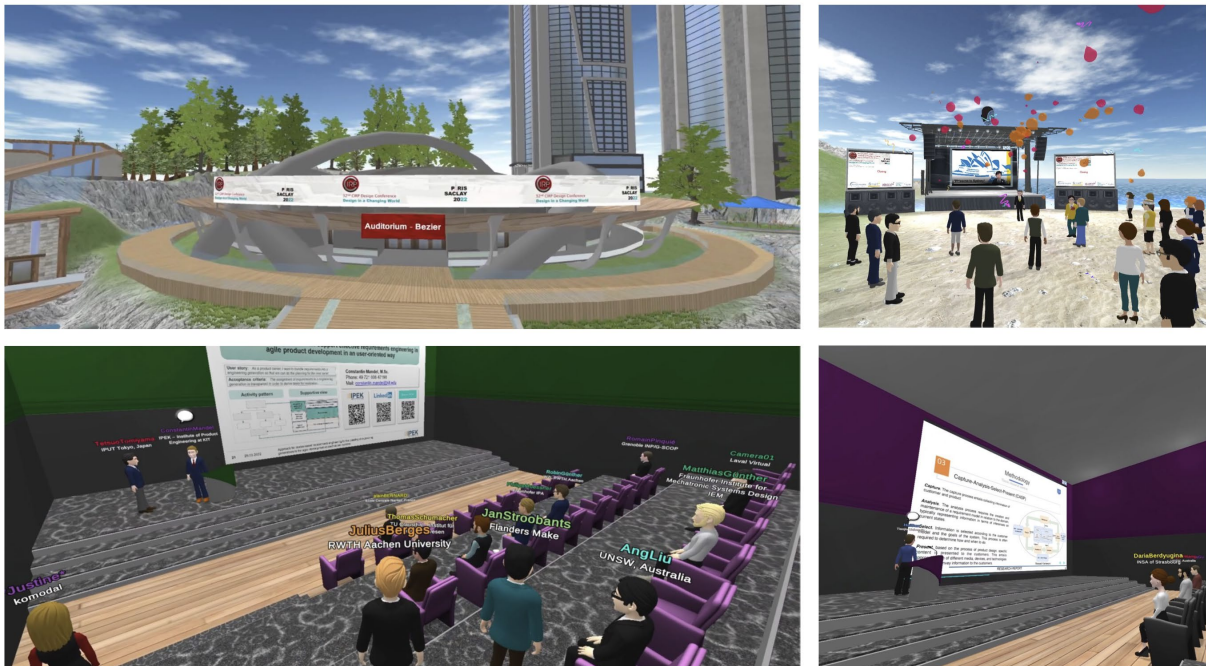
The CIRP CATS 2022 conference co-chairs,

Karel Kellens, Eric Demeester

32nd CIRP Design Conference (March 2022, France)

Due to the ongoing health risks surrounding COVID-19 and travel restrictions in some countries, the 32nd CIRP Design conference was held in a virtual environment.

The organizing committee researched among the various e-conferences solutions, those offering the most appropriate means to resemble the practices we have used in the past, considering the possibilities provided by digital technologies. For this purpose, the organizers selected Laval Virtual 3D environments based on VIRBELA predefined 3D platform. The virtual environment is accessed online, where participants interact and communicate through avatars, as if in a video game.



Laval Virtual Congress Center

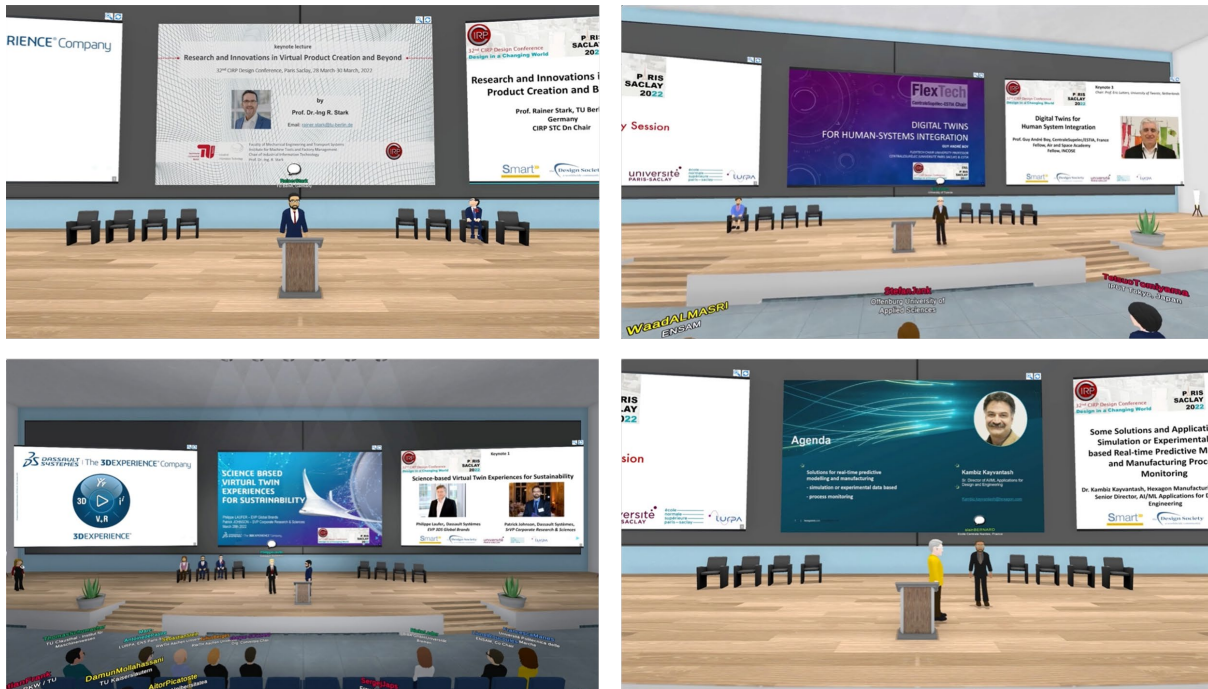
The 32nd CIRP Design conference is the first CIRP Conference to be held in Laval Virtual Congress Center, a private virtual campus offering an immersive 3D virtual space to provide the presence and emotional connection of being together in person. Even if the adoption of new technologies requires a certain amount of time and effort, participants have enjoyed the experience of Laval Virtual Congress Center. Despite some unavoidable technical problems, the various plenary and technical sessions allowed for fruitful discussions that continued well beyond the sessions.

151 participants from 21 countries attended the conference. The conference received 177 paper submissions. A total of 115 papers were presented in 30 sessions related to 16 different topics.

The conference featured four keynote presentations from:

- Prof. Rainer Stark on Research and Innovations in Virtual Product Creation and Beyond.
- Prof. Guy André Boy on Digital Twins for Human-Systems Integration.

- Philippe Laufer and Patrick Johnson (Dassault Systèmes) on Science-Based Virtual Twin Experiences for Sustainability.
- Dr. Dr. Kambiz Kayvantash (Hexagon Manufacturing Intelligence) on Solutions for Real-time Predictive Modelling and Manufacturing.



Keynote presentations

Feedback from the participants was quite positive. The virtual environment and new ways of interactions allowed rich and productive presentations, discussions, and exchanges.

54th CIRP Conference on Manufacturing Systems (CMS, Sep 2021, Greece)

The 54th CIRP Conference on Manufacturing Systems with the special theme: “Towards Digitalized Manufacturing 4.0” offered the opportunity to discuss the latest advances in Manufacturing Systems. The conference, initially planned to take place in Athens-Greece, took place online due to the recent COVID-19 pandemic.



Six keynote presentations and 331 regular papers were accommodated in the 7.5-hour daily schedule for all 3 days of the conference. The keynote papers were presented at the beginning of each day:

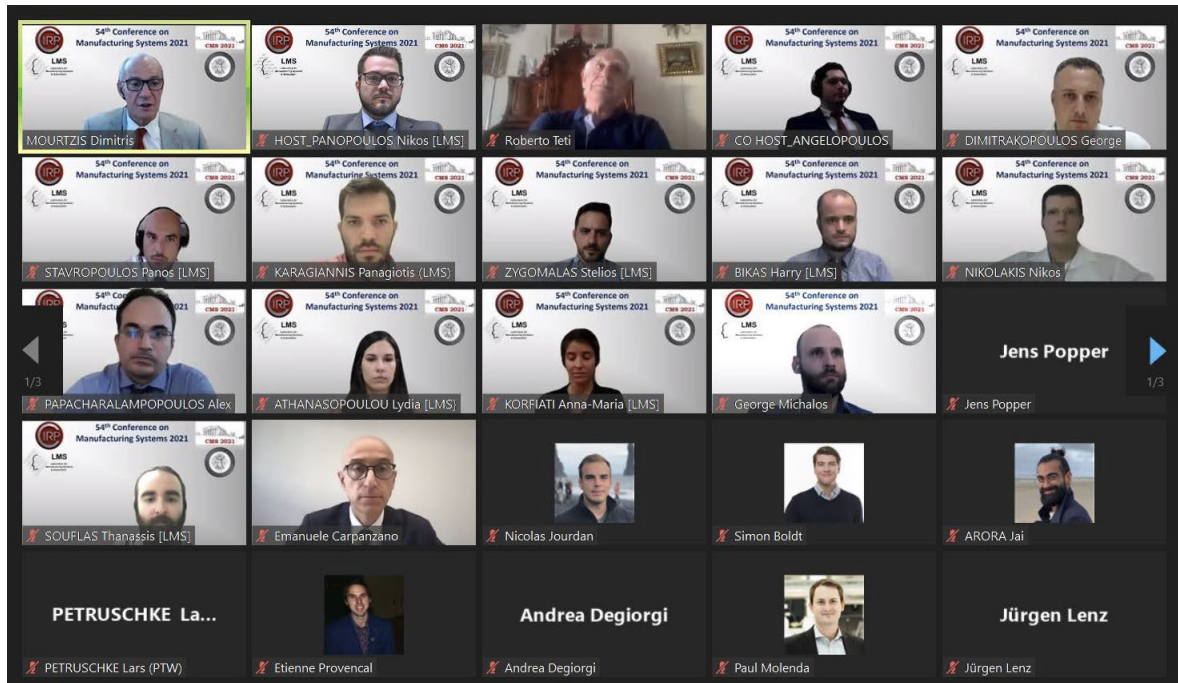
- KN 1: Dimitris Mourtzis “Smart Manufacturing and Tactile Internet Powered by 5G: Investigation of Current Developments, Challenges, and Future Trends”
- KN 2: Panagiotis Stavropoulos “The Environmental Impact of Manufacturing and the LMS approach”
- KN 3: Alexandre Dolgui “Combinatorial optimization approaches for the preliminary design of machining systems”
- KN 4: Sotiris Makris “Industrial human robot collaboration for flexible manufacturing”
- KN 5: Alain Bernard “Integration of additive manufacturing in production systems”
- KN 6: Kosmas Alexopoulos “Artificial Intelligence for Manufacturing Systems”

The CMS 2021 Organizing Committee embraced the significant challenges posed by the coronavirus pandemic and organized an event that allowed more than four hundred (400+) registered participants to virtually, but in real time, interact and disseminate their research, seek collaborations, and engage in discussions.

The scientific program contained in 67 sessions, covering the topics of: Industry 4.0 & Cyber-Physical Systems, Machine 4.0 & Operator 4.0, Internet of Things and Smart Sensing, Cloud Manufacturing, Social Media in Manufacturing, Advanced Human-Robot Collaboration, Smart systems via Big Data Analytics, Product Service System Engineering, Adaptive Self-learning Systems, Lean Manufacturing and Design, Virtual, Digital, Smart Factories, Customisation and Personalisation, Value-adding Networks and Logistics, Rapid Manufacturing, Predictive Maintenance & Lifecycle Management.

The paper abstracts can be found at <http://cirp-cms2021.org>.

64 papers were candidates for the Best Paper Award (BPA). The BPA Award Committee comprised of twenty (20) CIRP Fellows and IPC Members. Based on their evaluation, the first ranked paper was entitled: “Artificial Wear for the Assessment of Monitoring Performance” by Berend Denkena, Benjamin Bergmann and Tobias H. Stieh, which was announced by Prof. D. Mourtzis during the Conference Closing Ceremony (Friday 24-09-2021)



The closing the 54th CIRP CMS 2021

During the closing session, an invitation to the 55th CIRP Conference on Manufacturing Systems, to be organized by the University of Applied Sciences and Arts of Southern Switzerland - Department of Innovative Technologies, was extended to all participants by Prof. Emanuele Carpanzano.

Deep appreciation is due to the contributors of 55th CIRP Conference on Manufacturing Systems. Special thanks are extended to the Honorary Chair, Prof. G. Chryssolouris and Co Chairs, Prof. P. Stavropoulos, Dr. Sotiris Makris and Dr. Kosmas Alexopoulos. Sincere gratitude goes to the authors of the papers for their expertise, the time invested in this collaborative process, and for their contributions, and of course to the researchers and personnel of the Laboratory of Manufacturing Systems and Automation (LMS) for their dedication to the success of the 54th CIRP CMS conference.

The organizing committee,
 Dimitris Mourtzis (Chair)
 Sotiris Makris, Panos Stavropoulos, Kosmas Alexopoulos (Co-Chairs)

18th CIRP Conference on Modelling of Machining Operations (CMMO, June 2021, Slovenia)

The 18th CIRP Conference on Modelling of Machining Operations was held online from 15-17 June 2021, virtually from Ljubljana, Slovenia. For the virtual event Whova platform was used, offering the coordination of parallel sessions, discussions, booths of the industrial partners, as well as place for conference sponsors. The scope of the conference was to review and discuss the advances, research results, and industrial improvements in the field of machining processes and their modelling possibilities, which are facing significant and radical performance and technical changes. The conference's objective was to provide an international forum of researchers a place to share and discuss visions, state of the art, and innovations in the field, to disseminate the recent advances, views, and perspectives, and thus, generate a significant impact on the future of modelling of machining process.

The conference featured two keynote presentations from:

- Prof.-Dr. I.S. Jawahir, on Modelling of Machining Processes: Past, Present and Future, and
- Dr. J. Kenda with an industrial keynote on Collaboration between Industry and University: Modelling and Digital Twin of Manufacturing Process in Industrial Environment

During the first day, four, and during the second day, three parallel scientific sessions were held, with 20 sessions in total.

The conference was organized in fully online, after having been planned for the same date as an in-person conference. The chosen format of the conference was based on real-time presentation, followed by Q & A. Presentations of all authors, thus followed a predetermined agenda. After 15 min of presenting, the session participant had 5 minutes for discussion and questions. The session and discussions were moderated by the chairs. Besides the session chairs, there were also organizing staff present at session for technical help. The technical staff for the sessions were well-prepared and knowledgeable on Whova and Zoom platforms, which helps revolve any eventual technical issues. The session chairs coordinated the timing and audience response, thus encouraging the listeners to engage in the discussions. By this, a lively exchange of ideas was achieved. Since there were only three to four continuous sessions, the attendance was consistently high.

In alignment with the conference topics, special attention was given to the current challenges in the research and industrial environments, especially on possibilities for the numerical and analytical modelling of machining processes. This included, but was not limited to, the role of material behaviour and tribological aspects in cutting, dynamics and stability of machining, monitoring, diagnostics and optimization of machining processes, thermal effects and surface integrity of machined components, machining of additive-manufactured parts with complex surfaces and materials and, last but not least, application of artificial intelligence in the modelling of machining operations.

A total of 110 presentations were given by the participants, most of them addressing the technological developments propelled by the new challenges in emerging high-tech materials, novel technologies and/or processes, modelling and optimization of the processes, and the implementation of advanced technologies in state-of-the-art manufacturing processes, as well as corresponding digitalization/digital twin dimensions and challenges.

The 18th CIRP Conference on Modelling of Machining Operations, in spite of limitations imposed by COVID, was greatly successful, providing the CIRP community with a venue to reflect on the current and future issues in the area of modelling of machining operations, as well as introducing numerous young scientists to the community.

Future CIRP Conferences and Sponsored Conferences

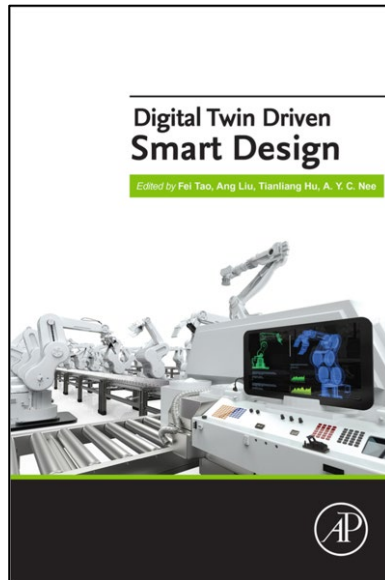
For the **most recent overview** of our coming CIRP Conferences go to “EVENTS” → [CIRP Conferences](#)

For the **most recent overview** of our coming CIRP Sponsored Conferences go to “EVENTS” → [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

Digital Twin Driven Smart Manufacturing Digital Twin Driven Smart Design Digital Twin Driven Service



In the past few years, a series of three books in the emerging field of Digital Twin have been published by Elsevier, authored by Prof. Fei Tao (Beihang University, China), and Prof. A. Y. C. Nee (National University of Singapore, Singapore), Dr. Ang Liu (University of New South Wales, Australia) and other scholars from dozens of famous universities and research institutions. The three books systematically discuss the related theories, methodologies and applications of digital twins in product design, manufacturing, and services.

The first book of the series (*Digital Twin Driven Smart Manufacturing, 2019*) focuses on taking advantages of digital twins to develop smarter manufacturing systems which can better respond to the changing manufacturing demands and conditions. In this book, the five-dimension digital twin model, digital twin shop-floor, as well as the various combinations of digital twins and other new information technologies are elaborated.

The second book (*Digital Twin Driven Smart Design, 2020*) integrates digital twins with smart design. It applies digital twins in different design activities, such as conceptual design, virtual verification, design evaluation, and design innovation, to provide the physical design process with greater intelligence.

Last but not least, the third book (*Digital Twin Driven Service, 2022*) combines digital twins with a set of industrial services in terms of fault diagnosis, energy assessment, and process management, to provide better user experience, valuable insights and systematic thinking.

The series of books is an integration of digital twin-related theories and applications in the three important stages in product life cycle (i.e. design, manufacturing and service). They represent the years of research outcome from the authors, which could help more scholars and practitioners incorporate digital twins in their works. The

<https://www.elsevier.com/books/digital-twin-driven-smart-manufacturing/tao/978-0-12-817630-6>

<https://www.elsevier.com/books/digital-twin-driven-smart-design/tao/978-0-12-818918-4>

<https://www.elsevier.com/books/digital-twin-driven-service/tao/978-0-323-91300-3>

https://www.amazon.com/Digital-Twin-Driven-Smart-Manufacturing-ebook/dp/B07NJ7PD6S/ref=sr_1_1?crid=9XG5XX4OXYTZ&keywords=Digital+Twin+Driven+Smart+Manufacturing&qid=1659107132&srefix=digital+twin+driven+smart+manufacturing%2Caps%2C57&sr=8-1

https://www.amazon.com/Digital-Twin-Driven-Smart-Design-ebook/dp/B088GQ9K4D/ref=sr_1_1?crid=1WUBBPLO1TVMH&keywords=Digital+Twin+Driven+Smart+Design&qid=1659107162&srefix=digital+twin+driven+smart+design%2Caps%2C129&sr=8-1

https://www.amazon.com/Digital-Twin-Driven-Service-Fei-ebook/dp/B09VXGPPPB/ref=sr_1_1?crid=11F2Q80KMUQFS&keywords=Digital+Twin+Driven+Service&qid=1659107193&srefix=digital+twin+driven+service%2Caps%2C85&sr=8-1

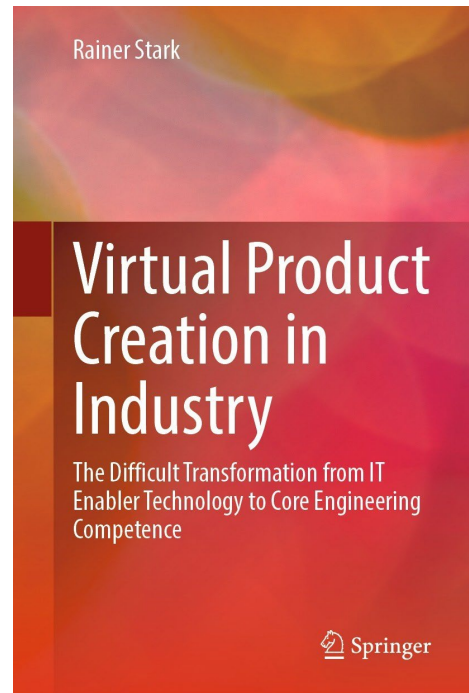
Virtual Product Creation in Industry

The Difficult Transformation from IT Enabler Technology to Core Engineering Competence

by Rainer Stark

Today, digital technologies represent an absolute must when it comes to creating new products and factories. However, day-to-day product development and manufacturing engineering operations have still only unlocked roughly fifty percent of the "digital potential". The question is why? This book provides compelling answers and remedies to that question. Its goal is to identify the main strengths and weaknesses of today's set-up for digital engineering working solutions, and to outline important trends and developments for the future.

The book concentrates on explaining the critical basics of the individual technologies, before going into deeper analysis of the virtual solution interdependencies and guidelines on how to best align them for productive deployment in industrial and collaborative networks. Moreover, it addresses the changes needed in both, technical and management skills, in order to avoid fundamental breakdowns in running information technologies for virtual product creation in the future.



<https://link.springer.com/book/10.1007/978-3-662-64301-3>

https://www.amazon.com/Virtual-Product-Creation-Industry-Transformation-ebook/dp/B09PJF887T/ref=sr_1_1?keywords=Virtual+Product+Creation+in+Industry&qid=1659040065&sr=8-1

Hybrid Manufacturing Processes

Physical Fundamentals, Modelling and Rational Applications

by Wit Grzesik, Adam Ruszaj

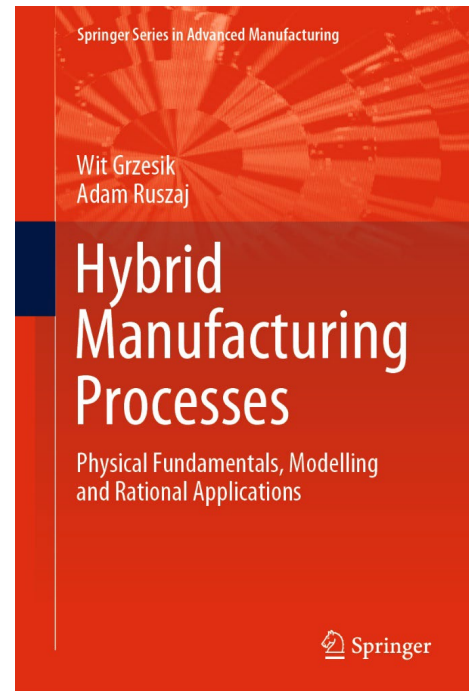
This book explores, in a systematic way, both conventional and unconventional material shaping processes with various modes of hybridization in relation to theory, modelling and industrial potential. The demand for high productivity and high accuracy in manufacturing is continuously increasing, based on improvement and optimization strategies. Hybridization of manufacturing processes will play a crucial role and will be of key importance in achieving environmental and economical sustainability.

Structured in three parts, Hybrid Manufacturing Processes summarizes the state-of-the-art hybrid manufacturing processes based on available literature sources and production reports. The book begins by providing information on the physical fundamentals of the removal and non-removal processes in macro-, micro and nanoscales. It then follows with an overview of the possible ways of hybridization and the effects on the enhancement of process performance, before concluding with a summary of production outputs related to surface integrity, specifically with respect to difficult-to-machine materials.

Considering the applications of different sources of hybridization including mechanical, thermal and chemical interactions or their combinations, this book will be of interest to a range of researchers and practicing engineers within the field of manufacturing.

<https://link.springer.com/book/10.1007/978-3-030-77107-2>

https://www.amazon.com/Hybrid-Manufacturing-Processes-Fundamentals-Applications-ebook/dp/B098M6QNX4/ref=sr_1_1?crid=2SRF017R2X359&keywords=Hybrid+Manufacturing+Processes&qid=1659105318&srefix=hybrid+manufacturing+processes%2Caps%2C56&sr=8-1

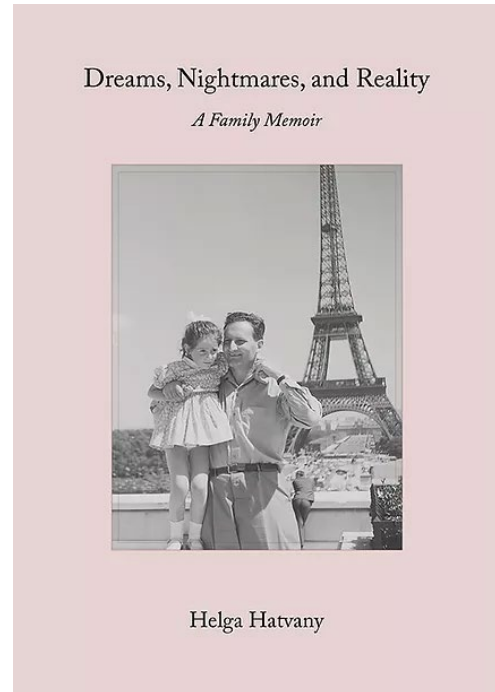


Dreams, Nightmares, and Reality – A Family Memoir

by Helga Hatvany (*daughter of József Hatvany, former member of CIRP*)

Dreams, Nightmares, and Reality not only chronicles Helga's stunning exploration of her family's history, but highlights one of the largest truths of all: her father's legacy is more than accolades and achievements. His biggest impact was on the lives of those around him—most especially her own.

At once an intimate and captivating portrait of a legendary European family and a larger-than-life father, *Dreams, Nightmares, and Reality* is a deeply felt multi-generational memoir that is sure to transport you from the first page—and never let go.



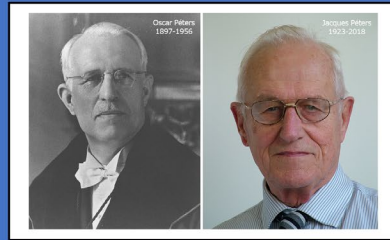
“A magnificent and thought-provoking book that illustrates the interplay of history, society, family, humanity, and technology, and takes us on a journey of discovery. The author solves the mystery of how József Hatvany became the extraordinary man she knew as her father. Dreams, nightmares, and reality--a recurring pattern that shaped everyone's life in the family--served as the foundation for József's groundbreaking theorem of innovation, which remains one of the most important design concepts in engineering today.”

- *Hiroyuki Yoshikawa, Member of the Japan Academy,
Professor Emeritus and former President of the University of Tokyo*

helgahatvany.com (Amazon, Barnes and Noble, and Indigo links available from this address)

O&J Peters Prize

The O&J Péters Fund



Call for nominations for: The International O&J Peter Prize 2022, and The O&J Peter's Grant for Development Cooperation

Since its foundation in 1986, the Oscar and Jacques Péters Fund has awarded the triennial **O&J Péters Prize**, honoring excellent scientific research in the field of production engineering. After Professor Jacques Péters passed away in December 2018, at the blessed age of 95 years, the Fund decided to pay tribute to the scientific work in production engineering of Professor Oscar Péters and his son Jacques Péters, who both have played a prominent role at world level by turning manufacturing research into a full-fledged scientific discipline, by establishing **The International O&J Péters Prize**.

The International O&J Péters Prize will be triennially awarded to one or more individuals for an excellent scientific and/or technological contribution, with positive societal impact, in the broad field of production engineering. The following areas are relevant for the Prize: production processes, production systems, dimensional metrology, precision engineering, production management, mechatronics, robotics, medical technology, sustainable production.

The Prize consists of a diploma and a cash prize of **50000 euros**.

Besides awarding this important International Prize, the Board of the O&J Péters Fund has decided to honor the special interest of Prof. Jacques Péters in including the Third World countries to benefit from the new developments in production engineering research and technology, by establishing **The O&J Péters Grant for Development Cooperation**.

The triennial **O&J Peters Grant for Development Cooperation** consists of a scholarship or grant awarded to one or more applications in one of the following three categories in the broad domain of production engineering.

Category 1. Postdoc scholarship for a research period at KU Leuven, between 3 and 12 months, of a researcher of an academic engineering school in a developing country, preferably to an alumnus/alumna of the Faculty of Engineering Science or the Faculty of Engineering Technology of KU Leuven.

Category 2. Financial support of a research or educational project executed in a developing country supported by the Department of Mechanical Engineering of KU Leuven.

Category 3. Starting grant to a young academic in a developing country, with a Ph.D. degree from KU Leuven, who starts off his/her academic career at an engineering school in his/her country.

The **Grant** amounts up to 35000 euros.

For **The International O&J Péters Prize 2022**, an email of intent to nominate received by May 15, 2022, is encouraged. The deadline for completed nominations is June 30, 2022. Details of the eligibility conditions and the nomination procedure can be found at <https://www.mech.kuleuven.be/o-j-peters-fund>. Self-nominations are not withheld. The nominated proposals will be carefully screened and the laureate assigned by the Selection Committee. The award ceremony will take place in November 2022.

The nomination procedure for **O&J Peters Grant for Development Cooperation** can also be found on the abovementioned website.

From the CIRP Office



Chantal Timar-Schubert

Annals papers/keynote papers submissions follow up, CIRP meetings, CIRP Website, candidatures for Membership, Internal Regulations and any internal information.



Agnès Chelet

Financial aspects: accountancy, membership fees, page charges, conferences sponsorships, Winter meetings registrations + Agendas & Minutes of the scientific meetings.

News

- The Abstracts of the Papers and Keynote Papers of the 2022 CIRP Annals are online on the CIRP Website
- From 2022 onwards, all the authors of CIRP Annals, who are not members, will be allowed to buy the CIRP Annals in which their article is published at the CIRP member price. This will be extended to former CIRP Annals too (info on the [authors' page](#)).
- Since Elsevier stopped its Procedia publications except our Procedia-CIRP for CIRP Conferences, organizers of CIRP Sponsored Conferences can now publish on SSRN (info on the [conferences page](#)).
- All information and links for the upcoming General Assembly in Bilbao is available online on our Website.

Future CIRP Meetings

- Dates of the [future CIRP Winter Meetings](#) 2023 - 2027
- Dates of the [future CIRP General Assemblies](#) 2022 - 2025