The International Academy for Production Engineering

NEWSLETTER

N° 56 – Spring 2018

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From the President

Dear CIRP Colleagues,

The 68th CIRP General Assembly is rapidly approaching. This year the General Assembly will be held in Tokyo, Japan from August 19 to 25. Professor Mitsuishi and his team have been hard at work to make this General Assembly a very productive and memorable event. The program will feature several special events. There will be a unique opening session and ceremony on Monday morning with the attendance of very special guests. The opening session will also include a presentation by Nobel Laureate Professor Takaaki Kajita, who shared the 2015 Nobel Prize in Physics for being the first to demonstrate that neutrinos have mass. On Wednesday, the Assembly Dinner will be held at the Imperial Hotel Tokyo, renowned for its impeccable Japanese hospitality. The Opening Session will be held on the campus of the University of Tokyo in the elegant and grand Yasuda Auditorium. The remainder of the sessions will be held at the Keio Plaza Hotel. We can look forward to an outstanding General Assembly in Tokyo.

The CIRP Winter Meetings in Paris this past February provided a stimulating and rewarding experience for attendees with intensive meetings of the STCs and the Collaborative Working Groups, including a well-attended meeting of the Collaborative Working Group on Additive Manufacturing. Attendance at the Paris Meeting has continually grown, with attendance having increased by 70 percent since 2006. The Council is continually monitoring the situation so as to preserve the special nature of our intense and fruitful discussions in the STCs and CWGs at the Paris Meeting. Last year, the Council moved to restrict the invitation of Guests in Paris, and in February a modest decrease in attendance was observed. The policy for the invitation of Guests to the General Assembly has not changed.

In Paris this past February, the Board and Council discussed various issues of importance to the CIRP Membership. One such discussion focused on the membership and Research Affiliate evolution with the trend of an ever increasing number of member and Research Affiliate nominations and the challenge of maintaining a proper balance of the membership and the Research Affiliates. The Board and Council are addressing this difficult issue, and are working toward preparing a proposal to the CIRP Membership.

I wish you a pleasant summer, and I look forward to the pleasure of meeting you in Tokyo.

With my best regards,

Don Lucca

President of CIRP 2017-2018

From the editor

Dear CIRP colleagues,

It is a pleasure to present the next CIRP newsletter, Nr. 56.

Besides the well used CIRP website (www.cirp.net), the newsletter brings any kind of news from CIRP members and for CIRP members.

All kind of news (news from members, awards, books written by members,…) relevant for our CIRP academy, is always welcome. Input can be sent to the CIRP office (cirp@cirp.net) or directly to me (bert.lauwers@kuleuven.be).

Bert Lauwers
CIRP Technical Secretary

News about Members

100th Birthday of Professor Zdzisław Marciniak

Professor Zdzisław Marciniak is amongst the most recognized researchers in various areas of metal forming technology and metals plasticity theory. His understanding of both theoretical background and industrial practice made him a great source of wisdom for generations of CIRP colleagues. Professor Zdzisław Marciniak was born in 1918 in Warsaw Poland. After finishing high school in 1936 he started education at the Warsaw University of Technology. Unfortunately, bursting terror of the Second World War forced University to shut down all activities. He could finish his studies after the war in 1945. Since then he was working as an engineer in various manufacturing companies. This invaluable experience brought him back to the University in 1954, where he started his academic carrier. At the age of 40 in 1958 he defended his PhD thesis in Mechanical Engineering at the Warsaw University of Technology and became full professor just 15 years later in 1973.

His scientific achievements during that period involved 10 books including the Mechanics of Sheet Metal Forming Processes co-authored with professors J. Duncan and J. Hu, as well as more than 100 papers both in peer reviewed journals and conference proceedings. Despite his academic carrier focused on theoretical aspects of metal forming he always followed his passion for practical engineering. Throughout the years, Professor Marciniak has developed various concepts of new machines and tools for metal forming, which found application in the industry worldwide. He holds 25 patents for his inventions.

Several of his achievements are particularly worth mentioning both from theoretical and practical fields of research:

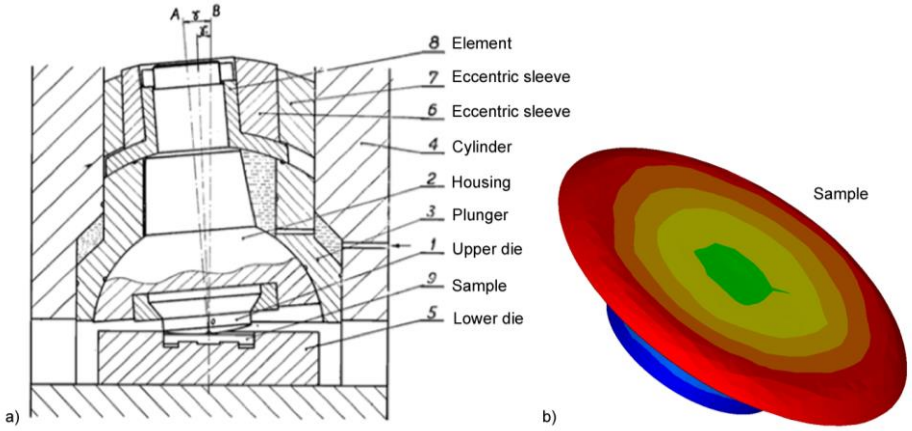
- Development of the stability loss and strain localization criteria in metal forming operations. The idea of the limit strains in sheet forming was published in the Int. J. Mech. Sci, vol. 9, 1967, 609-620 and is still highly cited. This idea was then improved, developed and published together with K. Kuczynski and became well known as M-K method (theory Marciniak-Kuczynski) of design of the forming limit diagrams.

- Development of time dependent constitutive laws for the theory of plasticity of metals. New constitutive relations, based on the internal variables, have been proposed what gave the possibility to account for the history of deformation and influence of thermally activated phenomena during modelling.

- Development of the new experimental techniques for metal forming investigations. Several new experiments for testing workability of metals and alloys have been proposed in cooperation with K. Kuczynski. Among them: i) Determination of the limit strain by biaxial stretching test by ram with additional ring, which eliminates the friction, ii) Method of measurement for getting pure bending moment-curvature relationship using special equipment installed on the tensile testing machine or iii) Method of determination of strain hardening exponent and shear fracture strain by means of in-plane torsion test for flat square samples.

- Development of metal forming presses with unconventional kinetics. Design of the press with rotating die have been widely used by the industry in Poland (presses PXW), USA, Switzerland, China and Japan. In 2015 concept was considered in the book 60 Excellent Inventions in Metal Forming (see figure below). All concepts of

unconventional metal forming equipment including transverse rolling mills, machines for pulsating shaping of rollers, cogging machines have been protected by 25 patents.



Marciniak orbital forming press a) schematic diagram, b) typical finite element results

- Development of new tools for metal forming processes. Around 1500 of different types of tools have been designed, manufactured and then used in the metal forming shops.

Prof. Marciniak often shared this knowledge and his experience during lecturing at various universities including UMIST University (Manchester/UK), McMaster University (Hamilton/Canada), Riken Institute of Physical and Chemical Research (Tokyo/Japan), Tsinghua University (Beijing/China) or Harbin Institute of Technology (Harbin/China).

He was also involved in scientific organizations and in particular International Deep Drawing Research Group (IDDR), where he was vice president between 1972-76, International Cold Forging Group (ICFG) and the CIRP International Academy For Production Engineering. In the CIRP he was basically active in the STC-F community where he presented his interesting contributions on sheet formability, multi stage deformation and warm working conditions (e.g. CIRP Annals vol. 36/1, 1987; CIRP Annals vol. 29/1, 1980; CIRP Annals vol. 39/1, 1990).

Professor Zdzisław Marciniak with Professors Karl Kuzman, Andrzej Kocańda and A. Erman Tekkaya during the ICFG meeting in Warsaw in 2008

Professor Zdzisław Marciniak was also very active in organization of research at the Warsaw University of Technology and in the national institutions. The most important was his engagement in the National Council for Higher Education, in which he was responsible for the organization of the Polish higher education system. Beyond this Professor Marciniak was vice Dean of the Mechanical Engineering Faculty and later vice Rector of the University responsible for the scientific research.

Professor Zdzisław Marciniak is certainly an extraordinary personality with fascinating biography. His achievements paved him a wide path to “metal forming pantheon” were he will be always remembered. However, most of all, Professor Marciniak is a great person always ready to help his friends and colleagues. This makes him an invaluable source of inspiration for many generations of metal forming adepts.

Professor Ajay P. Malshe Elected to National Academy of Engineering and received a Lifetime Achievement Award

Professor Ajay Malshe of the Department of Mechanical Engineering has been elected to the National Academy of Engineering, one of the most prestigious professional distinctions awarded to an engineer. Malshe holds the Twenty-First Century Endowed Chair in Materials, Manufacturing and Integrated Systems in the College of Engineering. Professor Malshe specializes in nanomanufacturing, bio-inspired systems, high-density electronic packaging and entrepreneurship in the University of Arkansas' Institute for Nano Science and Engineering. Membership in the National Academy of Engineering honors those who have made outstanding contributions to "engineering research, practice, or education, including, where appropriate, significant contributions to the engineering literature" and to "the pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing/implementing innovative approaches to engineering education," according to the NAE.

Professor Malshe was recognized for his innovations in nanomanufacturing, which have impacts in multiple industry sectors, as well as for his role as founder, executive vice president and chief technology officer of NanoMech Inc. in Springdale. NanoMech is the world's leading company in nanomanufacturing products for Fortune 500 global corporations in energy, transportation, racing, aerospace, industrial, defense and other key sectors.

As being strongly active in the domain of nanotechnology, he recently received a Lifetime Achievement Award from Nanobusiness Commercialization (https://www.nanobca.org/) for “Science and Engineering contributions to the nanotechnology community.” This is humbling and recognition to integration of science-engineering-economic development.

CIRP Winter Meeting 2018

The annual Winter Meeting at "La Mutualité" meeting-centre in Paris has been attended by 212 members, 61 Corporate members, 62 RAs, and 75 guests. The minutes from all the scientific meetings are available online.

Fellowship and Scholarship Established in Honor of Prof. David Dornfeld

We have been informed that the University of California, Berkeley has established a Fellowship and Scholarship in honor of the Late David A. Dornfeld. These are:

- David A. Dornfeld Fellowship
  An endowment with the annual payout supporting graduate students in Mechanical Engineering with a preference for students interested in Design or Manufacturing.

- David A. Dornfeld Scholarship
  An endowment with the annual payout supporting undergraduate students in Mechanical Engineering.

Information on making contributions to these endowments can be found at:

Fellowship: https://give.berkeley.edu/egiving/index.cfm?fund=FW8388000
Scholarship: https://give.berkeley.edu/egiving/index.cfm?fund=FW8426000

or by contacting:

University of California, Berkeley
Donor and Gift Services
Attn: David A. Dornfeld Graduate Fellowship (FW8388000) *Or*
Attn: David A. Dornfeld Graduate Scholarship (FW8426000)
1995 University Avenue, Suite 400
Berkeley, CA 94704-1070

Questions may be directed to: Dale Masterson at dmasterson@berkeley.edu or 510/643-5097

Our CIRP Conferences

19th CIRP Conference on Electro Physical and Chemical Machining - ISEM 2018, 23-27 April 2018, Bilbao, Spain

The 19th CIRP Conference on Electro Physical and Chemical Machining (ISEM2018) has been organized in Bilbao, Spain (**chairman: Dr. X. Maidagan**) . The conference was attended by 214 participants (from 17 countries) and 144 papers were presented. Copies of the proceedings are available at www.sciencedirect.com/journal/procedia-cirp/vol/68.

The Organizing Committee expressed its commitment with the young researchers that will undoubtly lead the next generation of scientists in the fields of ISEM in the next decades. For this, the company ONA gave a financial support to 10 grants of 500€ to be awarded to the best research works presented in ISEM by PhD candidates. An Award Committee has been in charge of selecting the best research papers, taking into account aspects such as scientific quality of the paper, its contribution with respect to the State of the Art, and the quality of the presentation.

Young PhD researchers presenting their research to the award committee and awarding ceremony (during the conference dinner)

7th CIRP Conference on Assembly and Technology Systems – CATS 2018, 10-12 May2018, Tianjin, China

The 7th CIRP Conference on Assembly Technologies and Systems (CATS 2018) was successfully held in May 10-12 in Tianjin, China. This conference was hosted by Tianjin University and was co-chaired by Professor Shuxin Wang at Tianjin University and Professor S. Jack Hu at the University of Michigan.

The theme of this conference was “Intelligent Assembly Systems”. 105 participants, including 5 CIRP fellows (Professor Peihua Gu, Professor Moshe Sphitalni, Professor S. Jack Hu, Professor Tian Huang, and Professor Bi Zhang), from 10 countries attended this event. The keynote speeches were addressed by Professor Baoyan Duan from Xidian University in China, Professor Jörg Krüger from Technical University Berlin in Germany, Professor Zhong You from University of Oxford in UK, and Mr. Weibing Yao from Guangzhou MINO Automotive Equipment in China.

The conference proceedings included 38 paper of high quality, focusing on new emerging technologies and approaches for assembly processes and systems. This conference provided an international platform for experts around the world to exchange ideas on the latest developments in current practice.

51th CIRP Conference on Manufacturing Systems - CMS 2018, 16-18 May, 2018, Stockholm, Sweden

On 16-18 May 2018, the 51st CIRP Conference on Manufacturing Systems (CMS 2018) was held at Stockholm Congress Centre in the city centre of Stockholm, Sweden. Prof. Lihui Wang and Prof. Torsten Kjellberg, both of KTH, served as the Conference Chair and Co-Chair, respectively. This is the 4th time that KTH organised a CMS conference. The theme of this year's CMC conference is *Smart Manufacturing*. To further promote CIRP in Swedish academia and industry, CMS 2018 was collocated with the 8th Swedish Production Symposium. Altogether 380 paid participants have attended the collocated conferences. With 268 accepted CMS papers, CMS 2018 is the largest CMS conference in its 51-year history.

CIRP CMS 2018 was featured with three keynote speeches from academia (by Prof. Hoda ElMaraghy, University of Windsor, Canada), industry (by Mr. Hans Olofsson, Scania CV, Sweden) and government (by Dr. Jan Ramboer, European Commission, Belgium). The 268 technical presentations were delivered in 76 parallel sessions for CMS 2018 alone, with in-depth discussions at the end of each session. The conference was sponsored by Produktion2030, XPRES, Scania, DMMS, Volvo, and SSAB.

Another highlight of CMS 2018 is its conference banquet in the evening of 18 May 2018 at Stockholm City Hall. Guests were served with the 2017 Nobel Dinner menu and accompanied with live classical music and opera singing. In the Nobel glory, the Best Paper Award of CIRP CMS 2018 was awarded to Mr. Bernd Waschneck of Universität Stuttgart, Germany, for the paper entitled "Optimization of Global Production Scheduling with Deep Reinforcement Learning". CMS 2018 was successfully completed by a cello solo of "The Swan" by Saint-Saëns.

3 days in Stockholm, lifetime in memory

28th CIRP Design Conference, 23-25 May 2018, Nantes, France

From 23th to 25 th May, the 28th CIRP Design conference was hosted in Nantes, France. It was a pleasure to welcome again CIRP members and scientific friends in the place as the 20th CIRP Design conference in 2010 and the 64th CIRP General Assembly in 2014. More than 100 researchers attend the conference organized by the engineer high school Ecole Centrale de Nantes on behalf of the LS2N laboratory (UMR CNRS 6004).

81 papers were accepted and presented during 13 thematic sessions. New topics had emerged such as: Data, knowledge and semantic aspects / Additive Manufacturing in progress / Creativity, innovation and human bio-inspired issues / Design & Education…

All papers were published through the open access journal Procedia CIRP, indexed in ScienceDirect.Procedia CIRP Volume 70, Pages 1-486 (2018), edited by Florent Laroche & Alain Bernard - ISSN: 2212-8271

Four scientific keynotes were given by Prof Eric Lutters, Prof Daniel Brissaud, Dr Mary Kathryn Thompson and the French design community S.mart. Subjects had addressed the (un)conventional thinking information flow though (virtual) reality, world changes due to cyberphysical systems, paradigm shift with Additive Manufacturing and more globally the Smart Manufacturing challenges.

Extra programs and social events were well appreciated: the civic reception by the Nantes city mayor on Wednesday evening and the city tour on Friday. The tutorial given by Pr Christopher A. Brown had gathered 10 persons during 4 hours working on axiomatic design. On Saturday 26th May, the doctoral workshop welcomed 15 phD students and senor researchers from all over the world. This conference had ambition to help to save the planet: no useless sheets or advertising leaflets, no one more bag and a program to recover 65 kg of food not consumed for an association or as waste for compost. Virtual records including keynotes, papers, tutorials and photos of the conference are downloadable for free on the website: https://cirpdesign2018.ec-nantes.fr

Future CIRP conferences

For the **most recent overview** of our CIRP conferences go to:

CIRP Conferences:
https://www.cirp.net/meetings-conferences/cirp-events-col-301/conferences/cat.listevents/2018/06/19/-.html

A list of CIRP Sponsored Conferences can be found on:
https://www.cirp.net/meetings-conferences/cirp-events-col-301/sponsored-conferences/cat.listevents/2018/06/19/-.html

CIRP Keynotes Papers

Our keynote papers are the result of an intensive collaboration between specialists working together during several years within an STC. 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:

2019 Keynote Papers proposals

STC A
Symbiotic Human-Robot Collaborative Assembly - L. Wang (1) et al. - Contact: lihuiw@kth.se

STC C
Biomaterials Machining: From Scientific and Technology Advances to Medical Applications - D. Axinte (1) et al - Contact: dragos.axinte@nottingham.ac.uk

STC Dn
Development capabilities for Smart Products - T. Tomiyama (1) et al. - Contact: t.tomiyama@cranfield.ac.uk

STC E
Visualization of Electro-physical and Chemical Processes - M. Kunieda (1) et al. - Contact: kunieda@edm.t.u-tokyo.ac.jp

STC F
Theoretical and Heuristic Prediction of Process Limits in metal forming - W. Volk (2) et al. - Contact: wolfram.volk@utg.de

STC G
Abrasive Processes for Micro Parts and Structures - J. Aurich (1) et al. - Contact: aurich@cpk.uni-kl.de

STC M
Robots in Machining - A. Verl (2) et al. - *Contact:* alexander.verl@isw.uni-stuttgart.de

STC O
Global Production Networks - G. Lanza (2) et al. - Contact: gisela.lanza@kit.edu

STC P
Geometrical Metrology for Metal Additive Manufacturing - R.K. Leach (2) et al. - Contact: richard.leach@nottingham.ac.uk

STC S
On-machine and in-process surface metrology for precision manufacturing – W. Gao (1) et al. - Contact: gaowei@cc.mech.tohoku.ac.jp

Cross-STCs
Advanced Manufacturing for Enhancing the Performance and Functionality of Tooling for Metal Forming - J. Cao (1) et al. - Contact: jcao@northwestern.edu

2020 Keynote Papers proposals

STC A
Absolute Sustainability - challenges to life-cycle engineering - M. Hauschild (1) et al. - Contact: mzha@dtu.dk

STC C
Broaching: Cutting Tools and Machine Tools for Manufacturing High Quality Features in Components - P. Arrazola (2) - Contact: pjarrazola@mondragon.edu

STC Dn
Design for Additive Manufacturing, Theories, Models, Tools and Methods - T. Vaneker (2) et al. - Contact: t.vaneker@ctw.utwente.nl

STC E
Space Manufacturing - B. Hon (1) et al. - Contact: hon@liv.ac.uk

STC F
Damage in Metal Forming: Mechanisms, Origin, Effects & Control - E. Tekkaya (1) et al - Contact: Erman.Tekkaya@iul.tu-dortmund.de

STC G
Interactions of Grinding Tool and Supplied Fluid - C. Heinzel (2) et al. - Contact: heinzel@iwt.uni-bremen.de

STC M
Energy Efficient Machine tools - B. Denkena (1) et al. - Contact: denkena@ifw.uni-hannover.de

STC O
Big data analytics and utilization in future smart factories - R. Gao (1) et al. - Contact: robert.gao@case.edu

STC P
Calibration standards, reference objects and calibrated workpieces in dimensional metrology - L. De Chiffre (1) et al. - Contact: ldch@mek.dtu.dk

STC S
Manufacturing of multiscale structured surfaces - E. Brinksmeier (1) et al. - Contact: brinksmeier@iwt.uni-bremen.de

Cross-STCs
Self-Optimizing Machining Systems – H.C. Möhring (2) et al. - Contact: hc.moehring@ovgu.de

2021 Keynote Papers proposals

STC Dn
Development Capabilities for Smart Products - T. Tomiyama (1) et al. -
Contact: t.tomiyama@cranfield.ac.uk

STC E
Additive Manufacturing in Emerging Manufacturing Systems and Economy - P. Butala (1) et al. - Contact: peter.butala@fs.uni-lj.si

STC M
Noise and Vibration in machine tools - K. Wegener (2) et al. -
Contact: wegener@iwf.mavt.ethz.ch

STC P
Advances in design of precision systems: from micro to large-scale - J.A. Yagüe-Fabra (2) et al. - Contact: jyague@unizar.es

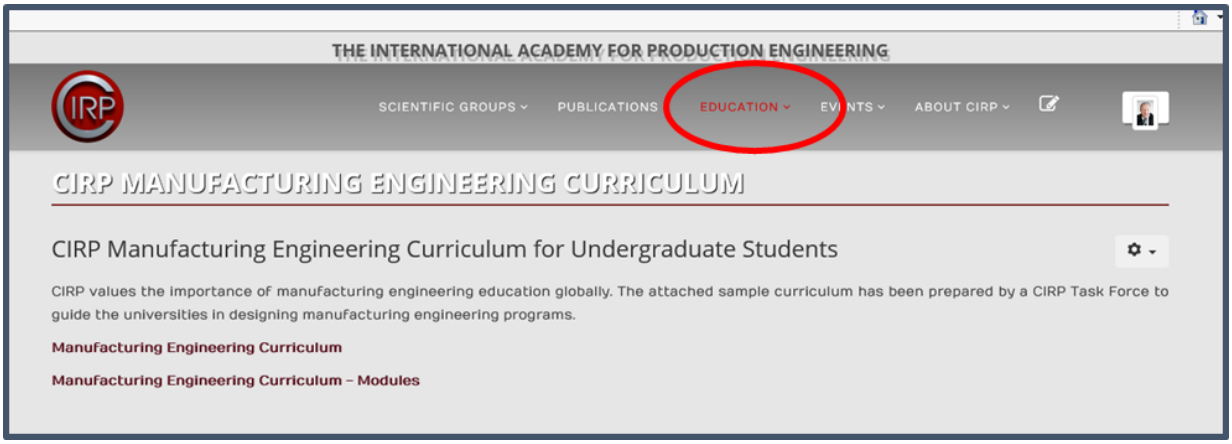
2022 Keynote Papers proposals

STC E
Ultrashort-Pulse Laser Manufacturing: Advances and Applications - L. Orazi (2) et al. -
Contact: leonardo.orazi@unimore.it

Manufacturing Engineering Education

CIRP values the importance of manufacturing engineering education globally. The Manufacturing Engineering Curriculum Committee (MEC) was formed on 8 September 2016, and is made up of the following members: Fengzhou Fang (Chair), Yusuf Altintas, Alain Bernard, Chris Evans, Tojiro Aoyama, Wei Gao and Srichand Hinduja. They prepared a sample curriculum to guide the universities in designing manufacturing engineering programs.

More information about this curriculum can be found on the CIRP web-site (tab – Education).



Our CIRP web-site can be a medium to share other relevant information related to manufacturing education. Any member that wants to contribute to this education section is welcome to do so. We currently propose that any relevant information can be send to the CIRP Secretariat (cirp@cirp.net). Based on the input, the CIRP board and council will evaluate how to proceed in this matter.

From the Research Affiliates

(by John Erkoyuncu, Chair Research Affiliates)

On behalf of the Research Affiliates (RAs), it is a great pleasure for me to give a brief update of the RA activities. In 2018, the Research Affiliates elected a new Chair and Vice Chair for the RA board. Currently, the board consists of John Ahmet Erkoyuncu (Chair, Senior Lecturer, Cranfield University), Roy Damgrave (Vice Chair, Assistant Professor, University of Twente), and Vincent Wang (Secretary, Assistant Professor, KTH). We are looking forward to grow the fruitful engagements throughout the network. With this opportunity we would like to once again thank outgoing Chair Olga and Secretary Taner.

In its 10th year, the CIRP RA program is continuing to offer young academics globally opportunities to develop in numerous ways. As of March 2018 the size of the RA community has grown to 124. The tradition for RAs to progress to become an Associate Member has continued in 2018 with three new additions. Some of the key benefits of the RA scheme are networking, sharing knowledge, and collaboration opportunities. As the new board we are planning a number of exciting opportunities to bring the RAs together to make the RA experience richer and more fruitful; here below you will find a brief overview of some of them.

On the 11th and 12th of July, we will have our next RA workshop in Aachen, Germany. Marcel Fey and his colleagues have set us the exciting challenge of: How would Google build a machine tool? The workshop also gives the opportunity for the RA collaborative working groups (that were set up in 207) to get together to progress with the research themes. The collaborative groups are in: "Additive manufacturing by multi-axis deposition" (initiator S. Campocasso, France), “Sustainability of production systems” (initiator P. Bilge, Germany), “Modelling and visualisation for through-life engineering” (initiator J. A. Erkoyuncu, UK), “Humain-robot cooperation” (initiator S. Pellegrinelli, Italy), and “Engineering education” (initiator R. Damgrave, Netherlands). These groups are encouraged to publish at various CIRP sponsored conferences (e.g. CIRPe) and CIRP journals.

I am also happy to note the return of the CIRPe conference. This is organized by Alessandro Simeone and Paulo Priarone. CIRPe 2018 – 6th CIRP Global Web Conference will take place on October 23rd-25th and further information is provided at CIRPe2018.pdr-group.org. Over the past few years the number of papers published have gradually increased to over 50 in 2016.

At the next CIRP GA to be held in August in Tokyo we will present the plans of the CIRP RA board. It will also provide opportunities for networking. We will also continue to allocate time for the collaborative working groups to progress with activities. We will continue the Panel Discussion at the GA, which we launched last year. This is intended to once again bring together CIRP Fellows, Associates and RAs to discuss important topics related to research in production engineering. This year we will have the collaborative working groups determine the topics for the debate.

Winter meeting in Paris

We also have expanded the RA Research Atlas, which has been coordinated by Rok Vrabic. This is a web portal to get a quick overview of the research expertise across the RAs. The weblink is: www.cirpexpertiseatlas.net where the RAs are invited to create their research profile and get the opportunity to form new collaborative projects with international colleagues.

The RAs are looking forward to new opportunities to learn from and contribute to the CIRP community and make progress together.

CIRP RA survey on Sustainability of Production Systems

During the CIRP General Assembly in Lugano 2017 five collaborative working groups have been launched within the community of the CIRP Research Affiliates on the following topics:

- Additive manufacturing by multi-axis deposition
- Engineering education
- Modelling and visualization for through-life engineering
- Human-robot cooperation
- Sustainability of production systems

Within the last collaborative working group “Sustainability of Production Systems”, a survey has been prepared to investigate the sustainability (perception) of four emerging smart production technologies: Human-Machine-Collaboration (HMC), Augmented Reality (AR), Automated Guided Vehicles (AGVs), and Big Data. The results of the survey will be used as input for a joined RA publication.

With this call, we would like to invite all CIRP members to response to this survey which will take around 10 minutes: https://nl.surveymonkey.com/r/VV59TSS

Thanks for your time and willingness to respond to this survey!

The members of the RA CWG Sustainability of Production Systems

- Pinar Bilge - TU Berlin, Germany
- Olga Battaia - ISAE-Supaero Toulouse, France
- Nicole Stricker - Karlsruhe Institute of Technology, Germany
- Ray Y Zhong - University of Auckland, New Zealand
- Xi Vincent Wang - KTH Stockholm, Sweden
- Sebastian Thiede - TU Braunschweig, Germany
- Karel Kellens - KU Leuven, Belgium

From the CIRP Office

Chantal Timar-Schubert

Annals papers and keynote papers submission process, CIRP meetings, the Website, candidatures for Membership, Internal Regulations and any internal information.

Agnès Chelet

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

News

- 68th CIRP General Assembly in Tokyo, Japan, from August 19 to August 25, 2018: all information is available online on the CIRP Website, from the Home Page.
- The Abstracts of the Papers and Keynote Papers of the 2018 CIRP Annals are online on the CIRP Website.
- Candidatures to be presented during next General Assembly are closed. The deadline to propose candidates for the next Winter meeting is on December 1st.

With kind regards,

Chantal

Future Meetings

Winter Meetings	General Assemblies
20-22 February 2019, Paris 19-21 February 2020, Paris	18–24 August 2019, Birmingham, UK 23–29 August 2020, Munich, Germany