

ESAFORM 2017

20th International ESAFORM
Conference on Material Forming



CONFERENCE PROGRAMME

26th – 28th April 2017
Dublin City University, Ireland





APT

Advanced Processing Technology Research Centre

The Advanced Processing Technology Research Centre

APT focuses on state of the art research activities in the areas of Production Technology, Sustainable Technology, Micro and Nano Technology, and Advanced Engineering Materials. APT has established a strong infrastructure of equipment & people in the area of processing technologies at DCU.

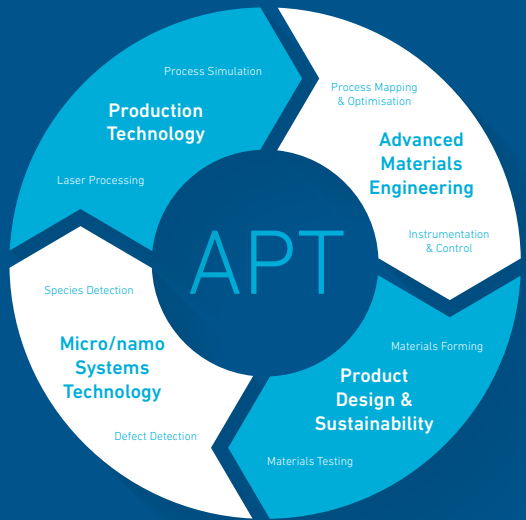
About Us

We are located in Dublin City University and our members are based across numerous schools and research areas including Mechanical and Electronic Engineering, Biotechnology, Chemical and Physical Sciences, Health & Human Performance and Business Studies.

Our Goal

APT is a leading international research centre which as a primary goal strives to provide significant translational benefit to the wider community.

Research projects undertaken within APT are conducted to a world class level and support local and internationally based enterprises.



Ollscoil Chathair Bhaile Átha Cliath
Dublin City University



CONTENTS

Welcome from President of ESAFORM	2
Message from ESAFORM 2017 Conference Chair	3
ESAFORM 2017 Organising Committee	4
ESAFORM Board of directors	5
Invited Speakers	6
Sponsors & Exhibition	8
General Information	9
Social Events	13
Programme Overview	14
Detailed Conference Programme	21
Posters	57

Welcome from President of ESAFORM

The European Scientific Association for Material Forming, ESAFORM, was founded in 1997 after the successful realization of the European Human Capital and Mobility programme NUPHYMAT. The thematic network that was created in NUPHYMAT initiated the foundation of ESAFORM. Its goal is to promote research and education in material forming at universities, research institutes and in industry. All industrially relevant materials that are typically shaped by forming are included, the largest material groups are metals, polymers and composites. To stimulate communication and cooperation between researchers, an annual conference is organized, each year in another country. This year, the conference is hosted by Dublin City University, Ireland, under the enthusiastic leadership of Prof. Dermot Brabazon.

Apart from the conference, communication is stimulated by the official ESAFORM journal International Journal of Material Forming, which is recognized for publishing high-level articles within the field of the association, and the ESAFORM Bookseries in Material Forming, that contains monographs and carefully edited books on every aspect covered by ESAFORM. All members receive an electronic newsletter with the latest news about conferences, PhD defenses, new books, job opportunities and other news relevant to the community.

ESAFORM awards a Scientific Prize and a PhD prize for Industrial Research each year to distinguish young researchers in the field of material forming. The prize winners give plenary presentations at the conference. Prizes have been awarded since 1999 and many of the prize winners will be present at the 20th ESAFORM conference in Dublin.

To stimulate cooperation between members, ESAFORM supports proposals for European funding schemes with a maximum of 5 ESAFORM Grants per year. The grant can be used for preparatory and coordinating work and is independent of the success of the proposal.

Although the association has a European origin, it is open to all researchers in material forming. Ever since the start of ESAFORM, there have been numerous contributions and a vastly growing participation from researchers outside of Europe, demonstrating the success of the conference format. In September 2016, the good relations with many Japanese participants has led to a formal Agreement of Cooperation between the Japan Society for Technology of Plasticity and ESAFORM.

At the end of the second conference day, on Thursday, the General Assembly of ESAFORM takes place. Since membership of ESAFORM is included in the Conference, all participants are expected to be present at this meeting, contribute to the discussion and bring in new ideas to make the Association as beneficial as possible for its members.

Ton van den Boogaard
President of ESAFORM

Message from ESAFORM 2017 Conference Chair

It is our pleasure and honour to welcome you to the 20th ESAFORM conference. The European Scientific Association for Material Forming, ESAFORM, promotes research and education in material forming at universities, research institutes and in industry. To stimulate communication and cooperation between researchers, an annual conference is organized, each year in another country. This year, the conference is hosted from 26th to 28th April by Dublin City University, Ireland. With close to 400 registrants and 19 parallel mini-symposium, the conference promises to be an active forum for discussion of the latest state of the art in materials processing technologies. All industrially relevant materials that are typically shaped by forming are included, with the largest material groups represented as metals, polymers and composites. Mini-symposium included in the conference include the forming of metallic materials, compositing forming, additive manufacturing, nanostructure material forming, biomass and food materials processing, innovative joining methods, and non-conventional processes. These research areas are promoted and fostered through the Advanced Processing Technology (APT) Research Centre at DCU which includes over 100 researchers working in related areas. We encourage you to take the opportunity to connect with old and new colleagues in APT during the conference.

A workshop is scheduled the day before the conference on related research methods and a H2020 information and application brainstorming session is scheduled on the final afternoon. An award for excellence in materials engineering will be presented during the opening ceremony for Excellence in Industrial Research. The awardee will present on the related industry research during the plenary conference presentation.

Please take the opportunity during the breaks and the scheduled social activities to make contact with old and new colleagues. A positive and significant output of the conference will be the new collaborations and friendships that are made. One way to enable collaboration with ESAFORM colleagues is through the ESAFORM grant which provides support to ESAFORM attendees to prepare and submit EU funding applications; further details are on the ESAFORM web-site and will be provided at the General Assembly. Everyone is invited to the General Assembly on Wednesday evening before the conference dinner in the Guinness Storehouse.

While in Dublin, please take the opportunity to explore some of the city. Dublin the capital of Ireland, is on Ireland's east coast at the mouth of the River Liffey. Its historic buildings include Dublin Castle, dating to the 13th century and the imposing St Patrick's Cathedral, founded in 1191. City parks include landscaped St. Stephen's Green and the huge Phoenix Park, containing Dublin Zoo. Other favourite Dublin tourist attractions include the Viking tour, the Botanic Gardens, the National Gallery, the Modern Art Gallery, the National Museum of Ireland and Epic separately present Irish heritage and culture, Chester Beatty library, the shopping streets of St Stephen's Green, the Guinness Storehouse and Jameson Brewery tours.

Most of all we wish you an enjoyable visit which leads to fond memories, new understandings, and an increased clarity and excitement for your research path going forward.

Sincerely yours,
Dermot Brabazon & Sumsun Naher
Conference Chairs

ESAFORM 2017 Chairs



Prof Dermot Brabazon

BEng, PhD, CEng, FIMechE, MIEI

- Director of Advanced Processing Technology Research Centre
- School of Mechanical & Manufacturing Engineering
- Faculty of Engineering & Computing
- Dublin City University



Dr Sumsun Naher

BSc, MSc, PhD, CEng IMechE

- Senior Lecturer in Materials Science and Engineering
- Department of Mechanical Engineering and Aeronautics
- School of Mathematics, Computer Science and Engineering
- City University London

ESAFORM 2017 Organising Committee

- Prof Dermot Brabazon
- Dr Sumsun Naher
- Dr Tamas Szecsi
- Dr Yan Delaure
- Dr Bryan McDonald
- Prof Nicholas Dunne
- Dr Paul Young
- Dr John Geraghty
- Dr Lorna Fitzsimons
- Dr. Owen Clarkin
- Dr. Inam Ul Ahad

ESAFORM 2017 Scientific Committee

- Prof. Kuwabara
- Prof. Barlat, Dr. Ofenheimer
- Dr. Aretz, Prof Banabic
- Prof. Boisse
- Prof. Akkerman
- Prof. Chinesta
- Prof. Lomov
- Prof. Sherwood
- R. Schledjewski
- Prof. Hascoet
- Dr Minh-Son Pham
- Dr Schultze
- Prof. Slatineanu
- Dr. Coteata
- Prof. Santo
- Prof. Schmidt
- Dr. Silva
- Prof. Menary
- Prof. Regnier
- Prof. Martin
- Dr. De Almeida

- Dr N. Boyard
- Prof. Valente
- Dr. Carlone
- Dr. Sousa
- Prof. Thuillier
- Prof. Bambach
- Prof. Guisy Ambrogio
- Prof. Torgeir Weilo
- Prof. Claudio Giardini
- Dr. Umbrello
- Prof. Matsamura
- Prof. Arrazola
- Dr. Germain
- Prof. Strano
- G. Andrade-Campos
- Prof. A. Del Prete.
- Prof. Fratini
- Prof. Merklein
- Prof. Buffa
- Prof. Christof Sommitsch
- Dr. Sobotka
- Dr. Mocellin
- Dr. Ahmed Rasilli
- Dr. Sumsun Naher
- Prof. Dermot Brabazon
- Prof. Valberg
- Dr. Ben Khalifa
- Prof. Liu
- Prof. Donati
- M. Charalambides
- P. Verboven
- Prof. Habraken
- Prof. Tabourot
- Prof. Yalcinkaya
- Prof. Ayas
- Prof. Perdahcioglu
- Prof. Francisco Chinesta
- Prof. Elias Cueto
- Prof Emmanuelle Abisset-Chavanne
- Prof. Dubois

- Prof. Zahrouni
- Prof. Montmitonnet
- Prof. Ponthot
- Dr. Chatti
- Prof. Ceretti
- Dr. Hagenah
- Prof. Bernd-Arno Behrens
- Dr. Owen Clarkin
- Dr. Inam Ul Ahad

ESAFORM Board of Directors

Current (eleventh) Board of Directors (2016-2018)

- Prof. Ton Van Den Boogaard
- Prof. Robertt Angelo Fontes Valente
- Dr. Katia Mocellin
- Prof. Livan Fratini
- Prof. Dermot Brabazon
- Prof. Dorel Banabic
- Prof. Frédéric Barlat
- Prof. Philippe Boisse
- Dr. Pierpaolo Carlone
- Prof. Francesco Chinesta
- Prof. Elias Cueto
- Prof. Joost Duflo
- Dr. Lionel Fourment
- Prof. Toshihiko Kuwabara
- Dr. Anne-Marie Habraken
- Dr. -Ing. Hinnerk Hagenah
- Prof. Jari Larkiola
- Dr. Elisabeth Massoni
- Dr. Gary Menary
- Prof. Sandrine Thuillier
- Dr. Domenico Umbrello
- Prof. Torgeir Welo

Plenary Speakers:



Prof. Dr. ir J.R. Duflou

*Professor Mechanical Engineering Department,
KU Leuven*

Joost R. Duflou holds master degrees in Architectural and Electro-mechanical Engineering and a PhD in Engineering from the KU Leuven, Belgium. After a number of years of industrial experience in different international companies, he is a faculty member at the Mechanical Engineering Department of the KU Leuven since 1997. He became a tenured Full Professor in 2012. His principal research activities are situated in the field of design support methods and methodologies, with special attention for Systematic Innovation, Ecodesign and Life Cycle Engineering, and Sustainable Manufacturing. As chairholder of the LVD Chair on Sheet Metal Processing, he also leads a research group focussing on sheet metal oriented manufacturing processes and systems and he supervises the KU Leuven FabLab. He is a member of CIRP and has published over 200 international publications. As chair and board member of several spin-off companies and professional associations he contributes to research valorisation and dissemination. More detailed information can be obtained via <http://www.kuleuven.be/wieiswie/nl/person/00016263>.



Jonathan Downey

*Schivo Group Ltd.,
Waterford*

Jonathan is Strategic Projects and Research and Development Manager with the Schivo Group, a sub-contract manufacturing company servicing the Medical, Aerospace and automotive industries. Schivo manufacture products for these industries from individual components to assembled and tested products. The companies capabilities include CNC machining, fabrication, cleanroom assembly, electromechanical assembly and Additive Manufacturing (3D printing) capabilities. Jonathan has led the implementation of many of these functions, and has driven research and implementation of a number of material forming processes including process monitoring of subtractive manufacturing methods and the implementation of the companies Additive capabilities in both polymer and metal 3D printing. Jonathan has a B.Sc in Manufacturing Engineering, an M.Sc in Biomedical Engineering and is currently finalising a Ph.D in monitoring of the CNC machining process.



Prof. Sean Leen

Head of Department of Mechanical & Biomedical Engineering, NUIG, Galway

Sean Leen graduated in Mechanical Engineering from NUIG and completed his PhD in Mechanical Engineering at the University of Nottingham. He worked on Finite element modelling and code development for the design and analysis of offshore oil and gas pipelines, including for flexible and rigid riser design. He was professor in Mechanical Engineering and Solid Mechanics at University of Nottingham before commencing as Professor and Head of Department of Mechanical and Biomedical Engineering at NUIG, Galway, in 2008. Sean's research interests include computational solid mechanics; structural integrity; fatigue, fretting and wear; plasticity, creep and superplasticity; and the modelling of manufacturing processes.



Prof. James A. Sherwood

Associate Dean for Graduate Students, College of Engineering, University of Massachusetts Lowell

James Sherwood earned his B.S in Engineering Science, M.S. in Applied Mechanics, and Ph.D. in Aerospace Engineering and Engineering Mechanics from the University of Cincinnati. He has nearly 40 years of experience using the finite element method for completing structural analyses and the simulation of composites forming. He has an international reputation for his research in composites manufacturing and sports engineering. He is the Co-Director of the Advanced Composites and Textile Research Lab with expertise in the structural behavior of composites and for relating the composite manufacturing process to the resulting structural stiffness. His Composites Forming research team has developed a novel modeling approach for the simulation of composite forming using the finite element method and has expertise in the characterization of textiles used for making fabric-reinforced composites. More detailed information can be obtained via http://faculty.uml.edu/james_sherwood/

Sponsors

Many thanks to our sponsors and supporters



Exhibition

Exhibiting Companies

The Helix Foyer Level 1
Wednesday, 26th & Thursday, 27th
09:00 - 17:00

Friday, 28th April
09:00 - 11:30



General Information

Venue

The ESAFORM 2017 Conference will take place at Dublin City University (DCU) from the 26th - 28th April 2017.

Dublin City University, Collins Avenue, Glasnevin, Dublin 9, Ireland.
Tel: +353 1 700 7000

26th - 28th April
Mini-Symposia will all take place in the Business School and The Helix at DCU.

Parking

All visitors are advised to use the multi-storey car park **only**. Full day parking passes can be purchased at the conference registration desk in The Helix. Full day single exit pass is €4.00

Getting to and from the conference venue

DCU is located a short distance from Dublin City Centre, Dublin Airport and the M1 motorways. The campus is bordered by Ballymun Road and Collins Avenue.

Taxi

There are a large number of taxi services available in the city centre. Taxis from the airport to the city centre are readily available outside the Arrivals Hall.

Dublin Bus

Buses 4, 9, 11 and 13 run from Dublin City Centre to the Ballymun Road entrance to DCU. Coming from the City Centre delegates should get off at stop 4680 and cross the road to the university campus.

To travel in the direction of the city centre; Stop 37 is located to the left, outside the campus gates. The journey will cost €2.70. You will need exact change, coins only.

Full timetable details can be found on www.dublinbus.ie

Registration and Information Desk

All attendees must be registered and are required to wear their official conference badge at all times.

Reserved Conference Dinner tickets and Tour tickets will be given at the same time as the conference badge. Care should be taken with these tickets as replacements cannot be issued.

ESAFORM Training Courses Registration

Tuesday, 25th April

Delegates attending the ESAFORM Training Courses can pick up their full delegate packs in The Helix.

The Registration Desk for the Training Courses will be open the following times:

Tuesday, 25th April	08:00 - 09:00
---------------------	---------------

Main Conference Registration

Tuesday, 25th - Friday, 28th

The Main Conference Registration Desk in The Helix will open at the following times:

Tuesday, 25th April	13:00 - 17:00
Wednesday, 26th April	07:30 - 18:30
Thursday, 27th April	07:30 - 17:30
Friday, 28th April	08:30 - 18:00

Breaks during ESAFORM Conference

Tea/coffee and lunch will be served each day and is complimentary for all participants wearing conference badges.

Tea/Coffee Break

Wednesday, 26th April - Friday, 28th April;
The Helix Foyers Level 1 & 2

Lunch

Wednesday, 26th April - 28th;
The Restaurant, DCU

Conference Badges and Security

Conference badges should be worn at all time.

Access to all session, tea/coffee breaks, lunch and the Welcome Reception will only be granted to delegates wearing their badges.

Proceedings

A copy of the conference proceedings are on the USB key in the Delegate Pack.

Information for Speakers

All speakers are asked to bring their presentation on memory stick, we will provide a presentation laptop in the room. No personal laptops are allowed at the podium for presentations.

Please load and quickly test all presentations during coffee/lunch breaks and before sessions begin - this is to ensure that if there are any difficulties, there is time for the AV technicians to rectify the issues before sessions begin. Should you have any difficulties in the meeting rooms, please report this to the volunteer managing your room who in turn will contact an AV technician who will be available to assist you.

In order to ensure the smooth running of sessions, speakers are asked to ensure that they adhere to their timings.

Each chairperson will monitor your presentation timekeeping and notify of your remaining time.

Should you run over your allotted time, you will be asked to move immediately to your final slide out of courtesy to the next speaker.

All speakers must be in their session room at least 10 minutes before the start of session and identify yourself to the session chairperson.

Posters

Posters will be displayed in The Helix Foyer Level 2 on from 26th - 28th of April.

Further details on poster sessions can be found on page 57.

Exhibition

Exhibition will take place in The Helix Foyer Level 1. Further details can be found on page 8

General Information

Banking

Bank opening hours are generally from 10.00 - 16.00. DCU offers an on-site bank branch and various ATMs spread across campus.

The Euro (€) is the currency in use in Ireland.

Visa and Master Card are all widely accepted in pubs, shops and restaurants throughout the country.

Doctor and Pharmacy

Glasnevin Family Practice, 11 Finglas Road, Harts Corner, is open

Mon to Fri	08:30 - 17:00
------------	---------------

Out of Hours/Evening Surgery appointments available

Mon to Thurs	17:00 - 19:00
Fri	17:00 - 18:00

Tel: +353 1 850 0275

There are a number of pharmacies located in the vicinity of DCU. Pharmhealth Pharmacy is located on the DCU campus, and is open at the following times.

Mon - Thurs	08:30 - 18:30
Friday	08:30 - 18:00
Sat - Sun	Closed

Emergency Contact Details

During the meeting, in case of an emergency of any kind, please contact the Registration Desk. If you require medical services while resident in your hotel/ accommodation, please contact your hotel/accommodation reception who will be able to arrange a doctor on call.

The Fire/Ambulance and Emergency Number in Ireland is 999 or 112.

Climate

Mild and temperate (showers can occur any time of the year.)

April temperatures can range from lows of 14 degrees C to high of 19.

Convenience Store

A Spar convenience store is located on campus, selling a selection of groceries, drinks, hot and cold deli foods, confectionary, tobacco, magazines and newspapers.

Opening Hours:

Mon - Fri	08:00 - 18:00
-----------	---------------

Electricity

Electric Current: 240 Volts AV

Plug type: 3 large flat prong British type plug. BS1363 system.

Facilities

The venue is fully accessible for delegates - If you have any particular requirements, please advise any of the staff who will be able to make appropriate arrangements should they be required.

Liability and Insurance

The organisers of ESAFORM 2017 reserve the right to alter any of the programme or other arrangements for the meeting including cancellation or postponement of any part of the event should the unforeseen circumstances require it. The organisers accept no responsibility for resulting costs or inconvenience to participants in this case. The organisers of ESAFORM 2017 accept no liability for participant personal injuries or loss/damage to property while in attendance or as a result of the workshop or social events. Participants are requested to have their own travel insurance in place and are responsible for all travel arrangements including visa applications, if required.

Lost and Found

Lost property should be brought to the Registration Desk.

Shopping

General opening hours are Monday-Saturday from 09:00-18:00 with later opening hours on Thursday evenings. Most major stores/shops open on Sunday - some with reduced opening times from 10:30 to 18:00.

VAT

All prices quoted are inclusive of Value Added Tax, unless otherwise stated.

Tipping

It is customary to leave a small gratuity for services in restaurants if good service is provided. Tips for taxis and any porter service are at your discretion.

Smoking

Smoking is not permitted in Ireland in any building, and there is no smoking allowed in any of the meeting rooms or public spaces. There are designated smoking areas outside the buildings, and delegates are requested not to litter in these areas. The smoking ban applies to restaurants, bars, cafes and all public venues.

WIFI

Wireless Internet access is freely available throughout the foyer of the Helix and the DCU Campus.

Username: wifiguest
Password: NjAX24wA



Social Events

WELCOME RECEPTION

- Wednesday, 26th April 2017
- Time: 18.30
- Location: The Helix, DCU
- Dress Code: Smart Casual

We are pleased to invite you to our Welcome reception in the Helix. Registered delegates can enjoy some drinks and canapés whilst meeting with fellow delegates for the evening.



CONFERENCE DINNER

- Tuesday 25th April 2017
- Coach Departs from DCU: 19.15
- Dinner Served: 20.00
- Location: The Guinness Storehouse
- Dress Code: Smart Casual

The conference dinner will be enjoyed in Ireland's most visited tourist attraction, The Guinness Storehouse.

On arrival you will make your way through the Guinness Experience, a high class interactive look at the history of Guinness and the process of making this world famous Stout.

Dinner will served on the 3th floor before you will be entertained by traditional Irish musicians and dancers.

A visit to the Gravity Bar will be the one of the highpoints of the night, in more ways than one! In the Gravity Bar guests can enjoy an uninterrupted view of the entire city sweeping from the bay to the mountains before returning to the 5th floor for the entertainment.



ESAFORM 2017 - PROGRAMME OVERVIEW - WEDNESDAY, 26TH APRIL

07:30 - 08:20	Conference Registration - The Helix, DCU				
	The Helix, DCU				
Rooms	Theatre	Gallery	Space	Blue Room	Studio
08:20 - 08:50	Welcome Ceremony - The Theatre				
08:50 - 09:30	Plenary Speaker - The Theatre Prof. Joost Duflou, KU Leuven				
09:40 - 11:00	MS1 Chair: Dorel Banabic Formability of metallic materials	MS2 Chair: Philippe Boisse Composites forming processes	MS3 Chair: Minh-Son Pham Additive Manufacturing	MS7 Chair: Markus Bambach Incremental and sheet metal forming	MS15 Chair: Anne-Marie Habraken Material behaviour: from phenomenologic macroscopic laws to plasticity, DDD, MD approaches
11:00 - 11:30	Tea & Coffee Break - The Helix Foyer				
11:30 - 13:10	MS1 Chair: Dorel Banabic Formability of metallic materials	MS2 Chair: Philippe Boisse Composites forming processes	MS3 Chair: Minh-Son Pham Additive Manufacturing	MS7 Chair: Markus Bambach Incremental and sheet metal forming	MS15 Chair: Tuncay Yalcinkaya Material behaviour: from phenomenologic macroscopic laws to plasticity, DDD, MD approaches
13:10 - 14:30	LUNCH - DCU Main Restaurant				
14:30 - 15:20	Plenary Speaker - The Theatre Prof. James Sherwood, UMass Lowell				
15:20 - 16:00	MS1 Chair: Dorel Banabic Formability of metallic materials	MS2 Chair: Remko Akkerman Composites forming processes	MS3 Chair: Can Ayas Additive Manufacturing	MS7 Chair: Guisy Ambrogio Incremental and sheet metal forming	MS15 Chair: Semih Perdahcioglu Material behaviour: from phenomenologic macroscopic laws to plasticity, DDD, MD approaches
16:00 - 16:30	Tea & Coffee Break - The Helix Foyer				
16:30 - 18:10	MS1 Chair: Dorel Banabic Formability of metallic materials	MS2 Chair: Remko Akkerman Composites forming processes	MS3 Chair: Kyriakos Kourousis Additive Manufacturing	MS7 Chair: Guisy Ambrogio Incremental and sheet metal forming	MS15 Chair: Semih Perdahcioglu Material behaviour: from phenomenologic macroscopic laws to plasticity, DDD, MD approaches
18:10 - 20:00	Welcome Reception				

ESAFORM 2017 - PROGRAMME OVERVIEW - WEDNESDAY, 26TH APRIL				
07:30 - 08:20	Conference Registration - The Helix, DCU			
	Business School, DCU			
Rooms	Q120	Q121	Q122	QG13
08:20 - 08:50	Welcome Ceremony - The Theatre			
08:50 - 09:30	Plenary Speaker - The Theatre Prof. Joost Duflou, KU Leuven			
09:40 - 11:00	MS4 Chair: Laurentiu Slatineanu Non-conventional processes	MS18 Chair: Bernd-Arno Behrens Forging and Rolling	MS19 Chair: Denis Dowling Nanostructured materials fabrication and forming	MS10 Chair: Livan Fratini Innovative joining by forming technologies
11:00 - 11:30	Tea & Coffee Break - The Helix Foyer			
11:30 - 13:10	MS4 Chair: Hans-Peter Schulze Non-conventional processes	MS18 Chair: Nenad Grbic Forging and Rolling	MS19 Chair: Denis Dowling Nanostructured materials fabrication and forming	MS10 Chair: Hinnerk Hagenah Innovative joining by forming technologies
13:10 - 14:30	LUNCH - DCU Main Restaurant			
14:30 - 15:20	Plenary Speaker - The Theatre Prof. James Sherwood, UMass Lowell			
15:20 - 16:00	MS4 Chair: Hans-Peter Schulze Non-conventional processes	MS18 Chair: Bernd-Arno Behrens Forging and Rolling	MS19 Chair: Inam Ul Ahad Nanostructured materials fabrication and forming	MS10 Chair: Hinnerk Hagenah Innovative joining by forming technologies
16:00 - 16:30	Tea & Coffee Break - The Helix Foyer			
16:30 - 18:10	MS4 Chair: Massimo Durante Non-conventional processes	MS18 Chair: Tim Matthias Forging and Rolling	MS19 Chair: Inam Ul Ahad Nanostructured materials fabrication and forming	
18:10 - 20:00	Welcome Reception			

ESAFORM 2017 - PROGRAMME OVERVIEW - THURSDAY, 27TH APRIL

The Helix, DCU					
Rooms	Theatre	Gallery	Space	Blue Room	Studio
08:30 - 09:00	Plenary Speaker - <i>The Theatre</i> Dr. Farbod Nezami, CIKONI, Industrial Prize winner				
09:00 - 09:30	Overview of APT and WIMB, Dermot Brabazon, DCU				
09:30 - 10:50	MS1 Chair: Toshihiko Kuwabara Formability of metallic materials	MS2 Chair: Stepan Lomov Composites forming processes	MS11 Chair: Nadine Allanic Heat transfer in forming processes	MS7 Chair: Torgeir Welo Incremental and sheet metal forming	MS15 Chair: Laurent Tabourot Material behaviour: from phenomenologic macroscopic laws to plasticity, DDD, MD approaches
10:50 - 11:20	Tea & Coffee Break - <i>The Helix Foyer</i>				
11:20 - 13:00	MS1 Chair: Toshihiko Kuwabara Formability of metallic materials	MS2 Chair: Stepan Lomov Composites forming processes	MS11 Chair: Sobotka Vincent Heat transfer in forming processes	MS7 Chair: Torgeir Weilo Incremental and sheet metal forming	MS15 Chair: Laurent Tabourot Material behaviour: from phenomenologic macroscopic laws to plasticity, DDD, MD approaches
13:00 - 14:00	LUNCH - <i>DCU Main Restaurant</i>				
14:00 - 14:50	Plenary Speaker - <i>The Theatre</i> Mr. Jonathan Downey, Schivo				
15:00 - 15:40	MS1 Chair: Toshihiko Kuwabara Formability of metallic materials	MS2 Chair: James Sherwood Composites forming processes	MS11 Chair: Sobotka Vincent Heat transfer in forming processes	MS7 Chair: Claudio Giardini Incremental and sheet metal forming	MS13 Chair: Nikolay Biba Extrusion and drawing
15:40 - 16:10	Tea & Coffee Break - <i>The Helix Foyer</i>				
16:10 - 17:50	MS1 Chair: Toshihiko Kuwabara Formability of metallic materials	MS2 Chair: James Sherwood Composites forming processes	MS8 Chair: Takashi Matsumura Machining and cutting	MS7 Chair: Claudio Giardini Incremental and sheet metal forming	MS13 Chair: Henry Valberg Extrusion and drawing
18:00 - 19:00	General Assembly				
19:20	Buses depart from the Helix for Gala Dinner				
20:00 - 23:30	Gala Dinner				

ESAFORM 2017 - PROGRAMME OVERVIEW - THURSDAY, 27TH APRIL				
	Business School, DCU			
Rooms	Q120	Q121	Q122	QG13
08:30 - 09:00	Plenary Speaker - <i>The Theatre</i> Dr. Farbod Nezami, CIKONI, Industrial Prize winner			
09:00 - 09:30	Overview of APT and WIMB, Dermot Brabazon, DCU			
09:30 - 10:50	MS4 Chair: Massimo Durante Non-conventional processes	MS18 Chair: Mohammad Kazhai Forging and Rolling	MS12 Chair: Sumsun Naher Semi-solid processes	MS17 Chair: Chiara Mandolino Laser material forming
10:50 - 11:20	Tea & Coffee Break - <i>The Helix Foyer</i>			
11:20 - 13:00	MS4 Chair: Margareta Coteata Non-conventional processes	MS18 Chair: Hinnerk Hagenah Forging and Rolling	MS12 Chair: Sumsun Naher Semi-solid processes	MS17 Chair: Chiara Mandolino Laser material forming
13:00 - 14:00	LUNCH - <i>DCU Main Restaurant</i>			
14:00 - 14:50	Plenary Speaker - <i>The Theatre</i> Mr. Jonathan Downey, Schivo			
15:00 - 15:40		MS9 Chair: Gil Andrade Campos Optimization and inverse analysis in forming	MS5 Chair: Fabrice Schmidt Structures, properties and processing of polymers and biomass based materials	MS6 Chairs: Robertt Valente Pierpaolo Carlone Integrated design, modeling and reliability assessment in forming (I-DMR)
15:40 - 16:10	Tea & Coffee Break - <i>The Helix Foyer</i>			
16:10 - 17:50	MS3 Chair: Robert Groarke Additive Manufacturing	MS9 Chair: Matteo Strano Optimization and inverse analysis in forming	MS5 Chair: Fabrice Schmidt Structures, properties and processing of polymers and biomass based materials	MS6 Chairs: Sandrine Thuillier Ricardo Sousa Integrated design, modeling and reliability assessment in forming (I-DMR)
18:00 - 19:00	General Assembly			
19:20	Buses depart from the Helix for Gala Dinner			
20:00 - 23:30	Gala Dinner			

ESAFORM 2017 - PROGRAMME OVERVIEW - FRIDAY, 28TH APRIL

The Helix, DCU					
Rooms	Theatre	Gallery	Space	Blue Room	Studio
08:30 - 09:20	Plenary Speaker - <i>The Theatre</i> Prof. Sean Leen, NUIG				
09:30 - 10:50	MS16 Chair: Elias Cueto New and advanced numerical strategies for material forming	MS2 Chair: Emmanuelle Abisset-Chavanne Composites forming processes	MS8 Chair: Pedro-José Arrazola Machining and cutting	MS14 Chair: Pieter Verboven Mathematical and computer science methods for biomass and food materials processing	MS13 Chair: Soeren Mueller Extrusion and drawing
10:50 - 11:20	Tea & Coffee Break - <i>The Helix Foyer</i>				
11:20 - 12:40	MS16 Chair: Francisco Chinesta New and advanced numerical strategies for material forming	MS2 Chair: Emmanuelle Abisset-Chavanne Composites forming processes	MS8 Chair: Domenico Umbrello Machining and cutting	MS14 Chair: Maria Charalambides Mathematical and computer science methods for biomass and food materials processing	MS13 Chair: Henry Valberg Extrusion and drawing
12:40 - 14:00	LUNCH - DCU Main Restaurant				

H2020 Sessions - Gallery, The Helix

14:00 - 15:00	H2020 Introduction Session
15:00 - 16:00	H2020 Discussion and Brain Storming Session I
16:00 - 17:00	H2020 Discussion and Brain Storming Session II

ESAFORM 2017 - PROGRAMME OVERVIEW - FRIDAY, 28TH APRIL		
	Business School, DCU	
Rooms	Q121	Q122
08:30 - 09:20	Plenary Speaker - <i>The Theatre</i> Prof. Sean Leen, NUIG	
09:30 - 10:50	MS9 Chair: Gil Andrade Campos Optimization and inverse analysis in forming	MS5 Chair: Gary Menary Structures, properties and processing of polymers and biomass based materials
10:50 - 11:20	Tea & Coffee Break - <i>The Helix Foyer</i>	
11:20 - 12:40	MS9 Chair: Gil Andrade Campos Optimization and inverse analysis in forming	MS5 Chair: Olivier De Almeida Structures, properties and processing of polymers and biomass based materials
12:40 - 14:00	LUNCH - DCU Main Restaurant	
	H2020 Sessions - Gallery, The Helix	
14:00 - 15:00	H2020 Introduction Session	
15:00 - 16:00	H2020 Discussion and Brain Storming Session I	
16:00 - 17:00	H2020 Discussion and Brain Storming Session II	



Co-funded by the
Tempus Programme
of the European Union

ESAFORM 2017 - DETAILED PROGRAMME

MS1
Formability of metallic materials

Wednesday, 26th April

Time	MS1	Mini-Symposia	Location
09:40 - 10:00	111	Formability and macroscopic shearing of a titanium alloy Ti-6Al-4V under channel die compression Henri Francillette and Christian Garand	Theatre
10:00 - 10:20	112	Counter measures to effectively reduce end flare Matthias Moneke and Peter Groche	
10:20 - 10:40	113	Study of high strain rate effect on sheet formability based on Nakazima test Edoardo Mancini, Marco Sasso, Gianluca Chiappini, Archimede Forcellese and Michela Simoncini	
10:40 - 11:00	122	FEA-based Development of a New Tool for Systematic Experimental Validation of Nonlinear Strain Paths and Design of Test Specimens Annika Weinschenk and Wolfram Volk	
11:00 - 11:30		Tea & Coffee Break	Foyer
11:30 - 11:50	124	Influence of microscopic strain heterogeneity on the formability of martensitic stainless steel Alvise Miotti Bettanini, Laurent Delannay, Pascal Jacques, Thomas Pardoën, Guillaume Badinier and Jean-Denis Mithieux	Theatre
11:50 - 12:10	127	Investigation on Flange Deformation Behavior of Duplex Embossed Sheet Metal subjected to Deep Drawing Wuyang Liu and Takashi Iizuka	
12:10 - 12:30	129	Development of Draw-bending Testing Method Using Digital Image Correlation System Chiharu Sekiguchi, Tomoyuki Hakoyama, Toshihiko Kuwabara and Hiroshi Fukiharū	
12:30 - 12:50	168	Effect of the Determination Method of the Material Parameters on the Accuracy of the Hole Expansion Simulation for Cold Rolled Steel Sheet Hayato Nakano, Tomoyuki Hakoyama and Toshihiko Kuwabara	
12:50 - 13:10	198	Mechanical Behavior And Modelisation Of Ti-6Al-4V Titanium Sheet Under Hot Stamping Conditions Quentin Sirvin, Luc Penazzi, Vincent Velay and Rebecca Bonnaire	
13:10 - 14:30		Lunch	Main Restaurant

Time	MS1	Mini-Symposia	Location
15:20 - 15:40	205	Hole expansion test of third generation steels Julen Agirre, Joseba Mendiguren, Eneko Saenz de Argandoña and Lander Galdos	Theatre
15:40 - 16:00	210	Large Strain Cruciform Biaxial Testing for FLC Detection Baran Güler and Mert Efe	
16:00 - 16:30		Tea & Coffee Break	Foyer
16:30 - 16:50	343	Crystal plasticity assisted prediction on the yield locus evolution and forming limit curves Junhe Lian, Wenqi Liu, Fuhui Shen and Sebastian Münstermann	Theatre
16:50 - 17:10	4	Texture-based formability prediction for Mg wrought alloys ZE10 and AZ31 Dirk Steglich and Youngung Jeong	
17:10 - 17:30	37	Modification of Tribological Conditions for Influencing the Material Flow in Bulk Forming of Microparts from Sheet Metal Marion Merklein, Ulf Engel, Kolja Andreas, Martin Kraus and Tommaso Stellin	
17:30 - 17:50	71	Forming Limit Curves Determined In High-Speed Cupping Tests And Predicted By A Strain Rate Sensitive Model Nathalie Weiß-Borkowski, Junhe Lian, Thorsten Marten, Thomas Tröster, Sebastian Münstermann and Wolfgang Bleck	
17:50 - 18:10	121	Characterising Ductility of 6xxx-Series Aluminium Sheet Alloys at Combined Loading Conditions Philipp Henn, Mathias Liewald and Manfred Sindel	

Thursday, 27th April

Time	MS1	Mini-Symposia	Location
09:30 - 09:50	213	The Influence of Composition on Hot Tensile Behaviour in Silicon-Killed Boron Microalloyed Steels Lesley Chown and Lesley Cornish	Theatre
09:50 - 10:10	219	Forming characteristics of artificial aging Al-Mg-Si(-Cu) sheet alloys Artur Klos, Daniel Wortberg, Marion Merklein, Philipp Walter and Corrado Bassi	
10:10 - 10:30	347	Cold roll forming behavior considering spring back of wrought magnesium alloy sheet Kazuhiro Tsuruoka, Aso Hayato and Hisaki Watari	
10:30 - 10:50	142	Deducing material quality in cast and hot forged steels by new bending test Henry Valberg and Morten Langøy	
10:50 - 11:20		Tea & Coffee Break	Foyer

Time	MS1	Mini-Symposia	Location
11:20 - 11:40	188	Microstructural Analysis of Hot Press Formed 22MnB5 Steel Nuraini Aziz, Syarifah Nur Aqida and Izwan Ismail	Theatre
11:40 - 12:00	230	Numerical investigation of the plastic flow localization based on generalized micromorphic formulation Evangelia Diamantopoulou, Carl Labergere and Khemais Saanouni"	
12:00 - 12:20	237	The Influence of Deformation-Induced Microvoids on Mechanical Failure of AISI A8 Martensitic Tool Steel Hadi Ghasemi Nanasa, Mohammad Jahazi, Majid Heidari and Tom Levasseur	
12:20 - 12:40	262	Variation of strain rate sensitivity index of a superplastic aluminum alloy in different testing methods Omid Majidi, Mohammad Jahazi, Nicolas Bombardier and Ehab Samuel	
12:40 - 13:00	270	Effect of Anisotropic Yield Function Evolution on Formability of Sheet Metal H.J. Choi, Yumi Choi, K.J. Lee, J.Y. Lee, Kaushik Bandyopadhyay and M.-G. Lee	
13:00 - 14:00		Lunch	Main Restaurant
15:00 - 15:20	274	Fracture Prediction of Hole Expansion Forming Using Forming Limit Stress Criterion Tomoyuki Hakoyama, Hayato Nakano and Toshihiko Kuwabara	Theatre
15:20 - 15:40	294	Linear Transformation Based Orthotropic Shear Ductile Fracture Criterion For Lightweight Metals Yanshan Lou and Jeong Whan Yoon	
15:40 - 16:10		Tea & Coffee Break	Foyer
16:10 - 16:30	301	Forming Limit Strains for Non-Linear Strain Path of AA6014 Aluminium Sheet Deformed at Room Temperature José Divo Bressan, Mathias Liewald and Klaus Drotleff	Theatre
16:30 - 16:50	331	Correlation between Von Mises Strain and Material Thinning in a Hydroformed Sample of Ti35A Aerospace Grade Titanium Colin Bell, Ellen Jump, William Kerr, Jonathan Corney, Nicola Zuelli and David Savings	
16:50 - 17:10	46	Limits in multi-point forming based on a small scaled flexible 9-point die device Petra Maier, Christian Ruback, Harry Schellhorn and Paul Rümmler	
17:10 - 17:30	304	Manufacture of a Four-Sheet Complex Component from Different Titanium Alloys by Superplastic Forming Mohammad Reza Allazadeh and Nicola Zuelli	

MS2 Composites forming processes			
Wednesday, 26th April			
Time	MS2	Mini-Symposia	Location
09:40 - 10:00	7	Periodic boundary conditions for mesoscale finite elements simulation of 3D woven fabrics Ismael Azehaf, Nahiene Hamila, Philippe Boisse, Laurent Orgeas and Sabine Rolland Du Roscoat	Gallery
10:00 - 10:20	19	Draping simulation with a new finite element formulation involving an internal unit cell Benjamin Kaiser, Thomas Pyttel, Eberhard Haug and Fabian Duddeck	
10:20 - 10:40	24	Modeling and Validation of Gripper Induced Membrane Forces in Finite Element Forming Simulation of Continuously Reinforced Composites Christian Poppe, Dominik Dörr, Tobias Joppich, Luise Kärger and Frank Henning	
10:40 - 11:00	26	On The Relevance of Modeling Viscoelastic Bending Behavior in Finite Element Forming Simulation of Continuously Fiber Reinforced Thermoplastics Dominik Dörr, Fabian J. Schirmaier, Frank Henning and Luise Kärger	
11:00 - 11:30		Tea & Coffee Break	Foyer
11:30 - 11:50	27	Simulating Squeeze Flows in Multiaxial Laminates Ruben Ibanez, Emmanuelle Abisset-Chavanne and Francisco Chinesta	Gallery
11:50 - 12:10	29	Modeling of the Non-Isothermal Crystallization Kinetics of Polyamide 6 Composites During Thermoforming Daniel Kugele, Döminik Dörr, Florian Wittemann, Benjamin Hangs, Julius Rausch, Luise Kaerger and Frank Henning	
12:10 - 12:30	53	Influence of the temperature on the composites' fusion bonding quality Ali Harkous, Tomasz Jurkowski, Jean-Luc Bailleul and Steven Le Corre	
12:30 - 12:50	60	Compaction behavior of Out-of-Autoclave prepreg materials Léonard Serrano, Philippe Olivier and Jacques Cinquin	
12:50 - 13:10	72	Thermoforming of glass fiber reinforced polypropylene: a study on the influence of different process parameters Alexander Schug, Jonas Winkelbauer, Roland Hinterhölzl and Klaus Drechsler	
13:10 - 14:30		Lunch	Main Restaurant

Time	MS2	Mini-Symposia	Location
15:20 - 15:40	77	Numerical approach for modeling across scales infusion-based processing of aircraft primary structures Koloïna Andriamananjara, Loïc Chevalier, Nicolas Moulin, Julien Bruchon, Pierre-Jacques Liotier and Sylvain Drapier	Gallery
15:40 - 16:00	88	Quantification of micro-CT images of textile reinforcements Ilya Straumit, Stepan Lomov and Martine Wevers	
16:00 - 16:30		Tea & Coffee Break	Foyer
16:30 - 16:50	100	Out-of-Autoclave Manufacturing of a Stiffened Thermoplastic Carbon Fibre PEEK Panel Michael Flanagan, Jamie Goggins, Adrian Doyle, Bryan Weafer, Mark Ward, Matthieu Bizeul, Rory Canavan, Conchúr Ó Brádaigh, Kieth Doyle and Noel Harrison	Gallery
16:50 - 17:10	116	Thermo-mechanical characterization of a thermoplastic composite and prediction of the residual stresses and lamina curvatures during cooling Mael Péron, Frédéric Frédéric, Pascal Casari, Gilles Orange, Jean Luc Bailleul and Nicolas Boyard	
17:10 - 17:30	120	A Mesoscopic Approach For Draping Simulation Of Preforms Manufactured By Direct Fibre Placement Mathias Engelfried, Julian Fial, Manuel Tartler, Patrick Böhler and Peter Middendorf	
17:30 - 17:50	125	Flow monitoring of Microwave pre-heated resin in LCM processes Felice Rubino, Valentino Paradiso and Pierpaolo Carlone	
17:50 - 18:10	136	Simulation of microwave heating of a composite part in an oven cavity Hermine Tertrais, Anaïs Barasinski, Chady Ghnatios, Francisco Chinesta and Ruben Ibanez	

Thursday, 27th April

Time	MS2	Mini-Symposia	Location
09:30 - 09:50	159	Impregnation Quality of Compression Moulded Shredded Semipreg Guillaume Vincent, Venkateswaran Balakrishnan, Thomas de Bruijn, Mohammed Iqbal Abdul Rasheed and Sebastiaan Wijskamp	Gallery
09:50 - 10:10	171	Strategy for Improving the quality of multi-layered interlock dry fabric preforms Samir Allaoui	
10:10 - 10:30	172	A Combination of ATL process with UV curing technology based on inverse approach Issam Balbzioui, Basma Hasiaoui, Gerald Barbier, Gildas L'Hostis, Bernard Durand, Fabrice Laurent and Ahmad Ibrahim	

Time	MS2	Mini-Symposia	Location
10:30 - 10:50	227	Manufacturing issues which affect coating erosion performance in wind turbine blades Enrique Cortes, Fernando Sanchez, Luis Domenech, Aurelio Olivares, Trevor M.Young, Anthony O'Carrol and Francisco Chinesta	Gallery
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	234	Continuous Welding Of Unidirectional Fiber Reinforced Thermoplastic Tape Material Ralf Schledjewski	Gallery
11:40 - 12:00	239	Simulation of Composite Reinforcement Deformation based on X-ray Computed Tomography Naim Naouar, Emmanuelle Vidal-Salle and Philippe Boisse. Meso F.E	
12:00 - 12:20	245	Hot forming of Composite prepreg : experimental study Xavier Tardif, Bertrand Duthille, Stephane Bechtel, Louis Le Pinru, Benjamin Campagne, Gautier Destombes, Antoine Deshors, Christophe Marchand, Khalid El Azzouzi and Tanguy Moro	
12:20 - 12:40	249	Analysis of the local fiber volume fraction variation in pultrusion process Ismet Baran	
12:40 - 13:00	258	Hot forming of Composite prepreg: Numerical analyses Eduardo Guzman-Maldonado, Khalid El Azzouzi, Nahiène Hamila, Tanguy Moro, Sylvain Chatel, Paulin Fideu and Philippe Boisse	
12:40 - 14:00		Lunch	Main Restaurant
15:00 - 15:20	280	Modelling and simulation of the consolidation behavior during thermoplastic prepreg composites forming process Hu Xiong, Nahiene Hamila and Philippe Boisse	Gallery
15:20 - 15:40	303	Finite Element Simulation of Thickness Changes in Laminate during Thermoforming Kari White and James Sherwood	
15:40 - 16:10		Tea & Coffee Break	Foyer
16:10 - 16:30	308	Influence of Prepreg Characteristics on Stamp Consolidation Tjitse K. Slange, Laurent L. Warnet, Wouter J.B. Groupe and Remko Akkerman	Gallery
16:30 - 16:50	325	Modeling of Prepregs during Automated Draping Sequences Christian Krogh, Jens Glud and Johnny Jakobsen	
16:50 - 17:10	55	Modeling and Simulating the Forming of New Dry Automated Lay-up Reinforcements for Primary Structures Laure Bouquerel, Sylvain Drapier, Nicolas Moulin, Philippe Boisse and Jean-Marc Beraud	

Time	MS2	Mini-Symposia	Location
17:10 - 17:30	81	Specificities of the Mechanical Behavior Philippe Boisse, Nahiene Hamila and Angela Madeo. Simulations of 3D Textile Composite Reinforcements	Gallery
17:30 - 17:50	175	Mechanical analysis of CFRP-steel hybrid composites considering the interfacial adhesion Jinhyeok Jang, Minchang Sung, Sungjin Han, Wonbo Shim and Woong-Ryeol Yu	

Friday, 28th April

Time	MS2	Mini-Symposia	Location
09:30 - 09:50	236	Structural investigation of a new composite process Philippe Mayer, Eric Becker, Régis Bigot and Bruno Kaici	Gallery
09:50 - 10:10	240	Experimental Investigation on Innovative Manufacturing Method of Glass Fiber Reinforced Polymers Amin Haghbin, Gholamhossein Liaghat, Mohammad Hossein Pol and Amir Masoud Arabi	
10:10 - 10:30	256	Friction of Carbon Fibre and Influence of Sizing Treatment Michel Tournonias, Catherine Jordan, Marie-Ange Bueno and Dominique Poquillon	
10:30 - 10:50	31	From Dilute to Entangled Fiber Suspensions Involved in Reinforced Polymers and Composites Marta Perez-Miguel, Emmanuelle Abisset-Chavanne, Francisco Chinesta and Roland Keunings	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	367	Finite strain anisotropic elasto-plastic model for the simulation of the forming and testing of metal/short fiber reinforced polymer clinch joints at room temperature Aamir Dean, Raimund Rolfes, Bernd-Arno Behrens, Anas Bouguecha, Sven Hübner, Christian Bonk and Nenad Grbic	Gallery
11:40 - 12:00	384	The influence of technological parameters on the dynamic behavior of liquid wood samples obtained by injection molding Simona Plavanescu Mazurchevici, Constantin Carausu, Radu Comaneci and Dumitru Nedelcu	
12:00 - 12:20	385	Failure Process Investigation of Overwrapping Composite on the Pipe by Burst Test Yanyv Wang, Zhiqiang Cheng and Thierry Barriere	
12:20 - 12:40	386	Dual-cure photochemical/thermal LED infusion process Toward for Carbon Fiber Composites Ahmad Ibrahim, Xavier Allonas and Fabrice Laurent	

MS3 Additive Manufacturing			
Wednesday, 26th April			
Time	MS3	Mini-Symposia	Location
09:40 - 10:00	369	Roles of Microstructures on Deformation Response of 316 Stainless Steel Made by Powder-bed Laser 3D printing Minh-Son Pham and Paul Hooper	Space
10:00 - 10:20	36	Rheological Characterization of Plasticized Corn Proteins for Fused Deposition Modeling Laurent Chaunier, Michèle Dalgalarondo, Guy Della Valle, Denis Lourdin, Didier Marion and Eric Leroy	
10:20 - 10:40	102	Reducing tool wear by partial cladding of critical zones in hot form tool by laser metal deposition Robert Vollmer and Christof Sommitsch	
10:40 - 11:00	202	Toward improvement of the properties of parts manufactured by FFF (Fused Filament Fabrication) through understanding the influence of temperature and rheological behaviour on the coalescence phenomenon Shahriar Bakrani Balani, France Chabert, Valerie Nassiet, Arthur Cantarel and Christian Garnier	
11:00 - 11:30		Tea & Coffee Break	Foyer
11:30 - 11:50	271	Development and Fabrication of Patient-Specific Knee Implant Using Additive Manufacturing Techniques Robert Zammit and Arif Rochman	Space
11:50 - 12:10	302	Robot-Based Additive Manufacturing for Flexible Die Modelling in Incremental Sheet Forming Michael Rieger, Denis Daniel Störkle, Lars Thyssen and Bernd Kuhlenkötter	
12:10 - 12:30	328	Numerical simulation of complex part manufactured by Selective Laser Melting process Laurent Van Belle	
12:30 - 12:50	334	3D Printing of Polypropylene Using the Fused Filament Fabrication Technique Alexandre Ferreira Da Silva, Olga S Carneiro and Rui Gomes	
12:50 - 13:10	218	Influence on surface characteristics of Electron Beam Melting process (EBM) by varying the process parameters Adrien Dolimont, Sébastien Michotte, Edouard Rivière-Lorphèvre, François Ducobu, Solange Vivès, Stéphane Godet, Tom Henkes and Enrico Filippi	
13:10 - 14:30		Lunch	Main Restaurant

Time	MS3	Mini-Symposia	Location
15:20 - 15:40	82	Improving the Strength of Additively Manufactured Objects via Modified Interior Structure Can Mert Al and Ulas Yaman	Space
15:40 - 16:00	156	Computationally Efficient Thermal Modelling of Selective Laser Melting Yabin Yang and Can Ayas	
16:00 - 16:30		Tea & Coffee Break	Foyer
16:30 - 16:50	200	On the microstructure analysis of FSW joints of Aluminium components made via Direct Metal Laser Sintering Fabio Scherillo, Antonello Astarita, Daniela di Martino, Vincenzo Contaldi, Luca di Matteo, Paolo di Petta, Vincenzo Casarin, Antonino Squillace and Antonio Langella	Space
16:50 - 17:10	264	Mechanical behavior of three-dimensional pyramidal aluminum lattice materials Fusheng Han, Yingjie Huang, Yingying Xue and Xinfu Wang	
17:10 - 17:30	216	Lattice structures integration with conventional topology optimization Maurizio Calabrese, Teresa Primo and Antonio Del Prete	
17:30 - 17:50	25	Additive-Manufactured Sandwich Lattice Structures: A Numerical and Experimental Investigation Omar Fergani, Sigmund Tronvoll, Vegard Brotan, Torgeir Welo and Knut Sorby	
17:50 - 18:10	155	Point, Surface and Volumetric Heat Sources in the Thermal Modelling of Selective Laser Melting Yabin Yang and Can Ayas	

Thursday, 27th April

Time	MS3	Mini-Symposia	Location
16:10 - 16:30	335	An Analysis of the Distribution of Temperature, Stress and Strain in Laser Cladding Process Nusrat Tamanna, Roger Crouch, Manolis Gavaises and Sumsun Naher	Q120
16:30 - 16:50	355	Mitigation of the Overcuring Effect in Mask Projection Micro-Stereolithography via CAD File Manipulation Paul O'Neill, Nigel Kent and Dermot Brabazon	
16:50 - 17:10	164	Uniaxial Cyclic Stress-Strain Behaviour of Ti-6Al-4V Additively Manufactured by Selective Laser Melting Kyriakos Kourousis, Dylan Agius, Chris Wallbrink, Milan Brandt and Chun Wang	
17:10 - 17:30		Residual Stress Prediction in a Powder Bed Fusion Manufactured Hip Stem Titouan Etienne, Cormac Duddy, Noel Harrison	

MS4 Non-conventional processes			
Wednesday, 26th April			
Time	MS4	Mini-Symposia	Location
09:40 - 10:00	50	Modification of the process dynamics in the micro-EDM by means of an additional piezo-control system Mathias Herzig, Thomas Berger, Hans-Peter Schulze, Matthias Hackert-Oschätzchen, Oliver Kröning and Andreas Schubert	Q120
10:00 - 10:20	97	Securing a Robust Electrical Discharge Drilling Process by Means of Flow Rate Control Ali Akbar Hossein Abdolahi, Matthias Risto, Rüdiger Haas and Markus Munz	
10:20 - 10:40	199	Modeling and Simulation of the Fluid Flow in Wire Electrochemical Machining with Rotating Tool (Wire-ECM) Fritz Klocke, Tim Herrig, Markus Zeis and Andreas Klink	
10:40 - 11:00	18	Importance of polarity change in the electrical discharge machining Hans-Peter Schulze	
11:00 - 11:30		Tea & Coffee Break	Foyer
11:30 - 11:50	170	Deposition and micro electrical discharge machining of CVD-diamond layers incorporated with silicon Ralf Kühn, Markus Prieske, Richard Börner, Thomas Berger, Matthias Hackert-Oschätzchen, Henning Zeidler and Andreas Schubert	Q120
11:50 - 12:10	144	Surface Structuring of Boron Doped CVD Diamond by Micro Electrical Discharge Machining Andreas Schubert, Thomas Berger, André Martin, Matthias Hackert-Oschätzchen, Nico Treffkorn and Ralf Kühn	
12:10 - 12:30	313	Modelling and optimisation of electromagnetically coupled solid manufacturing processes Francois Bay, Jose Alves and Julien Barlier	
12:30 - 12:50	143	Surface roughness at vibroburnishing Gheorghe Nagit, Laurentiu Slatineanu, Oana Dodun, Margareta Coteata, Irina Besliu and Vasile Merticaru	
13:10 - 14:30		Lunch	Main Restaurant

Time	MS4	Mini-Symposia	Location
15:20 - 15:40	101	Dissimilar metal joining by Friction Stir Welding between titanium and aluminum Florent Picot, Antoine Gueydan and Eric Hug	Q120
16:00 - 16:30		Tea & Coffee Break	Foyer
16:30 - 16:50	30	Comparison between rotary and conventional flaring processes Subha Tamang, Olga Bylya, Michael Ward, Martin Tuffs and Steven Halliday	Q120
16:50 - 17:10	140	Hot Metal Gas Forming of Titanium Grade 2 Bent Tubes Alexander Paul, Ricardo Trãn, Markus Werner and Dirk Landgrebe	
17:10 - 17:30	85	Deformation characteristics of thermoplastics in single point incremental forming Fabian Maass, Soeren Gies and A. Erman Tekkaya	
17:30 - 17:50	83	The FEM Simulation of Continuous Rotary Extrusion (CRE) of Aluminum Alloy AA3003 Nijenthan Rajendran, Henry Valberg and Wojciech Misiolek	

Thursday, 27th April

Time	MS4	Mini-Symposia	Location
09:30 - 09:50	220	Lightweight Bio-Composites based on Hemp Fibres Produced by Conventional and Unconventional Processes Luca Boccarusso, Massimo Durante, Formisano Antonio, Langella Antonio and Fabrizio Memola Capece Minutolo	Q120
09:50 - 10:10	193	Fabrication and Mechanical Characterization of Hybrid Metal Foam/Bio-Composite Samples Antonio Formisano, Luca Boccarusso, Luigi Carrino, Massimo Durante and Antonio Langella	

Time	MS4	Mini-Symposia	Location
10:10 - 10:30	59	Supercritical debinding of Inconel 718 parts realized by metal injection moulding Alexandre Royer, Thierry Barriere and Jean-Claude Gelin	Q120
10:30 - 10:50	321	Fabrication of Micro T-shaped Tubular Components by Hydroforming Process Ken-Ichi Manabe, Kenta Itai and Kazuo Tada	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	91	Evaluation of Geometrical Parameters Effects on Density Distribution in Compaction of PM Gears Alireza Khodaei and Arne Melander	Q120
11:40 - 12:00	141	Development of Hybrid Directional Reinforced Structural Parts for Lightweight Applications Werner Homberg, Tim Rostek, Mirko Schaper, Olexandr Grydin, Anatolii Andreiev, Alexander Brosius and Marc Tulke	
12:00 - 12:20	107	Creep-age Forming of AA2219 Plate with Isogrid Structure Youliang Yang and Lihua Zhan	
12:20 - 12:40	378	Lightweight Technologies - Trends, Challenges and Solutions Mohammad Gharbi	

MS5

Structures, properties and processing of polymers and biomass based materials

Thursday, 27th April

Time	MS5	Mini-Symposia	Location
15:00 - 15:20	52	Investigation on Thermomechanical Properties of Poly (l-lactic acid) for the Stretch Blow Moulding Process of Bioresorbable Vascular Scaffold Huidong Wei and Gary Menary	Q122
15:20 - 15:40	119	Simulation of Polymer Crystallization Induced by Temperature using the Phase Field Method: Focus on the Avrami Rate Constant Yanghao Gong, Fabrice Detrez, Yunmei Luo and Luc Chevalier	
15:40 - 16:10		Tea & Coffee Break	Foyer
16:10 - 16:50		Time dependent modeling for polymers based on statistical network theory; Unified approach for linear visco elasticity from glassy to fluid? Noelle Billion	Q122
16:50 - 17:10	65	Self Heating during Stretch Blow Molding: an Experimental Numerical Comparison Yunmei Luo, Luc Chevalier, Eric Monteiro and Francoise Utheza	
17:10 - 17:30	212	A non-invasive experimental approach to validate radiation heat transfer model for thermoforming of semi-crystalline thermoplastics Sinan Boztepe, Rémi Gilblas, Olivier de Almeida, Yannick Le Maoult and Fabrice Schmidt	
17:30 - 17:50	190	Thermoforming of HDPE David Mckelvey, Gary Menary, Peter Martin and Shiyong Yan	Q122
17:50 - 18:10	282	Assessing the stretch-blow moulding FE simulation of PET over a large process window James Nixon, Gary Menary and Shiyong Yan	

Friday, 28th April			
Time	MS5	Mini-Symposia	Location
09:30 - 09:50	333	Crystallization of isotactic polypropylene in different shear regimes Roberto Spina, Marcel Spekowius and Christian Hopmann	Q122
09:50 - 10:10	402	Processing - Property Relations from Biaxial Deformation of PET (Polyethylene Terephthalate) Narendran Anumula, Gary Menary, Shiyong Yan, James Nixon and Peter Martin	
10:10 - 10:30	20	A method of measuring the effective thermal conductivity of thermoplastic foams André Chateau Akué Asséko, Benoit Cosson, Salim Chaki, Clément Duborper, Marie-France Lacrampe and Patricia Krawczak	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	183	Hybrid RTM process: Monitoring and processing of composites based on reactive thermoplastic systems Abderrahim Maazouz, Khalid Lamnawar and Mohamed Dkier	Q122
11:40 - 12:00	338	The influence of cosmic radiation on the properties of different polymers Andrea Adamne Major and David Boja	
12:00 - 12:20	332	Investigation of compression behavior of PE/EVA foam injection molded parts Roberto Spina	

MS6 Integrated design, modeling and reliability assessment in forming (I-DMR)			
Thursday, 27th April			
Time	MS6	Mini-Symposia	Location
15:00 - 15:20	76	Estimating Product-to-product Variations in Metal Forming using Force Measurements Jos Havinga and Ton van den Boogaard	QG13
15:20 - 15:40	224	Testing Single Point Incremental Forming Molds for Rotomolding Operations Daniel Afonso, Ricardo Alves De Sousa and Ricardo Torcato	
15:40 - 16:10		Tea & Coffee Break	Foyer
16:10 - 16:30	126	Modelling And Simulation Of Cure In Pultrusion Processes Fausto Tucci, Felice Rubino, Valentino Paradiso, Pierpaolo Carlone and Robertt Valente	QG13
16:30 - 16:50	307	Shape optimization of shear fracture specimen considering plastic anisotropy Shunying Zhang, Jeong Whan Yoon, Sung-Uk Lee and Yanshan Lou	
16:50 - 17:10	51	Finite element modeling of the residual stress evolution in forged and direct-aged Alloy 718 turbine disks during manufacturing and its experimental validation Andreas Drexler, Werner Ecker, Hans-Peter Gänser, Jozef Keckes, Michael Hofmann, Bernd Oberwinkler, Roland Hessert and Andreas Fischersworing-Bunk	

MS7 Incremental and sheet metal forming			
Wednesday, 26th April			
Time	MS7	Mini-Symposia	Location
09:40 - 10:00	98	Deep drawability of Ti/resin/Ti laminated sheet Yasunori Harada and Shuji Hattori	Blue Room
10:00 - 10:20	103	Numerical and experimental microscale analysis of the incremental forming process Joanna Szyndler, Laurent Delannay, Krzysztof Muszka and Lukasz Madej	
10:20 - 10:40	153	A modular die set-up for incremental sheet forming with subsequent stress-relief annealing under partial constraints Fawad Maqbool and Markus Bambach	
10:40 - 11:00	201	Stiffness management of sheet metal parts using laser metal deposition Markus Bambach, Alexander Sviridov and Andreas Weisheit	
11:00 - 11:30		Tea & Coffee Break	Foyer
11:30 - 11:50	241	Effects of Die Quench Forming on Springback and Sheet Thinning Samuel Kim, Kaab Omer, Clifford Butcher and Michael Worswick	Blue Room
11:50 - 12:10	263	Influence of Heat Treatment on Mechanical Property of Steel Hollow Sphere and Its Sheet Construction Yoshinori Yoshida and Sho Ozawa	
12:10 - 12:30	298	In-Process Monitoring Of Flow Forming With Acoustics Andrew Appleby, Alastair Conway and Bill Ion	
12:30 - 12:50	396	Influence of Inductive Heating on Microstructure and Material Properties in Roll Forming Processes Anna Guk, Andreas Kunke, Verena Kräusel and Dirk Landgrebe	
12:50 - 13:10	108	Control of Anisotropic Shape Deviation in Single Point Incremental Forming of Paperboard Philipp Stein, Wilken Franke, Florian Hoppe, Daniel Hesse, Katharina Mill and Peter Groche	
13:10 - 14:30		Lunch	Main Restaurant

Time	MS7	Mini-Symposia	Location
15:20 - 15:40	47	Cylindrical Extrusions on A5083 Aluminum Alloy Plate Fabricated by Friction Stir Forming Takahiro Ohashi, Hamed Mofidi Tabatabaei and Tadashi Nishihara	Blue Room
15:40 - 16:00	86	Incremental electrohydraulic forming - A new approach for the Manufacturing of structured multifunctional sheet metal blanks Djakow Eugen, Springer Robert, Homberg Werner, Mark Piper, Tran Julian, Zibart Alexander and Kenig Eugeny	
16:00 - 16:30		Tea & Coffee Break	Foyer
16:30 - 16:50	87	Rubber Pad Forming - A efficiently approach for the Manufacturing of complex structured sheet metal blanks for food industry Spoelstra Paul, Djakow Eugen and Homberg Werner	Blue Room
16:50 - 17:10	130	Finite Element Modelling of Chain-die Forming for Ultra-High Strength Steel Raju Majji, Yang Xiang, Chunhui Yang and Scott Ding	
17:10 - 17:30	132	Formability Of Spherical And Large Aluminum Sheets Frieder Zimmermann, Alexander Brosius, Ralf-Eckhard Beyer, Jens Standfuß and Axel Jahn	
17:30 - 17:50	167	Multi-objective Optimization Applied to Single Point Incremental Forming of Pure Titanium Denture Plate Manel Sbayti, Riadh Bahloul and Hedi Belhadjsalah	
17:50 - 18:10	243	Springback of Aluminum Alloy Brazing Sheet in Warm Forming Kyu Bin Han, Ryan George, Srihari Kurukuri, Michael Worswick and Sooky Winkler	

Thursday, 27th April

Time	MS7	Mini-Symposia	Location
09:30 - 09:50	248	Evolution of heat in dry rotary swaging Marius Herrmann, Yang Liu, Christian Schenck, Bernd Kuhfuss and Inken Ohlsen	Blue Room
09:50 - 10:10	318	Validation of the FEA of a Deep Drawing Process with Additional Force Transmission B.-A. Behrens, Anas Bouguecha, Christian Bonk, Nenad Grbic and Milan Vucetic	
10:10 - 10:30	364	An Investigation And Prediction Of Failure Of Sheet Metals Under Cold Forming Condition Mohamed Mohamed, Mohamed Farouk, Ahmed Elsayed, Mostafa Shazy and Abdel Aziz Hegazy	

Time	MS7	Mini-Symposia	Location
10:10 - 10:30	364	An Investigation And Prediction Of Failure Of Sheet Metals Under Cold Forming Condition Mohamed Mohamed, Mohamed Farouk, Ahmed Elsayed, Mostafa Shazly and Abdel Aziz Hegazy	Blue Room
10:30 - 10:50	395	Performance Analysis of the Incremental Sheet Forming on PMMA using a Combined Chemical and Mechanical Approach Romina Conte, Francesco Gagliardi, Giuseppina Ambrogio, Luigino Filice and Pietro Russo	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	182	Finite Element Assisted Prediction of Ductile Fracture in Sheet and Tube Hydroforming Bryan Mac Donald, Rubén Lostado Lorza and Shoichiro Yoshihara	Blue Room
11:40 - 12:00	184	Plastic deformation history in infeed rotary swaging process Yang Liu, Marius Herrmann, Christian Schenck and Bernd Kuhfuss	
12:00 - 12:20	247	Finite Element Simulation of Non-Isothermal Warm Forming of High-Strength Aluminum Alloy Sheet Jacqueline Noder, Michael Worswick, Clifford Butcher and Sante Dicecco	
12:20 - 12:40	279	A Compensation Strategy For Geometric Inaccuracies Of Hot Incrementally Formed Parts Lars Thyssen, Denis Daniel Störkle and Bernd Kuhlenkötter	
12:40 - 13:00	310	Architectural Setup For Online Monitoring And Control Of Process Parameters In Robot-Based ISF Denis Daniel Störkle, Lars Thyssen and Bernd Kuhlenkötter	
12:40 - 14:00		Lunch	Main Restaurant
15:00 - 15:20	38	Numerical simulation of the deep drawing process for tailored heat treated al-mg-si alloys Michael Machhammer and Christof Sommitsch	Blue Room
15:20 - 15:40	285	Servo Press Method for Sheet Metal Forming Maurizio Calabrese, Teresa Primo and Antonio Del Prete	
15:40 - 16:10		Tea & Coffee Break	Foyer
16:10 - 16:30	165	Development of a numerical methodology for flowforming process simulation of complex geometry tubes Sonia Varela, Maite Santos, Amaia Arroyo, Iñaki Pérez, Joan Francesc Puigjaner and Blanca Puigjaner	Blue Room
16:30 - 16:50	296	A Study on Thick Plate Forming for Hollow-Partitioned Steam Turbine Nozzle Bong-Seok Kwak, Byeong-Kwon Kang, Beom-Soo Kang, Tae-Wan Ku, Mahn-Jung Yoon and Jae-Young Jeon	

**MS8
Machining and cutting**

Thursday, 27th April

Time	MS8	Mini-Symposia	Location
16:10 - 16:30	42	New Tool Holder Design for Cryogenic Machining of Ti6Al4V Marco Bellin, Andrea Ghiotti, Stefania Bruschi and Stefano Sartori	Q120
16:30 - 16:50	157	Influences of High-Pressure Coolant Supply on Chip Formation in Milling Fritz Klocke, Benjamin Döbbeler and Thomas Lakner	
16:50 - 17:10	221	Microstructural and Hardness Changes in Aluminum Alloy Al-7075: Correlating Machining and Equal Channel Angular Pressing Stano Imbrogno, Eric Segebade, Andreas Fellmeth, Michael Gerstenmeyer, Frederik Zanger, Volker Schulze and Domenico Umbrello	
17:10 - 17:30	231	Microstructural Investigations of the Trimmed Edge of DP980 Steel Sheets Sandeep Bhattacharya, Daniel Green, Raj Sohmshtetty and Ahmet Alpas	
17:30 - 17:50	265	Reducing the Uncertainty in Robotic Machining by Modal Analysis Iñigo Alberdi, Jose Angel Pelegay, Pedro-Jose Arrazola and Klaus Bonde	

Friday, 28th April			
Time	MS8	Mini-Symposia	Location
09:30 - 09:50	291	Tool Geometry Optimization for Drilling CFRP/Al-Li Stacks with a Lightning Strike Protection Souhail El Bouami, Malek Habak, Raphaël Velasco, Baptiste Dos Santos, Gérald Franz and Pascal Vantomme	Q120
09:50 - 10:10	295	Cutting Force Simulation in Milling with Multi-edges Cutter Takashi Matsumura and Shoichi Tamura	
10:10 - 10:30	194	A Methodology for 2D Cutting Process Simulation of Solid End Mill Kateryna Skrypka and Gaetano Massimo Pittalà	
10:30 - 10:50	342	Influence of the ferritic-pearlitic steel microstructure on surface roughness in broaching of automotive steels Inaki Arrieta, Cédric Courbon, Frédéric Cabanettes, Pédro-José Arrazola and Joël Rech	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	267	Experimental Analysis of Influence of Cutting Conditions on Machinability of Waspaloy Serafino Caruso, Sergio Rinaldi, Rodolfo Franchi, Antonio Del Prete and Domenico Umbrello	Q120
11:40 - 12:00	68	Numerical Simulation Of Machining Distortions On A Forged Component Obtained By Ring Rolling Process Rodolfo Franchi, Antonio Del Prete, Maurizio Calabrese and Iolanda Donatiello	
12:00 - 12:20	189	Finite Element Model Of White And Dark Layers Induced In Hard Orthogonal Cutting Of AISI52100 Samar Arfaoui, Farhat Zemzemi and Zoubeir Tourki	
12:20 - 12:40	287	Modeling of Surface Roughness in Diamond Turning of PMMA used for Contact Lens Making Fundiswa Kopi and Khaled Abou El Hossein	

**MS9
Optimization and inverse analysis in forming**

Thursday, 27th April

Time	MS9	Mini-Symposia	Location
15:00 - 15:20	62	Fusion metamodeling of the bend deduction in air bending Matteo Strano, Lorenzo Iorio, Quirico Semeraro and Roberto Sofia	Q121
15:20 - 15:40	115	Efficient Calculation of Uncertainty Propagation with an Application in Robust Optimization of Forming Processes Omid Nejadseyfi, Hubert Geijselaers and Ton van den Boogaard	
15:40 - 16:10		Tea & Coffee Break	Foyer
16:10 - 16:30	261	Parameters identification of the Chaboche model for non linear deformation conditions Grzegorz Smyk, Paulina Graca, Krzysztof Muszka and Danuta Szeliga	Q121
16:30 - 16:50	192	Remarks on variational sensitivity analysis of elastoplastic deformations Franz-Joseph Barthold and Jan Liedmann	
16:50 - 17:10	174	Framework for Simulation-Driven Design of Stamping Dies Considering Elastic Die and Press Deformations Johan Pilthammar, Johan Wall and Mats Sigvant	
17:10 - 17:30	203	Surrogate models for sheet metal stamping problem based on the combination of Proper Orthogonal Decomposition and Radial Basis Function Van Tuan Dang, Pascal Lafon and Carl Labergere	
17:30 - 17:50	39	How inverse solver technologies can support die face development and process planning in the automotive industry Stefan Huhn, Derek Peeling and Maximilian Burkart	

Friday, 28th April

Time	MS9	Mini-Symposia	Location
09:30 - 09:50	162	Ring Rolling Process Simulation For Microstructure Optimization Rodolfo Franchi, Antonio Del Prete, Iolanda Donatiello and Maurizio Calabrese	Q121
09:50 - 10:10	35	Predicting shrinkage and warpage in injection molding: Towards automatized mold design Florian Zwicke, Marek Behr and Stefanie Elgeti	
10:10 - 10:30	260	The maximum work principle regarded as a consequence of an optimisation problem based on mechanical virtual power principle and application of constructal theory Adinel Gavrus	

MS10 Innovative joining by forming technologies			
Wednesday, 26th April			
Time	MS10	Mini-Symposia	Location
09:40 - 10:00	5	Manufacturing of hybrid aluminium copper joints by electromagnetic pulse welding - an analysis of important process parameters Verena Psyk, Christian Scheffler, Maik Linnemann and Dirk Landgrebe	QG13
10:00 - 10:20	69	Manufacture of Thin-Walled Clad Tubes by Pressure Welding of Roll Bonded Sheets Hans Christian Schmidt, Olexandr Grydin, Mykhailo Stolbchenko, Werner Homberg and Mirko Schaper	
10:20 - 10:40	94	Comparison between FSW and bonded lap joints - a preliminary investigation Enrico Lertora, Davide Campanella, Chiara Mandolino, Carla Gambaro, Livan Fratini and Buffa Gianluca	
10:40 - 11:00	135	Reproducing the experimental torque-to-turn resistance of blind rivet nuts using FEA Arne Van de Velde, Sam Coppieters, Kristof Denys, Jan Maeyens and Dimitri Debruyne	
11:00 - 11:30		Tea & Coffee Break	Foyer
11:30 - 11:50	146	Analysis and Simulation of the Energy Dissipation at Mechanical Joints Alexander Brosius, Christina Guillaume and Alexander Wolf	QG13
11:50 - 12:10	158	Numerical Simulation of Linear Friction Welding of Aeronautical alloys Antoine Potet, Katia Mocellin and Lionel Fourment	
12:10 - 12:30	160	In-Process Tool Rotation Variation with Constant Heat Input in Friction Stir Welding of AZ31 Sheet with Variable Thickness Gianluca Buffa, Davide Campanella, Archimede Forcellese, Livan Fratini and Michela Simoncini	
12:30 - 12:50	161	"Mechanical joining of Materials with Limited Ductility: Analysis of Process-Induced Defects Mathias Jäckel, Sam Coppieters, Martin Hofmann and Nelis Vandermeiren	
12:50 - 13:10	181	Process Optimization of Joining by Upset Bulging with Local Heating Michael Rusch, Amer Almohallami, Alexander Sviridov, Christian Bonk, Bernd-Arno Behrens and Markus Bambach	
13:10 - 14:30		Lunch	Main Restaurant
15:20 - 15:40	329	Finite Element Model and Experiment on Electro-Magnetic Wire Crimping Process Ashish Kumar Rajak and Sachin Kore	QG13
15:40 - 16:00	390	Numerical Simulation of High-Speed Nailing Process Fabien Goldspiegel, Katia Mocellin and Philippe Michel	

MS11			
Heat transfer in forming processes			
Thursday, 27th April			
Time	MS11	Mini-Symposia	Location
09:30 - 09:50	64	Experimental validation of analytical models for a rapid determination of cycle parameters in thermoplastic injection molding Baptiste Pignon, Vincent Sobotka, Nicolas Boyard and Didier Delaunay	Space
09:50 - 10:10	99	Experiments and Numerical Modeling of Flow Field and Heat Transfer Coefficients inside an Autoclave Model Taleb Ghamlouch, Stéphane Roux, Jean-Luc Bailleul and Vincent Sobotka	
10:10 - 10:30	109	Numerical Modeling of Electrical Upsetting Manufacturing Processes Based on FORGE® Environment Jose Alves, Sergio Acevedo, Stephane Marie, Bernhard Adams, Katia Mocellin and François Bay	
10:30 - 10:50	278	Simulations of the Heat Exchange in Thermoplastic Injection Molds Manufactured by Additive Techniques Wafa Daldoul, Thomas Toulorge and Michel Vincent	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	393	Study of the reflective behaviour of carbon fibres reinforced polymer composite up to 450°C Violaine Le Louet, Benoit Rousseau and Steven Le Corre	Space
11:40 - 12:00	209	Calculation and Validation of Heat Transfer Coefficient for Warm Forming Operations Kaab Omer, Clifford Butcher and Michael Worswick	
12:00 - 12:20	344	Development and Experimental Assessment of a Numerical Modelling Code to Aid the Design of Profile Extrusion Cooling Tools Olga Carneiro, A. Rajkumar, C. Fernandes, L. Ferras, F. Habla and M. Nobrega	
12:20 - 12:40	288	Thermal Sensors to Control Polymer Forming - Challenge and Solutions Nadine Allanic, Jean-Luc Bailleul, Franck Lemeunier, Nicolas Boyard, Alain Sarda, Christophe Plot, Nicolas Lefevre, Isabelle Petit and Gael Colomines	
Time	MS11	Mini-Symposia	Location
12:40 - 13:00	374	Design and thermal analysis of a mold used in the injection of elastomers Nasser Fekiri, Pierre Mousseau, Alain Sarda and Cécile Canto	Space
12:40 - 14:00		Lunch	Main Restaurant
15:00 - 15:20	289	A New Tribological System Test for Integrated Hot Forming and Die Quenching of Aluminium Alloy Sheets Knut Erik Snilsberg, Torgeir Welo, Bjørn Holmedal, Knut Erling Moen, Ola Jensrud and Christian Koroschetz	Space

MS12 Semi-solid processes			
Thursday, 27th April			
Time	MS12	Mini-Symposia	Location
09:30 - 09:50	348	Solidification of aluminum alloys by using twin roll casting process Takegfumi Ishikawa, Hisaki Watari and Toshio Haga	Q122
09:50 - 10:10	362	Semisolid Forming of S48C Steel Grade Gorka Plata, Jokin Lozares, Zigor Azpilgain, Iñaki Hurtado, Iñigo Loizaga and Zuriñe Idoyaga	
10:10 - 10:30	366	Parametric Study for Graphene Reinforced Aluminum Matrix Composites Production Using Box Behnken Design Bhagya Dasari, Jamshid Nouri, Dermot Brabazon and Sumsun Naher	
10:30 - 10:50	397	Hot Rolled High Al Containing Steels as a Replacement for the Control Rolled High Strength Low Alloy (HSLA) Steels Abdullah Qaban, Barrie Mintz and Sumsun Naher	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	17	Numerical simulation of the induction heating of hybrid semi-finished materials into the semi-solid state Christoph Seyboldt and Mathias Liewald	Q122
11:40 - 12:00	197	Micro-Bulges Investigation on Laser Modified Tool Steel for Surface Wettability Syarifah Aqida and Izwan Ismail	
12:00 - 12:20	242	Experimental Investigation Of Thixoforging Tubes Eric Becker, Régis Bigot, Olivier Gyss, Florian Baratto and Jean-Baptiste Croue	
12:20 - 12:40	327	3D Thermal Model of Laser Surface Glazing for H13 Tool Steel Israt Rumana Kabir, Danqing Yin and Sumsun Naher	
12:40 - 13:00	339	Solutions of Modified Equation of Motion for Laminar Viscous Flow Across (within) Rigid (liquid) Sphere and Cylinder and Stokes Paradox Siavash Sohrab	

**MS13
Extrusion and drawing**

Thursday, 27th April

Time	MS13	Mini-Symposia	Location
15:00 - 15:20	293	Solid state recycling of aluminium alloys via a porthole die hot extrusion process: Scaling up to production Dimos Paraskevas, Karel Kellens, Yelin Deng, Wim Dewulf, Carlos Kampen and Joost Duflou	Studio
15:20 - 15:40	147	Hybrid Deep Drawing Tool for Lubricant Free Deep Drawing Christina Guilleaume, Ali Mousavi and Alexander Brosius	
15:40 - 16:10		Tea & Coffee Break	Foyer
16:10 - 16:30	96	Tribological Investigations of the Applicability of Surface Functionalization for Dry Extrusion Processes Marco Teller, Stephan Prünte, Ingo Ross, André Temmler, Jochen M. Schneider and Gerhard Hirt	Studio
16:30 - 16:50	138	Co-Extrusion of Semi-Finished Aluminum-Steel Compounds Susanne Thürer, Uhe Johanna, Golovko Oleksandr, Christian Bonk, Anas Bouguecha, Christian Klose, Bernd-Arno Behrens and Hans Jürgen Maier	
16:50 - 17:10	150	Appearance of shear zones in nonlubricated axisymmetric direct and indirect extrusion Henry Valberg and André Luiz M. Costa	
17:10 - 17:30	152	Optimization of Porthole Die Geometrical Variables by Taguchi Method Francesco Gagliardi, Claudio Ciancio, Giuseppina Ambrogio and Luigino Filice	
17:30 - 17:50	226	Comparison of Updated Lagrangian FEM with Arbitrary Lagrangian Eulerian method for 3D thermo-mechanical extrusion of a tube profile Johannes Kronsteiner, Dieter Horwatsch and Klaus Zeman	

Friday, 28th April			
Time	MS13	Mini-Symposia	Location
09:30 - 09:50	290	Numerical study of combined process of backward cup extrusion and piercing Robinson Henry and Mathias Liewald	Studio
09:50 - 10:10	349	Dry metal forming of low alloy steels by full forward extrusion using innovative surface textures and HPPMS coatings Rafael Hild, Andreas Feuerhack, Daniel Trauth, Mostafa Arghavani, Nathan C. Kruppe, Tobias Brögelmann, Kirsten Bobzin and Fritz Klocke	
10:10 - 10:30	350	Coupled modelling of aluminium profiles extrusion and product quality improvement by means of simulation Nikolay Biba, Ruslan Rezvykh and Ivan Kniazkin	
10:30 - 10:50	392	Investigation of Cold Extrusion Process Using Coupled Thermo-Mechanical Finite Element Analysis and Adaptive Friction Modeling Mehmet Okan Görtan	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	398	Influence of Temperature and Sliding Speed on the Subsurface Microstructure Evolution of EN AW-6060 under Sticking Friction Conditions Vidal Sanabria and Soeren Mueller	Studio

MS14 Mathematical and computer science methods for biomass and food materials processing			
Friday, 28th April			
Time	MS14	Mini-Symposia	Location
09:30 - 09:50	250	A general computation model based on inverse analysis principle used for rheological analysis of w/o rapeseed and soybean oil emulsions Iuliana Vintila and Adinel Gavrus	Blue Room
09:50 - 10:10	322	Formation and Morphology of Ice Crystals in Concentrated Food Systems: A Model-based Study Estefania Lopez Quiroga, Rui Wang, Ourania Gouseti, Peter J. Fryer and Serafim Bakalis	
10:10 - 10:30	354	Chewing as a forming application: A viscoplastic damage law in modelling food oral breakdown Christos Skamniotis, Maria Charalambides and Elliott Matthew	
10:30 - 10:50	356	A Comparison of the Mechanical and Sensory Properties of Baked and Extruded Confectionery Products Saba Butt, Maria Charalambides and Hugh Powell	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	357	Model Based Development of Fruit Simulators Huijian Huang, Mark Tunnicliffe, Young-Min Shim and John Bronlund	Blue Room
11:40 - 12:00	358	Microstructure based hygro-mechanical modelling of deformation of fruit tissue Pieter Verboven, Metadel Abera, Zi Wang and Bart Nicolai	
12:00 - 12:20	359	A Novel Methodology To Model The Cooling Processes Of Packed Horticultural Produce Using 3D Shape Models Willem Gruyters, Pieter Verboven, Seppe Rogge, Simon Vanmaercke, Herman Ramon and Bart Nicolai	
12:20 - 12:40	373	Multivariate Constrained Shape Optimization: application to Extrusion Bell Shape for Pasta Production Fabrizio Sarghini, Angela De Vivo and Francesco Marra	

MS15 Material behaviour: from phenomenologic macroscopic laws to plasticity, DDD, MD approaches			
Wednesday, 26th April			
Time	MS15	Mini-Symposia	Location
09:40 - 10:00	95	Modeling of Yield Surface Evolution in Uniaxial and Biaxial Loading Conditions using a Prestrained Large Scale Specimen Shakil Zaman, Frédéric Barlat and Jin Kim	Studio
10:00 - 10:20	284	Quasi-Continuum analysis of Dislocation-Coherent Twin Boundary interactions to provide local rules to Discrete Dislocation Dynamics Tran Hoang Son, Tumala Hareesh, Duchene Laurent, Pardoën Thomas, Fivel Marc and Habraken Anne-Marie	
10:20 - 10:40	34	Verification of Yield Functions by Biaxial Tensile Tests with Rotated Principal Axes Ryo Ageba, Akinobu Ishiwatari and Jiro Hiramoto	
10:40 - 11:00	314	Numerical modeling of ductile fracture at the microscale combined with X-Ray laminography and digital volume correlation Pierre-Olivier Bouchard, Victor Trejo Navas, Modesar Shakoor, Marc Bernacki, Thilo Morgeneyer, Ante Buljac and François Hild	
11:00 - 11:30		Tea & Coffee Break	Foyer
11:30 - 11:50	21	Analysis of the Lankford coefficient evolution at different strain rates for AA6016-T4, DP800 and DC06 Matthias Lenzen and Marion Merklein	Studio
11:50 - 12:10	78	Influence of Transient Strain Rates on Material Flow Stress and Microstructure Evolution Jens Dierdorf, Johannes Lohmar and Gerhard Hirt	
12:10 - 12:30	80	Experimental and computational approach to evaluate the effect of levelling on the change of tensile properties of heavy steel plates Thomas Kaltenbrunner, Werner Ecker, Thomas Antretter, Robert Kaiser, Erik Parteder and Rupert Egger	
12:30 - 12:50	106	Comparative Study of Modelling Efficiency Regarding Localization Development Laurent Tabourot, Ndeye Awa Sene, Pascale Balland, Nesrine Ksiksi, Ludovic Charleux and Moustapha Issack	
12:50 - 13:10	133	Implementation and Application of a Gradient Enhanced Crystal Plasticity Model Celal Soyarslan and Semih Perdahcioglu	
13:10 - 14:30		Lunch	Main Restaurant

Time	MS15	Mini-Symposia	Location
15:20 - 15:40	145	Atypical Transitions In Material Response During Constant Strain Rate, Hot Deformation Of Austenitic Steel Utpal Borah, B Aashranth, Dipti Samantaray, Santosh Kumar, M. Arvinth Davinci, Shaju K. Albert and A.K. Bhaduri	Studio
15:40 - 16:00	238	Influence of grain size on the mechanical properties of nano-crystalline copper; Insights from molecular dynamics simulation Ali Rida, Ali Makke, Emmanuelle Rouhaud and Matthieu Micoulaut	
16:00 - 16:30		Tea & Coffee Break	Foyer
16:30 - 16:50	252	Intrinsic and Statistical Size Effects in Microforming Tuncay Yalcinkaya, Aytekin Demirci, Igor Simonovski and Izzet Ozdemir	Studio
16:50 - 17:10	323	Experimental Validation of the Multiphase Extended Leblond's Model Daniel Weisz-Patrault	
17:10 - 17:30	336	Study of the local and global deformation process of an aluminium alloy using full-field measurements Marco Rossi, Gianluca Chiappini, Luca Maria Mattucci and Dario Amodio	
17:30 - 17:50	337	Hot-deformation Behaviour of $\alpha+\beta$ Ti-Al-V-Fe Experimental Alloys Dawid Prozesky, Michael Bodunrin and Lesley Chown	

Thursday, 27th April

Time	MS15	Mini-Symposia	Location
09:30 - 09:50	371	A unified dislocation density-dependent physical-based constitutive model for cold metal forming Konstantin Schacht, Seyedamirhossein Motaman, Ulrich Prah and Wolfgang Bleck	Studio
09:50 - 10:10	79	A Numerical Multi-Scale Model to Predict Macroscopic Material Anisotropy of Multi-Phase Steels from Crystal Plasticity Material Definitions Sathish Kumar Ravi, Jerzy Gawad, Marc Seefeldt, Albert Van Bael and Dirk Roose	

Time	MS15	Mini-Symposia	Location
10:10 - 10:30	166	Thermomechanical simulation of the production process of a creep resistant martensitic steel Bernadette Gsellmann, Dilek Halici, Bernhard Krenmayr, Cecilia Poletti and Bernhard Sonderegger	Studio
10:30 - 10:50	206	Cost efficiency of the non-associative flow rule simulation of an industrial component Lander Galdos, Eneko Saenz de Argandoña and Joseba Mendiguren	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	58	Comparison of creep deformation rates during load and strain controlled multi-step creep ageing tests on AA7050 Jinghua Zheng, Catrin Davies and Jianguo Lin	Studio
11:40 - 12:00	228	Quantum Mechanics and Relativistic Model by the Evaluation of the Activation Energy for Plastic Flow at High Temperature in Titanium Carbide Single Crystals Juan Daniel Muñoz-Andrade	
12:00 - 12:20	273	Simulation of thin Aluminium-foil in the Packaging Industry Eskil Andreasson, Ann-Magret Asp and Tommy Lindström	
12:20 - 12:40	381	Constitutive Equation on basis of Electro-Thermal Uniaxial Tension for Titanium Profile Baosheng Liu, Fenggong Lv, Yuansong Zeng, Wei Wu, Yongjun Wang and Fengchao Cao	
12:40 - 13:00	399	Crystal Plasticity Simulation of Zirconium Tube Rolling Using Multi-Grain Representative Volume Element Margarita Isaenkova, Yuriy Perlovich, Dmitry Zhuk and Olga Krymskaya	

MS16			
New and advanced numerical strategies for material forming			
Friday, 28th April			
Time	MS16	Mini-Symposia	Location
09:30 - 09:50	13	The Analysis of Bottom Forming Process for Hybrid Heating Device Paweł Bałon, Andrzej Świątoniowski and Bartłomiej Kielbasa	Theatre
09:50 - 10:10	40	A Simplified Simulation Model for a HPDC Die with Conformal Cooling Channels Markus Frings, Marek Behr and Stefanie Elgeti	
10:10 - 10:30	44	A Manifold Learning Approach to Data-Driven Computational Materials and Processes Ruben Ibañez, Emmanuelle Abisset-Chavanne, Jose Vicente Aguado, David Gonzalez, Elias Cueto and Francisco Chinesta	
10:30 - 10:50	93	A New Methodology to Characterize the Constitutive Behaviour of PET for the Stretch Blow Moulding Process Shiyong Yan, Gary Menary and James Nixon	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	123	A Coupled Thermo-Mechanical Pseudo Inverse Approach For Preform Design In Forging Anoop Ebey Thomas, Boussad Abbès, Yu Ming Li, Fazilay Abbès, Ying-Qiao Guo and Jean-Louis Duval	Theatre
11:40 - 12:00	134	Model for texture evolution in cold rolling of 2.4 wt. % Si non-oriented electrical steel Xuefei Wei, Stephan Hojda, Jens Dierdorf, Johannes Lohmar and Gerhard Hirt	
12:00 - 12:20	324	On the Use of PGD for Optimal Control Applied to Automated Fibre Placement Nicolas Bur and Pierre Joyot	
12:20 - 12:40	370	Local Proper Generalized Decomposition Alberto Badías Herbera, David González Ibañez, Iciar Alfaro Ruiz, Francisco Chinesta Soria and Elías Cueto Prendes	

MS17 Laser material forming			
Thursday, 27th April			
Time	MS17	Mini-Symposia	Location
09:30 - 09:50	89	Laser welding of polypropylene using two different sources Chiara Mandolino, Dermot Brabazon, Éanna McCarthy, Enrico Lertora, Carla Gambaro and Inam Ul Ahad	QG13
09:50 - 10:10	251	Numerical Modelling of Laser Assisted Tape Winding Process Amin Zaami, Ismet Baran and Remko Akkerman	
10:10 - 10:30	281	Nd:YOV4 Laser polishing on WC-Co HVOF spray coating Luca Giorleo, Elisabetta Ceretti, Giovina Marina La Vecchia and Lorenzo Montesano	
10:30 - 10:50	286	Laser Surface Texturing for High Control of Interference Fit Joint Load Bearing Muhannad Ahmed Obeidi, Eanna Mccarthy and Dermot Brabazon	
10:50 - 11:20		Tea & Coffee Break	Foyer
11:20 - 11:40	214	Preliminary characterization of AA6061 and Ti6Al4V Dissimilar Laser Butt Weld Giuseppe Casalino, Sonia D'ostuni, Pasquale Guglielmi, Paola Leo, Michelangelo Mortello, Gianfranco Palumbo and Antonio Piccininni	QG13
11:40 - 12:00	309	Laser beam machining of polycrystalline diamond for cutting tool manufacturing Dominik Wyszynski, Marek Zwolak, Robert Ostrowski and Witold Bryk	QG13
12:00 - 12:20	312	Design of instrumentation and software for precise laser machining Dominik Wyszynski, Marcin Grabowski and Piotr Lipiec	
12:20 - 12:40	48	Effect of fiber laser marking on surface properties and corrosion resistance of a Fe-Ni-Cr alloy Antonello Astarita, Chiara Mandolino, Enrico Lertora, Carla Gambaro, Antonino Squillace and Fabio Scherillo	

MS18
Forging and Rolling

Wednesday, 26th April

Time	MS18	Mini-Symposia	Location
09:40 - 10:00	33	Material saving by means of CWR technology using optimization techniques Iñaki Pérez	Q121
10:00 - 10:20	41	A new high and moderate speed servo-hydraulic forging simulator machine: capabilities and process optimization Michail Ntovas and Paul Blackwell	
10:20 - 10:40	66	Assessment of Flat Rolling Theories for the Use in a Model-Based Controller for High-Precision Rolling Applications Sven Stockert, Matthias Wehr, Johannes Lohmar, Gerhard Hirt and Dirk Abel	
10:40 - 11:00	70	Simulation of the Hot Rolling of Steel with Direct Iteration Umut Hanoglu and Božidar Šarler	
11:00 - 11:30		Tea & Coffee Break	Foyer
11:30 - 11:50	92	Interlocking multi-material components made of structured steel sheets and high-pressure die cast aluminium Stefan Senge, Johannes Brachmann, Gerhard Hirt and Andreas Bührig-Polaczek	Q121
11:50 - 12:10	118	Online-Analysis of Process-Data to Avoid Ovality in Radial-Axial Ring Rolling Processes Tobias Husmann, Simon Husmann and Bernd Kuhlenkötter	
12:10 - 12:30	169	Comparison of Distortions of Complex Aluminium Sections Formed in Single-Step and Incremental Roll Bending Jan Magnus G. Farstad, Øyvind Netland and Torgeir Welø	
12:30 - 12:50	173	Numerical Die Life Estimation of a Crack Susceptible Industrial Hot Forging Process Mohammad Kazhai, Anas Bouguecha, Christian Bonk, Daniel Rosenbusch and Bernd Arno Behrens	
12:50 - 13:10	178	Modelling of Influence of Carbon Content on Material Behavior during Forging Marcel Graf, Hendrik Wester, Anas Bouguecha, Grzegorz Korpala, Madlen Ullmann, Birgit Awiszus, Bernd-Arno Behrens and Rudolf Kawalla	Q121
13:10 - 14:30		Lunch	Main Restaurant

Time	MS18	Mini-Symposia	Location
11:20 - 15:40	186	Investigations on the Flow Behavior of Aluminum in Two Layer Roll Bonding Alina Melzner and Gerhard Hirt	Q121
15:40 - 16:00	191	Importance of Material and Friction Characterization for FE-aided Process Design of Hybrid Bevel Gears Bernd-Arno Behrens, Anas Bouguecha, Christian Bonk and Tim Matthias	
16:00 - 16:30		Tea & Coffee Break	Foyer
16:10 - 16:50	208	An Approach to Develop an Algorithm to Detect the Climbing Height of Radial-Axial Rolled Rings Simon Husmann, Magnus Hohmann and Bernd Kuhlenkötter	Q121
16:50 - 17:10	244	3D Finite Element Model for Roll Stack Deformation Coupled with a Multi-Slab Model for Strip Deformation for Flat Rolling Simulation Yukio Shigaki, Pierre Montmitonnet and Jonatas Mezencio Silva	
17:10 - 17:30	268	Properties of Hot-Rolled Sheets from Ferritic Steel with Increased Strength Yuriy Perlovich, Margarita Isaenkova, Petr Dobrokhotov, Sergey Stolbov, Igor Bannykh, Marina Antsyferova and Oleg A. Bannykh	
17:30 - 17:50	272	Behavior of Sheets from Ti Alloys by Rolling and Heat Treatment Margarita Isaenkova, Yuriy Perlovich, Vladimir Fesenko, Maria Gritskevich, Sergey Stolbov and Maria Zaripova	
17:50 - 18:10	305	Predicting Void Closure during Free from Mannesmann Forging Process of Large Size Ingots Davood Shahriari, Nathan Harris, Kanwal Chadha and Mohammad Jahazi	

Thursday, 27th April

Time	MS18	Mini-Symposia	Location
09:30 - 09:50	315	Hot Rolling Simulation for Non-Oriented Electrical Steel Anett Stöcker, Matthias Schmidtchen and Rudolf Kawalla	Q121
09:50 - 10:10	361	An Advanced Dissymmetric Rolling Model For Online Regulation Trong Son Cao	
10:10 - 10:30	163	Ring Rolling Process Simulation For Geometry Optimization Rodolfo Franchi, Antonio Del Prete, Iolanda Donatiello and Maurizio Calabrese	
10:30 - 10:50	179	Process Routes for Die Forging of Hybrid Bevel Gears and Bearing Bushings Bernd-Arno Behrens, Anas Bouguecha, Conrad Frischkorn, Adis Huskic and Anna Chugreeva	
10:50 - 11:20		Tea & Coffee Break	
11:20 - 11:40	57	Statically Determined Slip-Line Field Solution for the Axial Forming Force Estimation in the Radial-Axial Ring Rolling Process Luca Quagliato and Guido Berti	Q121
11:40 - 12:00	117	Impact of tool wear on Cross wedge rolling process stability and on product quality Catalina Gutierrez, Laurent Langlois, Cyrille Baudouin, Régis Bigot and Éric Frémeaux	
12:00 - 12:20	346	Hot Forging of roll cast high high aluminum content magnesium alloys Tomohiro Kishi, Hisaki Watari, Mayumi Suzuki and Toshio Haga	
12:20 - 12:40	56	Friction-aided strip rolling with variable reductions Ahmed Elkholy	
12:40 - 13:00	407	Experimental and Numerical Research on Forging with Torsion Mikhail Petrov	

MS19			
Nanostructured materials fabrication and forming			
Wednesday, 26th April			
Time	MS19	Mini-Symposia	Location
09:40 - 10:00	43	Wear of Carbon Nanotubes Grafted on Carbon Fibres and this Influence on the Properties of Composites Materials Claire Guignier, Marie-Ange Bueno, Brigitte Camillieri and Bernard Durand	Q122
10:00 - 10:20	104	Nanostructuring of metals via Spark Plasma Sintering using activated powder obtained by ball-milling: Impact on the strain-hardening mechanisms Lucia Garcia de La Cruz, Baptiste Flipon, Clément Keller, Mayerling Martinez and Eric Hug	
10:20 - 10:40	110	Equal Channel Angular Pressing (ECAP) and Forging of Commercially Pure Titanium (CP-Ti) Maciej Krystian, Daniel Huber and Jelena Horky	
10:40 - 11:00	368	Surface Roughness Control by Extreme Ultraviolet (EUV) Radiation Inam Ul Ahad, Bogusław Budner, Andrzej Bartnik, Henryk Fiedorowicz and Dermot Brabazon	
11:00 - 11:30		Tea & Coffee Break	Foyer
11:30 - 11:50	185	Thermal Modelling Of Normal Distributed Nanoparticles Through Thickness In An Inorganic Material Matrix Steven Latré and Frederik Desplentere	Q122
11:50 - 12:10	211	Nanoparticle Fabrication via Pulsed Laser Ablation in Liquid: A Step Towards Production Scale-up Brian Freeland, Ronan Mccann, Komal Bagga, Greg Foley and Dermot Brabazon	
12:10 - 12:30	217	Elaboration of austenitic stainless steel with bimodal grain size distribution and investigation of their mechanical behavior Baptiste Flipon, Lucia Garcia de La Cruz, Eric Hug, Clément Keller and Fabrice Barbe	
12:30 - 12:50	351	Agro-industrial waste as source for carbon nanotubes (CNTs) production Pamela Hidalgo, Carla Martinez and Gustavo Ciudad	
12:50 - 13:10	176	Influence of Tools Geometry and Processing Conditions on Behavior of a Difficult-to-Work Al-Mg Alloy During Equal Channel Angular Pressing Radu Ioachim Comaneci, Dumitru Nedelcu and Leandru Gheorghe Bujoreanu	
13:10 - 14:30		Lunch	Main Restaurant

Time	MS19	Mini-Symposia	Location
11:50 - 15:40	372	TiO₂ Gas sensor to detect the Proanol at Room temperature Ibrahim Gaidan, Dermot Brabazon, Salim Asbia and Inam Ul Ahad	Q122
15:40 - 16:00	401	Silver/hydroxyapatite hybrid coatings on Ti-6Al-4V surfaces by sol-gel method Burak Dikici, Serap Gungor Koc, Mehmet Topuz, Mitsuo Niinomi, Hakan Yilmazer and Masaaki Nakai	
16:00 - 16:30		Tea & Coffee Break	Foyer
16:30 - 16:50	259	Microstructure and mechanical propertie of Mg-Nano Hydroxy Apatite composite made by PM Mohsen Saremi and Nasim Kavoi	Q122
16:50 - 17:10	403	The Controlled Formation of Titanium Oxides using Microwave Plasma Treatments Emmanuel J. Ekoi and Denis P. Dowling	
17:10 - 17:20		Single-step laser deposition of nanostructured gold thin films on flexible polymer substrates R. McCann, C. Hughes, K. Bagga, M. Vázquez, A. Stalcup, D. Brabazon	

POSTER PRESENTATIONS	
Abstract Number	Authors and Paper title
1	Incremental Sheet Forming of Aluminum with Warm for complex pieces Pablo Josué Da Silva and Alberto Jose Alvares
14	Precision channels in Additive Manufacturing Kimmo K. Mäkelä, Markku Kananen and Jari Mäkelä
15	Springback Compensation for a Vehicle's Steel Body Panel Paweł Bałon, Andrzej Świątoniowski, Janusz Szostak and Bartłomiej Kiełbasa
54	Manufacturing of Tailored Tubes with a Process Integrated Heat Treatment Illia Hordych, Viacheslav Boiarkin, Dmytro Rodman and Florian Nürnberger
67	An Evaluation of the Assemblability of Two Novel Assembled Camshaft Configurations by Tube Hydroforming Zhifang Zhai, Lianfa Yang, Jianping Ma and Minghe Zhang
215	Experimental Investigation of Amount of Nano-Al₂O₃ on Mechanical Properties of Al-Based Nano-composites Fabricated by Powder Metallurgy (PM) Ali Razzaqi, Gholamhossein Liaghat and Omid Razmkhah
232	Shear Behavior of Thermostamped Woven-Textile Thermoplastic Prepregs: An Analysis Combining Bias-Extension Test and X-Ray Microtomography Mohamed Gassoumi, Sabine Rolland Du Roscoat, Pascal Casari, Pierre Dumont, Laurent Orgéas and Frédéric Jacquemin
235	The characteristics of welded joints for air conditioning application Marek Weglowski, Aleksandra Weglowska, Damian Miara, Krzysztof Kwiecinski, Sylwester Blacha, Jerzy Dworak, Janusz Rykala, Janusz Pikula, Grzegorz Ziobro, Adam Szafron, Patrycja Zimierska-Nowak, Maria Richert and Piotr Noga
246	Application of Spatial Clustering Techniques in Multi-Scale Micro-Structure Simulation Md Khairullah, Jerzy Gawad, Dirk Roose and Albert Van Bael
255	Experimental investigation of Single Point Incremental Forming of AlMn1Mg1 foils Imre Paniti, Zsolt J. Viharos, Krisztián B. Kis and Imre Czinege
297	Investigation of Selective Laser Melting of Copper Alloy Igor Polozov, Anatoliy Popovich, Vadim Sufiarirov, Evgenii Borisov, Dmitriy Masaylo and Aleksei Orlov
299	Formability of Dual-Phase Steels in Deep Drawing of Rectangular Parts: Influence of Blank Thickness and Die Radius Ana M. Camacho and José M. Gutiérrez

POSTER PRESENTATIONS

Abstract Number	Authors and Paper title
300	Effect of Layer Thickness of Selective Laser Melting on the Nickel Superalloy Microstructure and Properties Evgenii Borisov, Anatoliy Popovich, Vadim Sufiiarov, Igor Polozov, Aleksei Orlov and Dmitriy Masaylo
316	Coupled heating-forming simulation of the thermoforming of thermoplastic composites Theo Baumard, Gary Menary, Olivier De Almeida, Fabrice Schmidt, Peter Martin and Jérôme Bikard
326	Design and Optimization for the Selective Laser Melting Process Aleksei Orlov, Anatoliy Popovich, Vadim Sufiiarov, Evgenii Borisov, Dmitriy Masaylo and Igor Polozov
340	FEM prediction of Temperature and residual stresses distribution during Friction Stir Welding of 2017A Aluminum alloy Mimouni Oussama, Badji Riad, Kouadri-David Afia, Hadji Mohamed and Chekroun Nabil
341	Crystal Plasticity Finite Element Modelling of Zirconium Tube Pilgering Yuriy Perlovich, Margarita Isaenkova, Dmitry Zhuk and Olga Krymskaya
345	Effect of Feed Rate and Tool Speed on the Formability and Surface Quality of an Incrementally Formed CP-Al Sheet C Sivajyothi, Himanshu Markandey and Devarajan Nagarajan
353	Finite Element Analysis (FEA) of Dental Implant Fixture for Mechanical Stability and Rapid Osseointegration Shafia Tabbasum, Ahmar Murtaza, Hassan Ali, Zia Mohy Uddin and Syedah Sadaf Zehra
363	An Investigation and Prediction of Springback of Sheet Metals under Cold Forming Condition Ahmed Elsayed, Mohamed Mohamed and Abdel Aziz Hegazy
379	High Temperature Polymer Yarns for Through Thickness Reinforcement of Carbon Fibre Laminates Cormac Mcgarrigle, Thomas Dooher, Alistair McIlhagger, Eileen Harkin-Jones, Dorian Dixon and Edward Archer
383	Modeling of the flow behavior of SAE 8620H combing microstructure evolution in hot forming Xiaobin Fu, Baoyu Wang and Xuefeng Tang

POSTER PRESENTATIONS

Abstract Number	Authors and Paper title
389	Study on the induction heating of the workpiece before gear rolling process Hongchao Ji, Baoyu Wang and Xiaobin Fu
391	Development of a Low Energy Micro Sheet Forming Machine Akhtar Razali, Nazrul Idzham Kasim, Mohd Azam Musa, Hasinah Mohd Shariff, Chang Tai Ann and Amanina Farhana Ahmad
400	Nano-grained Co-Cr-Mo alloys and Corrosion through Severe plastic Deformation Hakan Yilmazer, Burak Dikici, Mitsuo Niinomi, Murat Işık, Masaaki Nakai and Zenji Horita
404	Application of a hybrid optimization technique in laser sintering of glass filled polyamide parts Hamed Sohrabpoor, Dermot Brabazon and Reza Teimouri
405	Metal Nanostructured Film Deposition on Flexible Polymer Cian Hughes, Ronan McCann, Inam Ul Ahad, Komal Bagga, Fiona Regan, Niall Barron and Dermot Brabazon

AFRC

ADVANCED FORMING RESEARCH CENTRE

UNIVERSITY OF STRATHCLYDE

**MANUFACTURING INNOVATION:
DEMONSTRATED,
VALIDATED, DELIVERED**



www.afrc.org.uk

KEYNOTE

PROFESSIONAL
CONFERENCE
ORGANISERS

This conference was organised with the assistance of Keynote PCO, who provide specialised conference management services for association conference clients.



Tel. + 353 (0) 1 400 3626
Fax. + 353 (0) 1 400 3692
Email. info@keynotepco.ie
Website. www.keynotepco.ie



MEETING
QUALITY





Dublin City University

Collins Avenue

Lonsdale

ESAFORM Training Courses

Mini Symposia
Q Building

Business School

SPAR
food shop

pharmacy

DCU
restaurant

P

Main Conference & Registration Desk

The Helix

250 metres to
Ballymun Road

buses to city centre

DCU WiFi
Username: wifiguest
Password: NjAX24wA

Dublin City University Map