



The International Academy for Production Engineering

NEWSLETTER

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From the President

Dear CIRP colleagues,

With great sadness we heard about the passing of our much valued colleague and friend, Past President of CIRP, Professor Kanji Ueda. He died after a short illness on November 10, 2015 in Sakai, Osaka-fu, Japan. His death was totally unexpected and has shocked all of us. Our thoughts go out to his wife Junko and his family.



Professor Kanji Ueda has been my presidential predecessor who committed himself to our academy in an admirable way. It is a great honor for me to be his successor and at the same time so sad that I cannot ask him for advice anymore and the Academy cannot benefit from his counsel. However, I myself and all of us will value our memories of him.

In the view of this sad news it is hard to return to normal. But we have no choice and Kanji Ueda would have advised us to do so.

Those of you who could not come to Cape Town have definitely missed a high level, professionally organized CIRP General Assembly. On behalf of all CIRP members I would like to sincerely thank Professor Dimitrov and his team once more for organizing this memorable event. My personal thanks go out to the CIRP senate and the membership who have given me their confidence to guide our academy for one year.

Thanks to the excellent work of our members, the organizational structure of CIRP, and the smooth presidential ramp up we were able to achieve remarkable progress within our work and were also able to contribute to some future developments already, as outlined below.

1. First, our continuous actions to improve the quality of our Annals have paid off by a stable high impact factor of 2.542. In the ranking of Thompson Reuter the annals are No. 2 of 43 for "Industrial Engineering" and No. 5 of 40 for "Manufacturing Engineering". In Google Scholar our Annals are now ranked No. 1, while our CIRP journal has already reached an impressive position 12. In our attempt to further develop the label "CIRP" another important decision was taken. From now on "Procedia CIRP" will be exclusively available for CIRP-owned conferences only. This is to guarantee a sufficient review procedure meeting our CIRP standards. CIRP sponsored conferences can of course use the regular "Procedia" channel from Elsevier.
2. Together with my colleagues from Council and with the approval of the General Assembly of Fellows we were able to sharpen the internal regulations regarding CIRP membership. I recommend taking a look into the modified Internal Regulations for getting to know the latest rules and procedures for Fellows, Associate Members, and Research Affiliates.
3. Based on discussions with the chairman of the Editorial Committee I have drafted a procedure for corporate members to present and publish CIRP Industrial Technical Papers. The idea behind this is to give our corporate members better opportunities for introducing new product and service developments, examples for transfer of science to industry, and other industry related matters. Abstract proposals can be submitted before November 15th 2015 and a first CMAG paper session will be planned for the GA in Portugal, 2016. For more information please login to the CIRP website and visit "Publications".
4. CIRP is a working academy and most of our basic scientific and technical work is done in our Scientific Technical Committees. By their valuable work the STCs pay attention

to current hot topics and give directions for future developments in production engineering. Among others, hot topics are for instance additive manufacturing and Industry 4.0 which address the work of practically all STCs. Therefore, I would like to encourage our STC boards - besides technical presentations - to give some room for discussion on how we could deal with new emerging fields within our STC structure. This will absorb some time within the meetings but the board and I would be very grateful for any ideas how we could accommodate emerging fields in our future work. We would be glad if the STC boards gave consideration to this.

Naturally, all our efforts to advance production engineering and to strengthen our network need a central node, which is our office in Paris. Since our responsibilities for CIRP committees are restricted to short time periods only, Chantal, Agnes, and Didier are our efficient collective memory. Therefore, my sincere thanks to them for their outstanding and supportive work! Finally, I would also like to thank Johan Meijer for his excellent work as technical secretary over many years. And, of course, my sincere thanks to our colleague Bert Lauwers for his commitment to serve as the new technical secretary for our academy.

I am very much looking forward to collaborating with all of you and seeing you in Paris next year.

With warm regards,

Ekkard Brinksmeier
President of CIRP 2015-2016

From the new editor

Dear CIRP colleagues,

Being nominated as CIRP Technical Secretary (August 2015), it is my pleasure to bring my first edition of the well known CIRP news letter.

I want to thank our previous editor, Professor Johan Meijer, which has doing this work for almost 15 years. As technical secretary, J. Meijer very often worked behind the screens and made enormous contributions to CIRP. Compiling and editing high quality news letter was one of the examples. Thanks Johan !



As the new editor of the CIRP news letter, I'll try to continue this work, in bringing CIRP news to all members. Bring news from the members is of course based on the input from every one of you. So all kind of news from members, relevant for our CIRP academy, is always welcome. Input can be send to the CIRP office (cirp@cirp.net) or directly to me (bert.lauwers@kuleuven.be).

Bert Lauwers
CIRP Technical Secretary

News about Members

Professor Waguih EIMaraghy elected as Fellow of the SME



Professor Waguih EIMaraghy has been elected to the 2015 SME College of Fellows because of his contribution to the manufacturing community as key contributor to the social, technical and educational progress of manufacturing.

Waguih EIMaraghy is professor of Industrial and Manufacturing Systems Engineering and director of the Intelligent Manufacturing Systems Centre at the University of Windsor. He has led important initiatives in his role as professor and head of the Department of Industrial and Manufacturing Systems Engineering, as well as special advisor to the vice president Academic on University/Industry Partnership. He has consulted for multinationals as well as small and medium-sized enterprises. EIMaraghy supervises a large number of graduate students at Windsor and internationally. His current research interests include complexity management, complex products design, smart systems and socio-technical-lifecycle aspects. He has more than 300 publications in international journals and conferences, four edited books and two patents. EIMaraghy has organized and participated in many international conferences, including the SME international Manufacturing Education conferences. He is a registered professional engineer in Ontario and a member of the Academic Requirements Committee of Professional Engineers Ontario. EIMaraghy is a fellow of: SME, the International Academy for Production Engineering (CIRP), the American Society of Mechanical Engineers, the Canadian Society for Mechanical Engineering, Engineers Canada and the Canadian Academy of Engineering. SME Member Since 1984

- See more at: <http://www.sme.org/2015-SME-College-of-Fellows/#sthash.7MZi38aC.dpuf>

Professor Fabrizio Micari has become Rector of the University of Palermo



Professor Fabrizio Micari has become Rector of the University of Palermo. Professor Micari is President of AITEM (Italian Association of Manufacturing Technology), member of the Board of Directors and Deputy Secretary of ESAFORM (European Scientific Association for material FORMing) and Fellow of the American Society of Mechanical Engineers (ASME).

Professor Micari has been Technical Secretary of STC F (1996-2001) and was chairman of the 12th International Conference on Sheet Metal (Palermo, April 2007) and the 10th CIRP Workshop on Modeling of Machining (Reggio Calabria, August 2007). In addition, he is Associate Editor of the International Journal of Forming Processes.

New professorship at MIT to honor of Professor Emeritus Nam P. Suh

Alumnus Hock Tan pledges \$4 million gift for a new chair

The Department of Mechanical Engineering (MechE) is pleased to announce a generous gift of \$4 million for the endowment of a new full professorship from alumnus Hock E. Tan's gift will enable MechE to recognize an outstanding faculty member in the department and to support and enhance its research and educational programs.



The new professorship will be named in honor of Professor Emeritus Nam P. Suh (left), a celebrated mechanical engineer and leader. Suh served as head of MechE from 1991 to 2001, and founded the Laboratory of Manufacturing and Productivity (LMP) and the MIT-Industry Polymer Processing Program. He served as president of the Korean Advanced Institute of Science and Technology (KAIST) from 2006 to 2013.

Suh was also an influential and supportive mentor to Tan. "Professor Suh was an inspiration to me, as well as a friend," Tan says. "I am very grateful for the support he gave me during my time at MIT."

"I am thrilled," he continues, "to be giving back to an institution that enables a student experience, an ecosystem even, in which great innovators and teachers like Professor Emeritus Nam Suh have thrived and influenced generations of students."

Tan (Right) came to MIT from Penang, Malaysia. He graduated with a bachelor's degree and master's degree in mechanical engineering in the same year, and later earned an MBA from Harvard Business School. He has held several high-level finance and executive positions in companies like PepsiCo and General Motors, as well as technology companies, such as computer-manufacturer Commodore International and Integrated Circuit Systems. He currently serves as CEO of Avago Technologies, a company that is brokering the largest takeover in high-technology history with its purchase of BroadCom. Both companies sell communications chips.

Tan's gift will be honored this coming fall in conjunction with an 80th birthday celebration for Professor Emeritus Suh, being held at this year's International Mechanical Engineering Congress and Exposition.



Professor Fengzhou Fang receives the SME Albert M. Sargent Progress Award



Professor Fengzhou Fang (Tianjin University Tianjin, China) is recognized with the **SME Albert M. Sargent Progress Award** for his scientific contributions to the nanometric machining of brittle materials and the development of multifunctional machine tools and measurement instruments for precision machining. Fang, a professor from Tianjin University, has been working in the field of manufacturing since graduating from college in 1982. He established the Centre of MicroNano Manufacturing Technology in 2005, which is one of the leading research institutions in manufacturing. Fang has successfully completed over 110 projects benefiting a variety of industries in the areas of micro/nanomachining, brittle materials machining and optical freeform manufacturing. His research has been recognized as a significant scientific contribution to the manufacturing field by organizations such as SME and CIRP. Fang and his team also developed multifunctional machine tools for precision machining, which has been used in production with high efficiency

and high precision. He proposed the concept of Manufacturing 3.0 and has made great efforts to showcase the significance for the development of industry and society as well. Fang is a pioneer in developing nanomanufacturing and the founder of the International Society for Nanomanufacturing. He is the founding president of ISNM, the editor-in-chief of the "International Journal of Nanomanufacturing," a council member of CIRP and a fellow of SME, CIRP and ISNM.

Professor Dorel BANABIC Fellow of the Romanian Academy



Professor Dorel BANABIC has been elected in June 2015 as Fellow of the Romanian Academy (<http://www.academiaromana.ro>) and the President of the Technical Sciences Section for his contribution in the field of theory of plasticity and metal forming technologies.

The Romanian Academy membership is the highest professional distinction accorded to Romanian scientists. There are 181 (Fellows and Corresponding members), a number established by law. He is acting as member in the Engineering Sciences section, including 9 engineers (3 Fellows and 6 Corresponding members) representing all engineering domains (civil engineering, mechanics, electronics, electro-technics, aeronautics, material sciences, metallurgy). All members of the Academy are elected for life. The eligibility criterion is the outstanding performance in a scientific, artistic or literary domain.

CIRP Awards

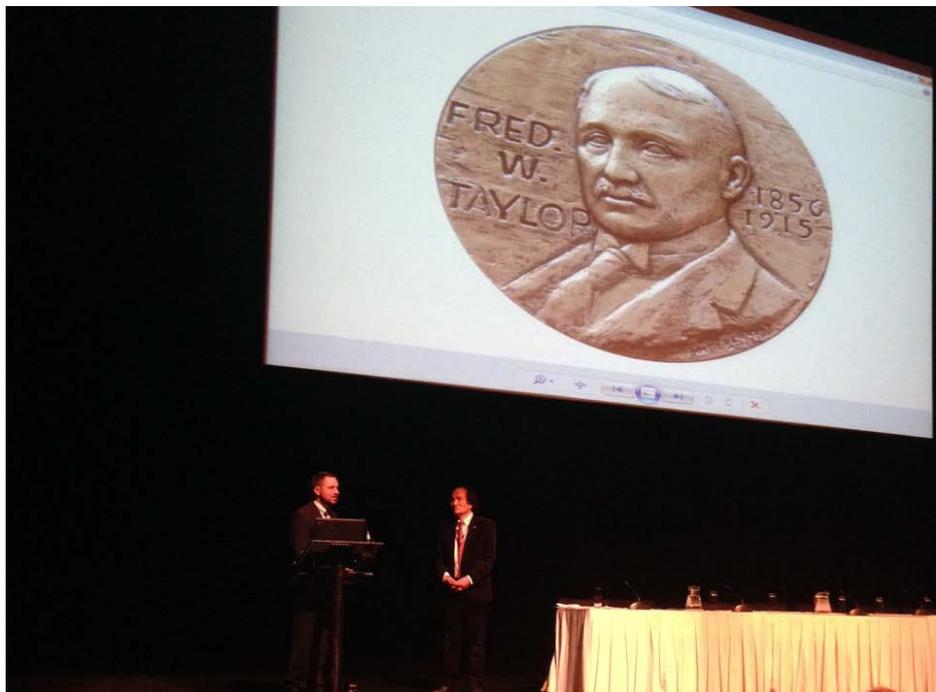
F.W. Taylor Medal 2015

As an incentive for scientific work, CIRP has instituted the Frederick Winslow Taylor Medal of CIRP - a distinction for young scientists.

Candidates for the award must have personally presented their research at a Paper Session during the two years preceding their nomination. Recipients are not to be over 35 years of age in the year of the presentation of their paper.

The F.W. Taylor Medal 2015 has been awarded during the General Assembly (Cape Town) to Dr. Anthony Beaucamp, upon the proposal of Professor Furukawa. He is Postdoctoral Fellow in Professor Namba's Laboratory at Chubu University in Japan. He presented a paper on "Shape Adaptive Grinding of CVD Silicon Carbide" at the STC-G during the CIRP General Assembly in Nantes, France August 2014.

In his paper, Dr. Beaucamp presented a novel method for fine finishing parts with complex geometry. This grinding method called Shape Adaptive Grinding (SAG) is used for ultra-precision finishing of CVD silicon carbide. The performance of the new process was shown to deliver surface roughness below 0.4nm Ra, while maintaining very high removal rates up-to 100 mm³/min. This novel method compares very favorably with conventional grinding by offering much higher removal rates for comparable levels of surface roughness. It is expected that this new process will significantly improve productivity when machining difficult materials such as carbides and titanium.



*Taylor Medal Award ceremony
(Prof. K. Ueda (right), Dr. A. Beaucamp (left))*

ELECTIONS by the General Assembly 2015

New Fellows

- Prof. G. Hirt (Germany)
- Prof. E. Lutters (Netherlands)
- Prof. V. Majstorovic (Serbia)
- Prof. M. Merklein (Germany)
- Prof. Y. Shimomura (Japan)
- Prof. L. Wang (Sweden)

Fellows (Emeritus)

- Dr. F. Hashimoto (USA)
- Prof. H. Meier (Germany)
- Prof. J. Meijer (Netherlands)
- Prof. S. Takata (Japan)
- Prof. T. Ueda (Japan)
- Prof. V.C. Venkatesh (India)
- Prof. M. Zatarain (Spain)

New Associate Members

- Dr. P. Krajnik (Croatia)
- Dr. G. Lucchetta (Italy)
- Prof. L. Overmeyer (Germany)
- Dr. F. Pfefferkorn (USA)
- Dr. D-M. Chun (Korea)
- Dr. K. Katahira (Japan)
- Dr. H. Komoto (Japan)
- Dr. L. Orazi (Italy)
- Dr. W. Volk (Germany)

New Corporate Members

- Baxter Healthcare, rep. by Dr. Kornfeld (Australia)
- Dok-Ing, Rep. by Mr. Majetic (Croatia)
- ETA, rep. by Messrs. Peters & Weingärtner (ex RA) (Switzerland)
- Kern Microtechnik, rep. by Dr. Jochum – formerly at Blaser Swissslube (Germany)
- Reiden Technik, rep. by Mr. Müller (Switzerland)
- Robert Bosch, rep. by Dr. Schöpf (Germany)
- The UK High Value Manufacturing Catapult (UK)
- Mitsubishi Heavy Industries (Japan)
- MTC - Manufacturing Technology Centre Ltd (UK)
- Pratt & Whitney China (China)
- SAMSUNG Techwin (Korea)
- Siemens AG (Germany)

New STC Chairmen

- STC C Prof. R. M'Saoubi
- STC Dn Prof. E. Lutters
- STC P Prof. W. Gao

Papers & Conferences

CIRP Industrial papers

The new idea of Corporate Members submitting 'Industrial Technical Papers' has been approved during the General Assembly 2015 (Cape Town). All information can be found under 'Publications' (after logging in on the CIRP Website): [Corporate Members submit a CIRP Industrial Technical Paper](#). The submitting and selection process follows the same timeline as a publication in the CIRP Annals.

Procedia-CIRP

From now on, only CIRP conferences will be published on Procedia-CIRP. Other sponsored conferences will be welcome to publish their proceedings either on the new [Procedia Manufacturing](#) just launched (whose Editorial Board are CIRP Members), or on the generic [Procedia Engineering](#).

Our Conferences

For the **most recent overview** of our coming conferences go to: <http://www.cirp.net/meetings-conferences/conferences/cat.listevents/2015/10/30/-html>

Future 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.

2016 Keynotes

(no more contribution is possible at this time)

STC A

The Role of Manufacturing on the Social Dimensions of Sustainability - *J. Sutherland (1) et al.* - Contact: jwsuther@purdue.edu

STC C

Cryogenic Manufacturing Processes - *I.S. Jawahir (1) et al.* - Contact : jawahir@engr.uky.edu

STC Dn

Design for Additive Manufacturing: Trends, Opportunities, Considerations and Constraints - *Mary Kathryn Thompson, Giovanni Moroni (2), Tom Vaneker (2), Georges Fadel, R. Ian Campbell, Ian Gibson, Michael Schmidt (2), Alain Bernard (1), Joachim Schulz (3), Patricia Graf* - Contact: mkath@mek.dtu.dk

STC E

Machining of Engineering Ceramics by Electro-Physical Processes – E. Ferraris, B. Lauwers (1), J.P. Kruth (1) - Contact: Eleonora.ferraris@kuleuven.be

STC F

Closed loop Control of Product Properties in Metal Forming - J. Allwood (1) et al. - Contact: jma42@cam.ac.uk

STC G

Abrasive Fine-Finishing Technology – F. Hashimoto (1), H. Yamaguchi (2), K. Wegener (2), H.W. Hoffmeister, P. Krajnik (2), R. Chandhari, D. Dröder, F. Küster (3) – Contact: fukuo.hashimoto@timken.com

STC M

Chatter Suppression Techniques – J. Munoa (2), E. Budak (1) - Contact: jmunoa@ideko.es

STC O

Cyber-Physical Systems in Manufacturing – L. Monostori (1) B. Kádár (2), T. Bauernhansl, S. Kondoh (2), S. Kumara (1), G. Reinhart (1), O. Sauer (3), W. Sihn (1), G. Schuh (1), K. Ueda (1) – Contact: monostor@sztaki.hu

STC P

Advances in Large-Scale Metrology - Review and Future Perspectives - R. Schmitt (2), M. Peterek, W. Knapp (1), E. Morse (3), F. Härtig (3), G. Goch (1), B. Hughes, A. Forbes, M. Galetto, T. Estler (1) – Contact: r.schmitt@wzl.rwth-aachen.de

STC S

Surface Modification by Hammer Peening and Burnishing – V. Schulze (2), F. Bleicher (3), P. Groche (1), Y.B. Guo (2), Y. Pyun – Contact: volker.schulze@kit.edu

Cross-STCs

Process Chains for High-Precision Components with Micro-Scale Features – Eckart Uhlmann (1), Brigid Mullany (2), Dirk Biermann (2), Kamlakar P. Rajurkar (1), Tino Hausotte, Ekkard Brinksmeier (1) - Contact: eckart.uhlmann@ipk.fhg.de

Cross-STCs

Continuous Maintenance - Technological Challenges and the future - R. Roy (1), R. Stark (2), K. Tracht, S. Takata (1), M. Mori (1) - Contact: r.roy@cranfield.ac.uk

2017 Keynote proposals

STC A

Innovative Control of Assembly Systems and Lines - Jörg Krüger (2), Lihui Wang (2), Alexander Verl (2), Hoda ElMaraghy (1), Waguih ElMaraghy (1), Jörg Franke (2), Tullio Tolio (1), Dariusz Ceglarek (1), Günther Seliger (1), Christian Brecher (1), Sotiris Makris (2) - Contact: joerg.krueger@tu-berlin.de

STC C

Advances in Material and Friction data for Modeling of Metal Machining - S. Melkote (2), W. Grzesik (2) et al - Contact: shreyes.melkote@me.gatech.edu

STC Dn

Design for Reduced Resource Consumption during the Use Phase of Products - L. Shu (1), J. Duflou (1), G. Seliger (1), J. Srivastava – other authors by contribution - Contact: shu@mie.utoronto.ca

STC E

Materials for Additive Manufacturing – D. Bourell (2), A. Clare, G. Levy (1), D. Rosen, J.-P. Kruth (1) - Contact: dbourell@mail.utexas.edu

STC F

Hot stamping of ultra-high strength steel parts - K.I. Mori (1) et al - Contact: mori@plast.me.tut.ac.jp

STC G

Recent Advances in Grinding Machines - K. Wegener (2), C. Brecher (1) - Contact: wegener@iwf.mavt.ethz.ch

STC M

Fluids and its impact on Machine Tools - K. Wegener (2) - Contact: wegener@iwf.mavt.ethz.ch

STC O

Learning Factories for future oriented research and education in manufacturing - E. Abele (1), G. Chryssolouris (1), W. Sihn (1), J. Metternich - Contact: abele@ptw.tu-darmstadt.de

STC P

Contributions of Precision Engineering to the "New SI" - H. Bosse (3), A. Balsamo (1), I. Robinson, M. de Podesta, H. Kunzmann (1), P. Shore (2), J. Pratt, S. Schlamminger - Contact: Harald.Bosse@ptb.de

STC S

Nanomanufacturing: perspective and applications - F.Z Fang (1), X. Zhang, G. Byrne (1), E. Brinksmeier (1), C. Evans (1), H. Hansen (1) - Contact: fzfang@tju.edu.cn

Cross-STCs

Additive Manufacturing in Industry and Science - challenges and chances - M. Schmidt (2), A. Huis in't Veld, M. Merklein (2) - Contact: Michael.Schmidt@fau.de

2018 Key-note proposals

STC Dn

Tolerancing and Design under Uncertainty - Edward Morse (3), Jean-Yves Dantan (2), Nabil Anwer, Rikard Söderberg (2), Giovanni Moroni (2), Luc Mathieu (1), and other contributors - Contact: emorse@uncc.edu

STC G

Abrasive Machining of Non-Metallic Materials - A. Shih, B. Denkena, J. Köhler, D. Curry, H. Hong, H. Tsai, H. Ohmori, K. Katahira, M. Mizutan - Contact: shiha@umich.edu

STC O

Value creation in production: Reconsideration from interdisciplinary approaches - T.

Kaihara (1), N. Nishino, K. Ueda (1), M. Tseng (1), J. Vancza (1), P. Schönsleben -
Contact: kaihara@kobe-u.ac.jp

STC P

Geometrical Modeling and Traceability for Computationally-Intensive Precision Engineering or Metrology - *J.-M. Linares (1), G. Goch (1), J.-M. Sprauel, A. Clement (1), A. Forbes, W. Gao (1)* - Contact: jean-marc.linares@univ-amu.fr

STC S

Multi-scale Characterizations of Topographies and their Applications – *C. Brown (2) et al.* – Contact: brown@wpi.edu

Cross-STC

Composite Material Part Manufacturing – *J. Fleischer (1)* - Contact: juergen.fleischer@kit.edu

2019 Key-note proposals

STC O

Global Production Networks - *G. Lanza (2)* - Contact: gisela.lanza@kit.edu

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-STC Keynote paper (year open)

Design, Management and Control of Demanufacturing / Remanufacturing Systems” - *T. Tolio (1), A. Bernard (1), M. Colledani (2), S. Kara (1), G. Seliger (1)* -
Contact: tullio.tolio@polimi.it

From the Editorial Committee

S. Smith (Chairman)

On behalf of the Editorial Committee, it is my pleasure to report on the continuing improvement in the quality, visibility, and use of CIRP publications. Thanks to the efforts of all of the members of the academy, quality of our publications remains very high.

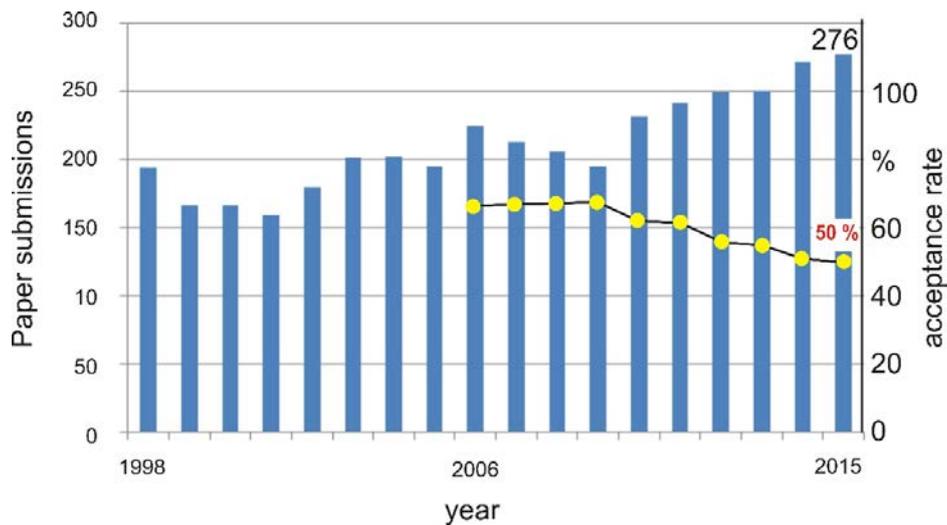
The first layer is quality control, of course, rests with the Fellows and Associate Members of the academy. These members are world-recognized experts in their disciplines, and they elected to the academy based on their outstanding reputations.

They submit their best work to the Annals, and starting with this excellent pool, a very rigorous review process insures that only the very best papers are published each year. During the 2015 review cycle, the Editorial Committee and the STC Boards reviewed 276 papers, compared to 272 during the 2014 review cycle.



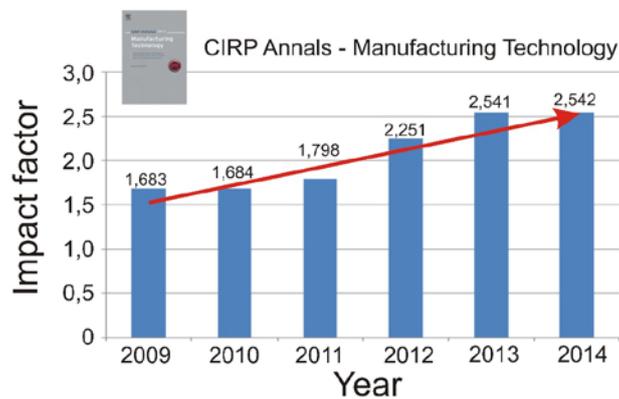
*The 2015 review process
(Hotel Ampère)*

Each paper was reviewed by at least 4 independent experts before a final decision was made. The 2015 acceptance rate was 50%, slightly less than in previous years, as shown in the figure below.



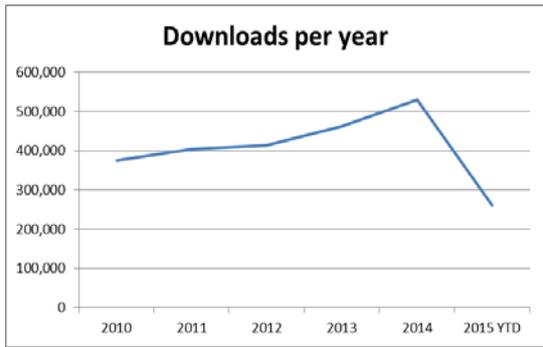
Annals of the CIRP – Historical submissions and acceptance rate

While the review process is rigorous, it is clear that the result is very positive. The impact factor for 2014 (the most recent data available) was 2.542, which is very good (see figure below). The impact factor may be saturating at this very strong level. According to Google Scholar (http://scholar.google.com/citations?view_op=top_venues&hl=en&vq=eng_manufacturingmachinery), the h5-index of the Annals at 49 is the highest of any publication in the Manufacturing and Machinery category.

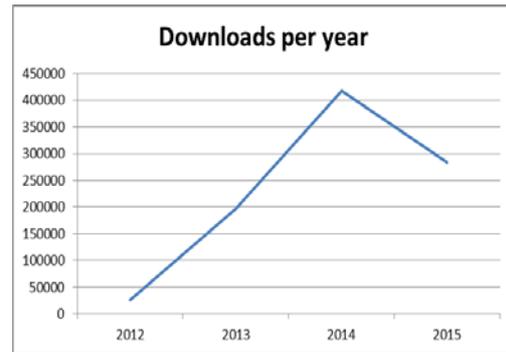


CIRP Annals historical impact factor

The number of downloads from the Annals continues to be impressive as well. The 2014 downloads exceeded 500,000, and the 2015 downloads (only ½ year of data available) are on track to exceed that level again (see figure below, left). A similar positive result can be seen in the right figure, which shows the downloads from Procedia CIRP, for the proceedings of CIRP-owned conferences. The 2014 Procedia downloads surpassed 400,000, and the year-to-date 2015 downloads are on track to significantly surpass that level.



Historical downloads from the Annals of the CIRP



Historical downloads from Procedia CIRP

The 2015 review cycle marked the end of Prof. Karpuschewski's tenure as the Chairman of the Editorial Committee, and the end of 7 years of service on the committee in various roles. On behalf of the members of the Editorial Committee and on behalf of the entire academy, I thank him for his dedicated service. I also welcome Joao F.G. Oliveira to the committee, which now consists of S. Smith (Chairman), E. Tekkaya (Vice-Chairman), D. Brissaud, B. Denkena, N. Duffie, C. Evans, M. Hauschild, M. Kunieda, B. Lauwers, D. Lucca, M. Nakao, J. Oliveira, T. Tolio, D-Y. Yang.

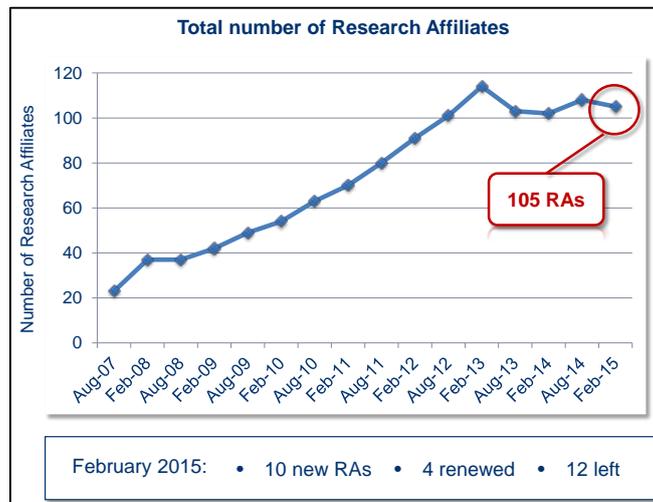
From the Research Affiliates

The research affiliates have met each other again during the General Assembly 2015 (Cape Town). Similar to previous meetings, new affiliates have been introduced by presenting a 1-minute pitch. In addition, interactive workshops and presentations related to teaching and research in South Africa were part of the meetings.



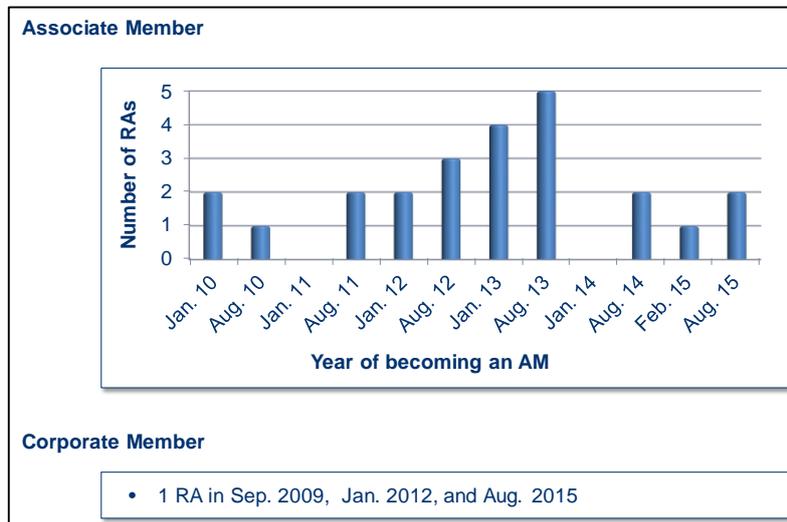
Research Affiliates meetings in Cape Town

The number of research affiliates are more or less stable since 2013. New research affiliates are coming in, while others have terminated their term (maximum 6 years).



Evolution of the number of Research Affiliates (2007 – 2015)

Research affiliates becoming Associate and/or Corporate member are depicted in the figure below. Not only affiliates becoming associate member, but also those becoming corporate members are important for our academy and need special attention in the coming years.



Research Affiliates that has become Associate Member or Corporate Member

From the STC's

In this newsletter, a brief presentation of 2 STC's (STC S and STC LCE/A) has been prepared by the respective chairman's (based on their presentations given during a recent CMAG meeting).

STC S (H. Haitjema)

Scope

The scope of STC-S is research into the geometrical, physical and chemical properties of the work piece surface in relation to the production process concerned.

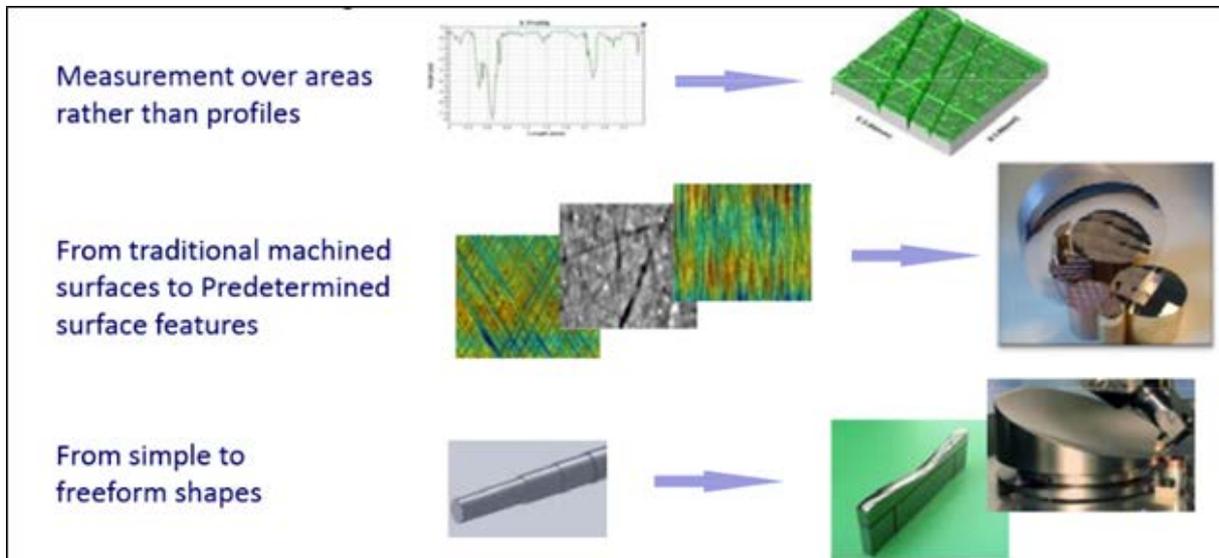
Importance of Surfaces

Surfaces appear everywhere in Production engineering, wanted or unwanted:

- as by-product in production process (e.g. forming, grinding)
- as desired property (e.g. polishing)
- as specific design property (e.g. coatings, structured surfaces)

These aspects are covered in our meetings, discussions and the papers published in the "S" part of the CIRP annals part 1 and 2.

Developments in 'surface' aspects in recent years:



Aspects of surfaces covered in section S and relation with other STC's

As surfaces are everywhere, STC-S has links with almost all STC's on various aspects of surfaces. This is illustrated in the table below:

Metrology	Function/Char/Fab	Modification	Fabrication	Characterization
STC P Precision Engineering and Metrology	STC O Production Systems and Organizations	STC C Cutting	STC M Machining	STC P Precision Engineering and Metrology
	STC A Life Cycle Engineering and Assembly	STC F Forming	STC E Electro-Physical and Chemical Processes	
	STC Dn Design	STC G Abrasive Processes		

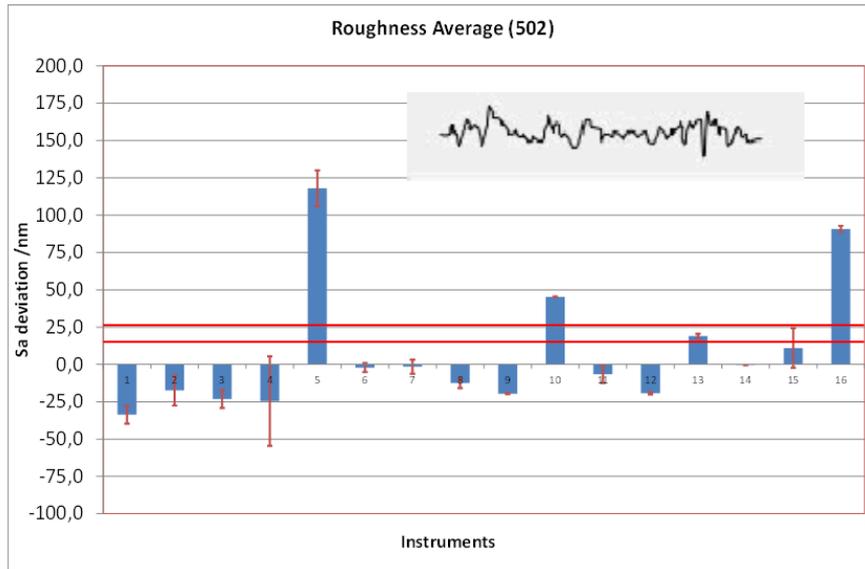
Cooperative activities

STC-S participates/d actively in the following Collaborative Working Groups (CWG): Laser in Production (STCs C, Dn, E, F, G, M, P, S), Micro-Production Engineering (STCs M, P, S), BioManufacturing (STCs C, E, P, S)
Members of STC-S are also playing a leading role in international standardization work on surface metrology, e.g. working groups 15 and 16 of ISO TC 213

Round Robins

STC-S has taken several initiatives for Round-robins. In the past a round robin on micro-hardness was organized, recently, and still under evaluation, a round robin on 2.5-D surface parameters of polymer specimen was organized with very useful results. The figure below gives an illustration what differences are found in the measurement of the Sa-parameter on a defined area of a polymer specimen:

Nickel standard nominal $Ra = 30\text{ nm}$



Discussions in STC meetings

In STC-S meetings, discussions are encouraged on more or less controversial and/or challenging topics. In the recent past there were discussion on the usefulness of written standards end the question whether surface metrology is a scientific discipline, and , if so, what kind of..

Surface Metrology
Scientific or Experiential Discipline?

Discussion for STC S
27 August 2015
Cape Town
Christopher A. Brown
Surface Metrology Lab
Worcester Polytechnic Institute
USA

The standards rash – is there a cure?

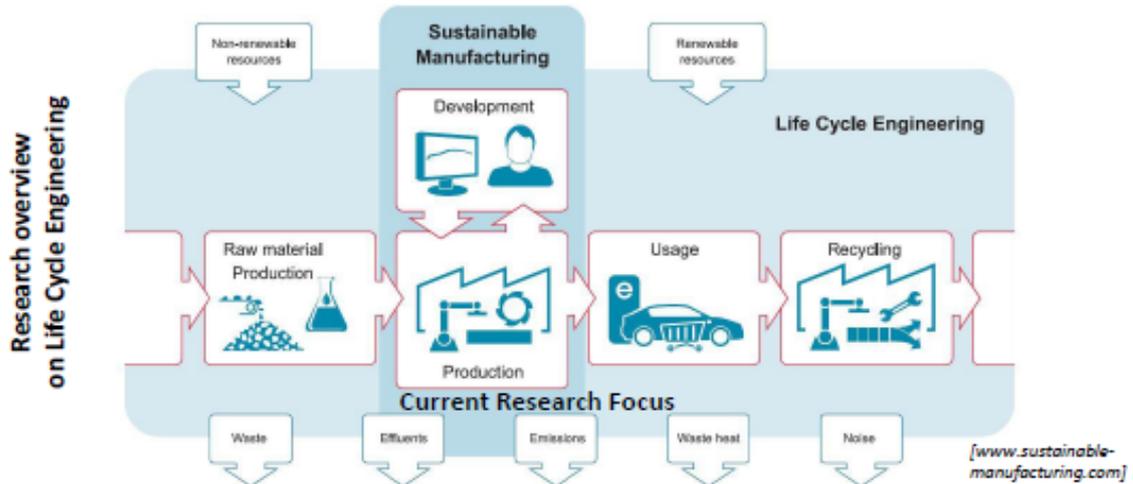
Professor Richard Leach, Chair in Metrology
Department of Mechanical, Materials and Manufacturing Engineering
Thanks: Peter de Groot (Zygo), Claudiu Giusca (NPL), Han Haitjema (Mitutoyo)

Corporate members more than welcome

Corporate members have made significant contributions in the past and are very welcome to contribute with technical contributions and discussion subject. The STC officers find it of eminent importance that the discussions are held on a good – academic – level, but on the other hand the practice must never be forgotten and we need input, especially from industry, that keeps the science based on firm experimental and practical grounds.

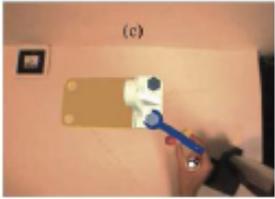
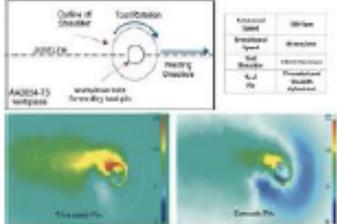
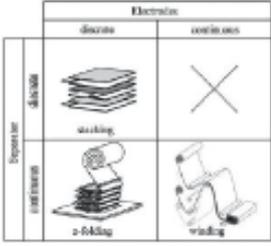
STC LCE/A (S. Kara)

Research Stream 1: Life Cycle Engineering



<p>Life Cycle Design and Planning</p>	<ul style="list-style-type: none"> • Life cycle planning • Life cycle design and management • Methods and tools for supporting life cycle planning and management 	<p>[Umeda et al., CIRP Annals]</p>
<p>Sustainability and Assessment Tools</p>	<ul style="list-style-type: none"> • Sustainability in manufacturing • Economic, Environmental and Social • Quantitative Life Cycle Assessment (LCA) • Life Cycle Costing • Development of indicators for assessing sustainability 	<p>[Hauschild et al., CIRP Annals]</p>
<p>Energy and Resource Efficiency in Manufacturing</p>	<ul style="list-style-type: none"> • Process and system level energy and resource efficiency • Energy-water nexus • Materials and outsourcing • Industrial symbiosis 	<p>[Herrmann et al., CIRP Annals] [Dufflou et al., CIRP Annals]</p>
<p>Disassembly and EOL Decision Making</p>	<ul style="list-style-type: none"> • Disassembly planning and sequencing • Disassembly automation • Reuse and recycling technologies • Active disassembly of products 	<p>[Vonbunoyong et al., CIRP Annals]</p>
<p>Expected Future Topics</p>	<ul style="list-style-type: none"> • Resource scarcity and efficiency • Social sustainability and manufacturing • Efficiency to effectiveness • Sustainability, cyber-physical systems (IoT) and manufacturing 	

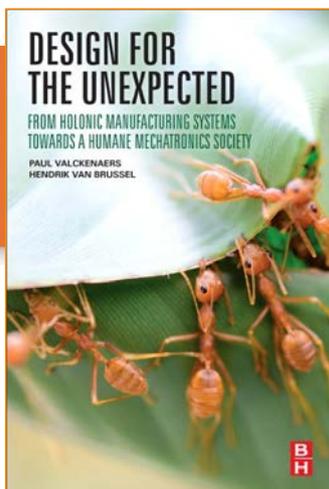
Research Stream 2: Assembly

<p>Assembly modelling, planning, optimization</p>	<ul style="list-style-type: none"> • Complexity in assembly systems with hybrid configurations • Adaptive planning and optimization of joining and assemble sequences • Optimal control of reassembly • Assembly system design and operations for product variety • Constraints analysis and evaluation of manual assembly • CAD model based virtual assembly simulation, planning and training 	
<p>Robotics/ Human-Robot-Cooperation</p>	<p>Robotics</p> <ul style="list-style-type: none"> • Multi-robot integration • Dual-arm-robots • Soft robotics/ light weight robots <p>Human-robot collaboration</p> <ul style="list-style-type: none"> • Haptic interaction -> safety and control • Sensor integration • Feedback to worker • Optimization of flexibility and efficiency 	
<p>Gripping/ Joining</p>	<p>Gripping</p> <ul style="list-style-type: none"> • Gripping of micro parts • Innovative physical principles (capillary grippers, magnetorheological fluids) <p>Welding, joining technologies</p> <ul style="list-style-type: none"> • Innovative principles (mill knurling, ultrasonic welding, friction stir welding) 	
<p>Innovative application fields</p>	<p>Micro assembly</p> <ul style="list-style-type: none"> • Gripping of micro parts • Innovative physical principles (capillary grippers, magnetorheological fluids) <p>Battery assembly</p> <ul style="list-style-type: none"> • Cell stacking • Integrated cut and place modules • Process and performance optimization 	
<p>Expected future focus topics</p>	<ul style="list-style-type: none"> • Planning and optimization -> flexibility and reconfigurability by CPS / Industry 4.0 • Robotics -> soft robotics / light weight robots, flexible human robot interaction, dual-arm robots • Human-robot-interaction -> safety, haptic interaction, mobile robots, power amplifying exoskeleton kinematics • Innovative gripping/ grasping (Raatz, Festo-Greifer) • Handling and joining of new materials • Battery assembly • Sustainability oriented planning of assembly operations 	

New books from our members

Design for the Unexpected

From Holonic Manufacturing Systems towards a Humane Mechatronics Society
Paul Valckenaers, Hendrik Van Brussel



ISBN: 978-0-12-803662-4

PUB DATE: November 2015

LIST PRICE:

£95.00/€108.00/\$150.00

FORMAT: Paperback

PAGES: c. 218

AUDIENCE

Mechanical engineers;
manufacturing engineers;
system engineers; industrial
engineers; MSc and PhD
students; production system
designers; production
planners, ICT strategy and
vision developers, IT
professionals.

Design for the Unexpected

From Holonic Manufacturing Systems towards a Humane Mechatronics Society

Paul Valckenaers Faculty of Engineering Technology, KU Leuven, Belgium,
Department of Healthcare and Technology, UC Leuven, Belgium
Hendrik Van Brussel Department of Mechanical Engineering, KU Leuven,
Belgium



This book provides a guide on how different the world can become when transformed through innovative technology, presenting readers with the tools they need for the design and control of complex systems that are robust with respect to disturbances.

KEY FEATURES

- Provides a practical control system architecture that can be applied to a wide variety of systems in manufacturing, transportation, logistics, and robotics
- Contains a wide range of case studies from different engineering disciplines
- Provides a decentralized control methodology that goes beyond the traditional hierarchical control approach that currently prevails
- A must-read resource for researchers and professionals alike

DESCRIPTION

Design for the Unexpected: From Holonic Manufacturing Systems Towards a Humane Mechatronics Society presents new, even revolutionary, ideas to managing production and production systems which may fundamentally shift the paradigm of manufacturing systems design. It provides guidelines for the design of complex systems that can deal with unexpected disturbances and presents a decentralized control methodology that goes far beyond the traditional hierarchical control approach that currently prevails.

The benefits are illustrated by a variety of examples and case studies from different fields, with the book's well-established authors presenting Holonic Manufacturing Systems (HMS) as the framework for the 'factory-of-the-future', and suggesting that the application of biologically inspired control paradigms can control complex manufacturing systems, and that there are far wider applications for these systems than pure manufacturing. In addition, the book explores how this multi-agent control framework can be extended to other fields such as traffic, transport, services, and health care.

Visit store.elsevier.com/9780128036624

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From the CIRP Office



Chantal Timar-Schubert

Annals papers/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

- All information on the next CIRP Winter Meetings is already available online on the Website.
- We remind Fellows, Honorary Fellows and Fellows (Emeritus) that they can propose candidates for the 2016 General Nicolau Award up to December 1st. Rules are online.

Updated CIRP Regulations

Please read online the new modifications in the Internal Regulations (through the button "About CIRP") voted at the last General Assembly in Cape Town. Modifications were approved on the following articles:

- Revised Article 5 about the Fellows:
- Revised Article 6 about the Associate Members
- Revised Article 11 about the sponsorships of conferences
- Revised Article 13 about hosting a General Assembly
- Revised Article 20 about the Taylor medal
- Revised Article 21 about publishing a paper
- Revised Article 24 about the Research Affiliates

The most recent update of the CIRP regulations can be found at your CIRP dashboard <http://www.cirp.net/images/cirpfichiers/publicfiles/InternalRegulations/internal-regulation.pdf>

With kind regards,

Chantal

Future Meetings

Winter Meetings	General Assembly's
17-19 February 2016, Paris	21-27 August 2016, Guimaraes, Portugal
15-17 February 2017, Paris	20-26 August 2017, Lugano, Switzerland