

CIRP RA Summer News 2018

Editorial

Dear CIRP colleagues,

Welcome to the new issue of the CIRP Research Affiliate Newsletter! This issue provides information about the upcoming RA activities in 2018, the next CIRPe conference and RA workshop, an introduction to the new RAs and updates from current RAs.

We hope you will enjoy reading this newsletter and look forward to meeting the CIRP community again at RA Workshop in Aachen and General Assembly in Tokyo.

Best regards from CIRP-RA newsletter's Editors,
Sébastien Campocasso (University of Toulon, France)
Denys Plakhotnik (ModuleWorks GmbH, Germany)

Words from the RA Steering Committee by John Erkoyuncu, Cranfield University, UK

Dear Research Affiliates,



A new phase begins for our network. In the new CIRP RA Committee with Roy Damgrave (University of Twente, Netherlands) and Vincent Wang (KTH, Sweden), 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 Battaia and Secretary L. Taner Tunç.

In its 10th year, the CIRP RA program is continuing to offer young academics globally opportunities to develop in multiple ways. As of March 2018 the size of the RA community has grown to 124. Some of the key benefits of the RA scheme are networking, sharing knowledge, collaboration opportunities, and visits to each other. However, to a large extent, the benefits of the network depends on the pro-activeness and contribution of individuals. As the new board we are planning a number of exciting opportunities to bring us together to make your RA experience richer and more fruitful; here below you will find a brief announcement 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 to get together to progress with the research themes. New working groups are also welcome; we encourage you to propose one. The workshop at Aachen marks the 10th anniversary of the community. I hope you will be able to join this important event! I also would like to encourage volunteers to host the workshop in 2019.

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. I encourage all RAs to contribute to the conference and I am sure it will yet again be a great event.

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, which we launched last year. This is intended to once again bring together CIRP Fellows, Associates and RAs to discuss important topics related to production engineering. This year we will have the collaborative working groups determine the topics for the debate. We welcome any suggestions you may have for the Discussion.



Winter meeting in Paris

We'd also like to remind all RAs about the 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. If you haven't filled it yet, please visit www.cirpexpertiseatlas.net and create your research profile and get the opportunity to form new collaborative projects with your international colleagues.

We are looking forward to meeting you in person at our upcoming events and we hope you will enjoy your RA experience in 2018.

John Erkoyuncu, Chair of RA on behalf of Roy Damgrave and Vincent Wang

RA collaborative working groups

Collaborative working groups have been launched in Lugano. The discussions have been continued during the 2018 winter meetings, on the following topics:

- "Additive manufacturing by multi-axis deposition" (S. Campocasso)
- "Engineering education" (R. Damgrave)
- "Modelling and visualisation for through-life engineering" (J. Erkoyuncu)
- "Human-robot cooperation" (S. Pellegrinelli)
- "Sustainability of production systems" (P. Bilge)

Within the CIRP RA collaborative working group "Sustainability of Production Systems", a survey has been prepared to investigate the sustainability (perception) of 4 emerging smart production technologies: Human-Machine-Collaboration (HMC), Augmented Reality (AR), Automated Guided Vehicles (AGVs), and Big Data. People are invited to response to this survey which will take around 10 minutes: <https://nl.surveymonkey.com/r/VV59TSS>

Further information on collaborative working group activities and results will be reported in future newsletters.

Awards

Dr. Ray Y. ZHONG: best conference paper in the 2018 IEEE ICNSC



Dr. Ray Y Zhong, Research Affiliate since 2017, was awarded the best conference paper entitled "Analysis of RFID datasets for Smart Manufacturing Shop Floor" in the 2018 IEEE International Conference on Networking, Sensing and Control, Zhuhai, China, March 27-29, 2018. This conference brings together both academy and industry to address new challenges, share solutions and discuss future research directions. The conference theme is: Smart Industry, Smart City.

(http://explore.tandfonline.com/content/est/tprs-55-anniv?utm_source=TFO&utm_medium=cms&utm_campaign=JMQ04737).

Dr. XinQuan ZHANG: "SIMTech Best Research Achievement"

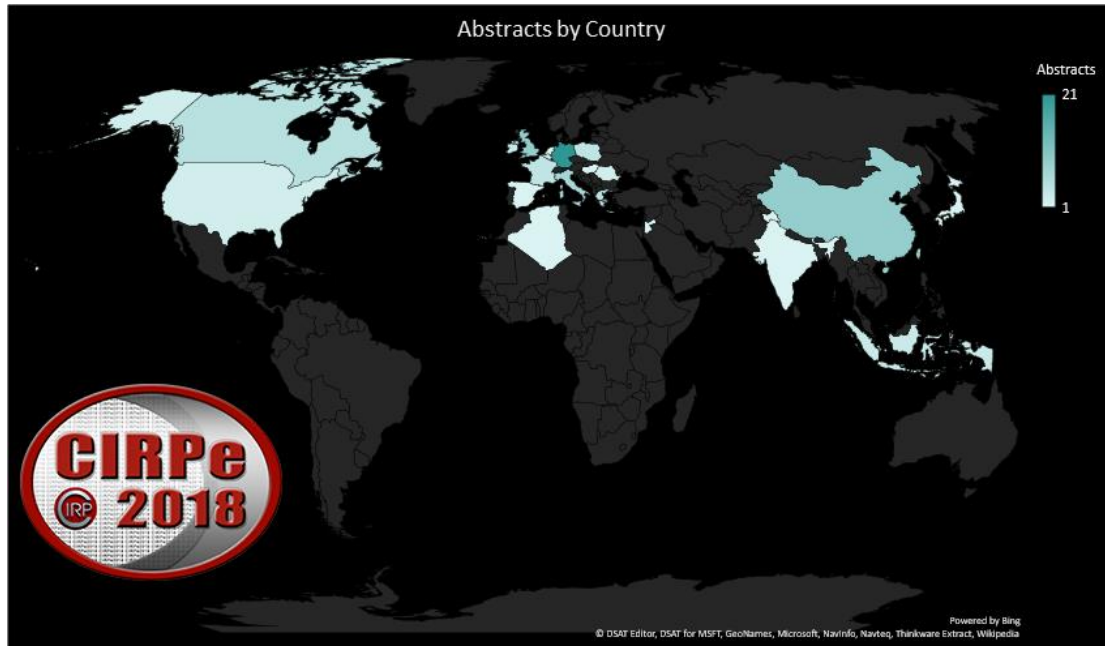


In March 2018, Dr. XinQuan ZHANG and his team were awarded the "SIMTech Best Research Achievement" from Singapore Institute of Manufacturing Technology (SIMTech). SIMTech is a national research institute of Singapore focusing on R&D of advanced manufacturing technology with more than 450 employees, and it is also a CIRP corporate member. This award is given to one research achievement every year by the institute, which is selected from more than 100 submissions and decided through panel review and presentations.

The title of the achievement is: "Machining of High-precision Roller Molds for Roll-to-Roll Embossing and Gravure Printing".

CIRP RAs events

CIRPe 2018 – 6th CIRP Global web conference



The Product Design and Realization Group at the Mechatronic Engineering Department of Shantou University, China, in cooperation with Politecnico di Torino, Italy, have received the honour to organise and host the 6th CIRPe Global Web Conference. Aiming at looking to the future trends of industrial production, the 2018 edition of the conference is entitled “Envisaging the future manufacturing, design, technologies and systems in innovation era”.

The conference aims at encompassing a wide range of topics such as:

- Advanced Manufacturing and Design Technologies
- Sustainability and Lifecycle Engineering
- Manufacturing Knowledge and Human Interaction
- Manufacturing Systems and Models

Since its first edition in 2012, this initiative of the CIRP Research Affiliates confirmed to be a successful open platform to gather young researchers and scientists from all over the world. The online streaming and the catchy interactive structure of the conference attracted people with diverse engineering background, and allowed them to share their ideas and get acquainted with emerging technologies in production engineering.

For the 6th edition, the committee accepted 84 abstracts involving researchers from 20 countries and 4 continents indicating a global spread interest. CIRPe 2018 papers will be published on *Procedia CIRP* (by Elsevier B.V.), which is indexed in the EI Compendex and Scopus databases, ensuring a high-quality publication standard and with free access (open access) for millions of researchers worldwide.

Communication and dissemination represent a necessary driver in today's world. A strong advertisement campaign on social media is being carried out, this time including Chinese social media such as Wechat and Sina Weibo to boost the visibility. Authors will be asked to send pitch videos for each work to be published for the event promotion.

In line with all the previous conferences, CIRPe 2018 will be provided without any costs for attendance. All presentations and relevant material will be broadcasted through ZOOM web conferencing system (considering also attendance in different time zones).

On behalf of the organizing committee, we look forward to welcoming you online for the 6th CIRP Global Web Conference – CIRPe 2018.

CIRPe 2018 Website: <http://cirpe2018.pdr-group.org>

Follow CIRPe 2018 on Chinese and Western social media:

- Facebook <https://www.facebook.com/CIRP.Web.Conference/>
- Wechat CIRPe2018
- Sina Weibo <https://weibo.com/u/6452250091>

Alessandro Simeone & Paolo Claudio Priarone

10th CIRP RA Workshop

From July 11th to 12th 2018, the 10th CIRP RA Workshop will take place at the WZL in Aachen. The city is located in the western part of Germany and is close to the borders of Belgium and the Netherlands. Aachen is a historically important city and offers several tourist attractions. The world heritage site of the 1215-year-old cathedral, the town hall and the old city centre are must-see. Aachen is also known as a student city. Over 40,000 students live and study here, within a total population of about 260,000 inhabitants.

Our workshop will focus on the following question: “How would Google build a machine tool?” We want to analyse this question by addressing the following aspects: business model, design, market, after sales and Industry 4.0.

We are sure that we will have plenty of time for further discussions. Additionally, we arranged some social events like:

- a city tour through Aachen
- dinner in the quaint and iconic restaurant "Knipp".
- a visit of the open cast mining facility in Weisweiler (near Aachen)
- an excursion to the Center for Wind Power Drives (CWD) of the RWTH Aachen University

So far, eight participants have registered and we are looking forward to have more registrations. Please, contact Dr. Fey, if you want to join the workshop or for any other queries.

We are looking forward to welcoming you in Aachen.

Contact Dr. Fey: m.fey@wzl.rwth-aachen.de

CIRP sponsored conference FUTURAS in RES

Dr. Sophie Hippman takes part in the organisation of the first conference FUTURAS IN RES, sponsored by CIRP, which will be held in Berlin from June 28th to 29th 2018.

The conference is about “Biological Transformation of Manufacturing”, understood as the process of increasing application of materials, structures and principles of living nature in technology with the goal of sustainable value creation. Reduced fees are proposed for CIRP RAs.

More informations can be found at <https://furas.fraunhofer-events.de/en/conference/>

Introductions from new RAs

Dr. Till Clausmeyer

Till Clausmeyer studied mechanical engineering (degree: Dipl.-Ing.) at TU Dortmund University. During his studies he began to work as student assistant at Institute of Mechanics of TU Dortmund University. He obtained his doctoral degree (Dr.-Ing.) in the field of mechanics at Institute of Mechanics in Dortmund. Supervisors of the thesis “Evolution of plastic anisotropy in metals: Material models, experiments and applications” were Prof. Bob Svendsen (now RWTH Aachen University), Prof. Andreas Menzel and Prof. Jörn Mosler (both, TU Dortmund University). Currently, Till Clausmeyer is head of the Applied Mechanics in Forming Technology group at Institute of Forming Technology and Lightweight Components (IUL) of TU Dortmund University. Research interests are material modelling and material characterization for forming processes. Of special interest are anisotropic plasticity, damage and failure as well as strain rate and temperature sensitivity. Modelling and analysis are applied to improve forming processes such as classical sheet forming, sheet bending, cold extrusion and blanking as well as sheet-bulk metal forming. To understand processes collaboration with material scientists is required to analyze the material behavior governing the finished component behavior.

Interests in joint work within the CIRP RA community span the mentioned topics, but also include cross STC effort, in particular with members from STC-C and STC-P.

Dr. Gianfranco Genta

I received the Ph.D. degree in “Metrology: Measuring Science and Technique” in 2010 from Politecnico di Torino, Italy, where I developed my Ph.D. thesis and kept working as Research Fellow at the Department of Management and Production Engineering. Since October 2016, I have been working as Assistant Professor with time contract in the same Department. My current research is focused on industrial metrology, with particular attention to the study of the metrological characteristics and the treatment of experimental data originated from measuring instruments in mechanical industry, and on quality engineering, with special interest in developing ad hoc procedures for quality control of production processes.

My expectation from being a CIRP RA consists in building new connections with other RAs in a stimulating international environment with a high scientific level. I am looking forward to discussing on current research issues of production engineering, in order to establish fruitful collaboration.

Dr. Martin Peterek

My name is Martin and I work at the Institute for Machine Tools and Production Engineering WZL at Aachen University, Germany. In my PhD study, I investigated a concept for the measurement uncertainty determination for measurements on machine tools. Since 2017, I am heading the department for production metrology at our institute.

Our research focuses on concepts, development and integration of metrology methods and systems for large-scale applications. We furthermore focus on compensation of thermal influences during the production. Based on process simulation, applied machine learning and adaptive production planning we try to optimize the production process of large-scale parts. Another topic is x-ray based computer tomography.

In my leisure time, I am into restoration of classic motor cycles and playing music. As an RA, I hope to meet many young researchers from all over the world and building strong networks for the future.

Dr. Soeren Gies

In 2011, I graduated in Industrial Engineering with a major in Production Engineering at TU Dortmund University and started my scientific career as a research assistant at the Institute of Forming Technology and Lightweight Components. In the early stages of my research work I was working on electromagnetic forming processes. The focus of my work was on the combination of this high-speed forming process with quasi-static forming steps and the integration in process chains. From September 2015 until April 2018, I headed the department of non-conventional forming processes. This allowed me to expand my field of research including incremental forming processes and joining by forming processes. Since May 2018, I am chief engineer at the Institute of Forming Technology and Lightweight Components which involves the initiation and supervision of research projects in various fields of forming technology. In my PhD thesis, which I will finalize in 2018, I am investigating the Joule heat losses of working coils for electromagnetic sheet metal forming processes. This interdisciplinary topic allows me to combine my expertise in the field of forming technologies with my interest in electrical engineering.

As a CIRP Research Affiliate, I hope to get in contact with young scientists from all over the world, which gives me the chance to expand my state of knowledge in terms of production techniques, scientific methods, and intercultural competence.

Dr. Zhirong Liao

Dr Liao received his PhD degree in 2017 at Mechanical Engineering, School of Mechanical and Automation Engineering, Harbin institute of technology, China. Since 2016, he has worked as a research fellow and rapidly established himself as a lead researcher within Rolls-Royce University Technology Centre (UTC) in Manufacturing and On-Wing Technology at University of Nottingham, supervising and generating multiple research projects within the area of aerospace manufacturing, while supporting and expanding the portfolio of the Centre. Dr Liao is also the assistant editor of International Journal of Machine Tools and Manufacture.

As a specialist in manufacturing, my research interest is on machining of difficult to cutting material (e.g. composite, nickel based alloy, biomaterial), material characterisation in Micro-Nano scale, surface integrity, nonconventional machining (e.g. laser machining, waterjet machining, laser assisted machining), micro-machining. It's my pleasure to join CIRP family as a research affiliate, which will provide me the opportunities to present my research and exchange ideas in the world-wide recognised manufacturing society. I hope within the community I will collaborate and interact with more international academics and engineers.

Dr. Fredrik Schultheiss

My name is Fredrik Schultheiss and I am an Assistant Professor at the Division of Production and Materials Engineering at Lund University, Sweden. In my PhD study, completed 2013, I focused on the machinability of ductile and strain hardening materials. Since then my research interests have broadened to now also include manufacturing systems and the important link between technology and economy. I have led multiple research projects within both machining and manufacturing systems and is currently project leader for a project on efficient recycling of brass chips. In my spare time I am a dedicated long-distance runner considering where to run my third marathon.

As a CIRP RA, I hope to expand my research network through meeting many young and upcoming production researchers. I am looking forward to countless discussions on state of the art production research and to meet new friends.

Dr. Benjamin Schleich

My name is Benjamin Schleich and I work as a Senior Engineer at the Institute of Engineering Design of the Friedrich-Alexander-University Erlangen-Nürnberg, Germany.

During my time as a PhD I developed a novel approach to the tolerance analysis and the geometrical variations modelling based on discrete geometry representations, which allows studying the effects of form deviations and manufacturing signatures on the behavior of mechanical assemblies. Since finishing my PhD in April 2017, I head two research groups at our institute, one dealing with geometrical variations management and the other focusing on engineering workbenches, knowledge-based engineering and machine learning in engineering design.

My research interests are intermediate fields between engineering design and production technology. More particularly, my research focuses on geometrical variations management, variation simulation, robust design, knowledge-based engineering, and machine learning in engineering design and virtual product realization.

In my spare time, I enjoy riding mountain bike and playing guitar.

As a research affiliate of the academy, I am looking forward to meeting many researchers and to foster my international network. Particularly, I am interested in establishing international research collaborations with experts in engineering design and production technology from all around the globe and in pushing forward joint research projects, scientific papers, and exciting discussions. Beside this, I want to learn from all members of the community about the past, present, and future of production technology in the international context.

Dr. Tom Taylor

My background is in combined Materials and Mechanical Engineering with specific application to the automotive sector. I specialise in Ultra High Strength Steel, Carbon Fibre Reinforced Polymer (CFRP), sheet material forming and automotive structural design. Currently, I am a Research Fellow at the University of Tokyo, leading development of concept out-of-autoclave CFRP part-manufacturing and CFRP-metallic hybrid-joining technologies, with primary application to automotive chassis / body, suspension and powertrain. The concept technologies are designed to reduce cost compared to current methods and thus optimise lightweight hybrid-construction for mainstream high-volume automotive engineering; and simultaneously reduce lead-time for competitive low-volume automotive engineering led by elite motorsport. The objective of all research & development activities that I engage in is industrial application. Previously, I worked at Tata Steel Europe for 7 years in positions of Research Engineer, Product Technologist and Product Design Specialist working hand-in-hand with the automotive industry.

I have interest in all Scientific and Technical Committees (STCs) of CIRP, as all are valuable to innovative lightweight automotive engineering. However, my main interest is in the Forming STC. Becoming a Research Affiliate of CIRP is an opportunity to expand knowledge and professional networks by engaging with academic and industrial leaders; and future leaders, in this broad, exciting and vitally important field of production engineering.

Nominations

Names of the New RAs in 2018

Dr.	Ali	ABDELHAFEEZ
Dr.	Debajyoti	BHADURI
Dr.	Yuanliu	CHEN
Dr.	Till	CLAUSMEYER
Dr.	Gianfranco	GENTA
Dr.	Soeren	GIES
Dr.	Benjamin	HAEFNER
Dr.	Dong Hyeon	KIM
Dr.	Zhirong	LIAO
Dr.	Ying Liu	LIU
Dr.	Amir	MALAKIZADI
Dr.	Martin	PETEREK
Dr.	Benjamin	SCHLEICH
Dr.	Fredrik	SCHULTHEISS
Dr.	Tom	TAYLOR

Names of the RAs whose membership expired in February 2018

Dr.	Carsten	REISE
Assist. Prof.	L. Taner	TUNC
Assist. Prof.	Hao	WANG
Dipl.-Ing.	Cathrin	WESCH-POTENTE
Dr.	Johannes	SCHILP
Dr.	Marcelo	URGO
Dr.	Huazhen	FANG

Names of the RAs becoming Associate Member in February 2018

Prof.	Olga	BATTAIA
Dr.	Anna	VALENTE
Dr.	Daniel	MEYER