

# DRAFT SCHEDULE



5<sup>th</sup> International Conference on Scientific and Technical  
Advances on Friction Stir Welding & Processing

Metz - 11, 12 and 13 October 2017

8h00 onwards	REGISTRATION		
8h45 - 9h00	Welcome and introduction		
	KEYNOTE		
9h00 - 9h30	J.Dos Santos, A.Barbini, R.Brzostek, J.Carstensen, L.Bergmann, U.Suhuddin	Helmholtz-Zentrum Geesthacht (Germany)	Rivetless Aircraft Structures: Possible solutions based on friction stir and derivative processes
SESSION 1	APPLICATION 1 Chairs: TBD		
9h30 - 9h50	Y.Hovanski <sup>1</sup> , T.Luzanski <sup>2</sup> , D.Marshall <sup>2</sup> , P.Upadhyay <sup>3</sup>	Brigham Young University <sup>1</sup> TWB Company <sup>2</sup> Pacific Northwest National Laboratory <sup>3</sup> (USA)	High Volume Production Validation of Aluminum Tailor-Welded Blanks
9h50 - 10h10	J.Gandra <sup>1</sup> , P.Santos <sup>1,2</sup> , J.Liu <sup>3</sup> , D.Szegda <sup>4</sup> , L.Wang <sup>3</sup> , R.Miranda <sup>2</sup> , K.Beamish <sup>1</sup>	TWI <sup>1</sup> (UK) UNIDEMI <sup>2</sup> (Portugal) Imperial College London, South Kensington Campus <sup>3</sup> (UK) Impression Technologies Ltd <sup>4</sup> (UK)	Combining FSW with HFQ to manufacture aluminium alloy tailor welded blanks for automotive applications
10h10 – 10h30	P.Champion <sup>1</sup> , S.Libner <sup>2</sup>	Ariane Group <sup>1</sup> RJ Industrie <sup>2</sup> (France)	Industrialization of Ariane 6 FSW welding benches
10h30 - 11h50	COFFE BREAK		
SESSION 2	APPLICATION 2 Chairs: TBD		
10h50 - 11h10	L. Dubourg <sup>1</sup> , P. Mognol <sup>2</sup> , Y. Macé <sup>2</sup>	Institut Maupertuis <sup>1</sup> ENS Rennes <sup>2</sup> (France)	FSW head for CNC machine tool: advantages, limitations and applications
11h10 - 11h30	D.Chartier, F.Darras	STELIA Aerospace (France)	Introduction of Friction Stir Welding on fuselage primary structures of aircrafts
11h30 - 11h50	M. Kahnert, D. Knerr, E. Wild, I. Tessier, N. Bour, G. Heinrich	MT Aerospace (Germany)	FSW Applications in the Frame of Ariane Launcher Programs at MT Aerospace
11h50 - 12h10	A. Meyer <sup>1</sup> , F.Ellermann <sup>2</sup>	RIFTEC GmbH <sup>1</sup> (Germany) HAI Hammerer Aluminium Industries GmbH <sup>2</sup> (Austria)	From small to large, thick to thin and sheet to cast – some of the daily challenges of a welding job-shop
12h10 - 12h30	J. De Backer, J.Martin	TWI (UK)	Improved Stationary Shoulder FSW performance through PVD and CVD Tool Coatings
12h30 – 13h00	Official opening – Local authorities		
13h00 - 14h20	LUNCH		

SESSION 3	PROCESS CONTROL Chairs: TBD			MODELLING Chairs: TBD		
14h20 - 14h40	<b>H.Robe</b>	TRA-C industrie (France)	Industrial experience feedback on the Friction Stir Welding of armored materials	<b>P.Lacki</b> <sup>1</sup> , K.Adamus <sup>1</sup> , T.Gałączyński <sup>2</sup>	Częstochowa University of Technology <sup>1</sup> PZL Mielec A Sikorsky Company <sup>2</sup> (Poland)	Impact of welding time on refill friction stir spot welds
14h40 - 15h00	<b>C.Leitao</b> <sup>1</sup> , M.I. Costa <sup>1</sup> , D.Gomes-Andrade <sup>2</sup> , D.M. Rodrigues <sup>1,2</sup>	CEMMPRE <sup>1</sup> ISISE <sup>2</sup> , University of Coimbra (Portugal)	Estimating temperature and weld quality based on torque sensitivity analysis	<b>S.Señorís</b> , R.Fernández, G.González-Doncel <sup>1</sup> , J.Ibáñez	Centro Nacional de Investigaciones Metalúrgicas, Madrid (Spain)	Separation of heat / deformation contributions in FSW welds of materials based aluminum alloys
15h00 - 15h20	<b>B.Strass</b> <sup>1</sup> , C.Conrad <sup>1</sup> , B.Wolter <sup>1</sup> , M.Thomä <sup>2</sup> , G.Wagner <sup>2</sup>	Fraunhofer Institute for Nondestructive Testing <sup>1</sup> Chemnitz University of Technology <sup>2</sup> (Germany)	Nondestructive Quality Inspection, Process Monitoring and Adaptation of Joint Properties in Friction Stir Welding	<b>H.Robe</b> <sup>1,2</sup> , C.Claudin <sup>2</sup> , J-M.Bergheau <sup>2</sup> , E.Feulvarch <sup>2</sup>	TRA-C industrie <sup>1</sup> ENISE <sup>2</sup> (France)	3D Thermo-mechanical Modelling of FSW Process with Complex Tool geometry and Experimental Validation
15h20 - 15h40	<b>A.Silva-Magalhães</b> <sup>1</sup> , J.De Backer <sup>2</sup> , J.Martin <sup>2</sup> , G.Bolmsjö <sup>1</sup>	University West <sup>1</sup> (Sweden) TWI <sup>2</sup> (UK)	Welding Temperature during FSW of 5 mm AA6082	<b>A.Sogah</b> <sup>1</sup> , I.Santos <sup>1</sup> , N.Mathieu <sup>1</sup> , H.Zahrouni <sup>1,2</sup> , M.Potier-ferry <sup>1,2</sup>	LEM3 <sup>1</sup> LABoratory of EXcellence Design of Alloy Metals for low-mAss Structures <sup>2</sup> (France)	Non-incremental method based on the use of the Proper Generalized Decomposition (PGD) to simulate the material mixing in friction stir welding
15h40 - 16h00	<b>A.Bachmann</b> , P.Buchberger, J.Gamper, M. F.ZAEH	Technical University of Munich (Germany)	Temperature control in stationary shoulder friction stir welding (SSFSW)	<b>E.Hoyos</b> <sup>1</sup> , D.López <sup>2</sup> , H.Alvarez <sup>2</sup>	Universidad EIA <sup>1</sup> Universidad Nacional de Colombia <sup>2</sup> (Colombia)	Model based process window for FSW of AA7075-T6 joints

### 16h00 - 16h20 COFFE BREAK

SESSION 4	ROBOTICS AND TECHNIQUES Chairs: TBD			PROCESS DEVELOPMENTS Chairs: TBD		
16h20 - 16h40	<b>E.Arruti</b> , I.Quintana, E Aldanondo	IK4 Lortek (Spain)	Robotic Friction Stir Welding Lap Joints	<b>G.J.Tchein</b> <sup>1</sup> , D.Jacquin <sup>1</sup> , E.Lacoste <sup>1</sup> , D.Coupard <sup>2</sup>	Univ. Bordeaux <sup>1</sup> Arts et Métiers ParisTech <sup>2</sup> (France)	Effect of pre-heat treatment on the microstructural characteristics of Ti-6Al-4V weld joints
16h40 - 17h00	<b>K. Kolegain</b> <sup>1</sup> , F.Leonard <sup>3</sup> , S.Zimmer-Chevret <sup>2</sup> , A.Ben Attar <sup>1</sup> , G.Abba <sup>3</sup>	Institut de Soudure <sup>1</sup> Arts et Métiers ParisTech <sup>2</sup> ENIM <sup>3</sup> (France)	Methodology for offline trajectory programming of three dimensional Robotic Friction Stir Welding	<b>P.Santos</b> <sup>1</sup> , J.P.Oliveira <sup>2</sup> , P.Inácio <sup>1</sup> , Y.Chen <sup>3</sup>	Universidade Nova de Lisboa <sup>1</sup> (Portugal) University of Manchester <sup>2</sup> (UK) Aalto University <sup>3</sup> (Finland)	Recent developments in FSW assisted by electrical current hybrid process
17h00 - 17h20	<b>J. Goebel</b>	Helmholtz-Zentrum Geesthacht (Germany)	Semi-stationary shoulder BT-FSW in different Al-Li alloys	<b>J.N.Aoh</b> , C.W.Huang, T.P.Huang, Y.C.Chang	National Chung Cheng University (Taiwan)	Friction Stir Additive Manufacturing (FSAM) of a T-Stringer Structure using Similar and Dissimilar Aluminum Alloys
17h20 - 17h40	<b>M.Guillo</b> , L.Dubourg	Institut Maupertuis (France)	Dual encoder robot for accurate Robotic Friction Stir Welding	<b>T.C.Bora</b> , I.Nor Imrah Bini Yusoffa, H.J.M.Geijselaersa, R.Akkermana	University of Twente (Netherlands)	Solid state deposition of aluminium alloys employing friction surface cladding

### SOCIAL EVENT : 18h00 – 00h00

#### Already included in the registration fees

18h00: Bus pick-up on the conference site (Arts et Metiers ParisTech, Campus of Metz, 4 rue Augustin Fresnel, 57070 Metz)

18h15: Bus stops in Metz city center

18h30-19h30: Guided tour of the city

19h30-00h00: Gala dinner in Metz city center

KEYNOTE		
8h30 - 9h00	<b>L.Fourment</b> , A.Potet, S.Gastebois, K.Mocellin MINES ParisTech CEMEF (France)	Numerical Modeling of Friction Stir (FSW) and Linear Friction (LFW) Welding Processes
SESSION 5		
PLENARY Chairs: TBD		
9h00 - 9h20	<b>N.Dialami</b> <sup>1</sup> , M.Cervera <sup>1</sup> , M.Chiumenti <sup>1</sup> , A.Segatori <sup>2</sup> , W.Osikowicz <sup>2</sup> , B.Olsson <sup>2</sup> CIMNE <sup>1</sup> (Spain) Sapa AB Technology <sup>2</sup> (Sweden)	Friction Stir Welding (FSW) numerical simulation and its experimental validation
9h20 - 9h40	<b>J.Liefeith</b> , J.P.Bergmann Technische Universität Ilmenau (Germany)	Underwater friction stir welding of arc welded carbon steel
9h40 - 10h00	<b>F.Scandella</b> Institut de Soudure (France)	Friction-stir welding of high strength materials: a literature survey

### 10h00 - 10h20 COFFE BREAK

SESSION 6	FRICTION STIR PROCESSING Chairs: TBD		FRICTION STIR SPOT Chairs: TBD	
	10h20 - 10h40	<b>Y.Kimoto</b> , T.Nagaoka, T.Takeuchi Osaka Municipal Technical Research Institute (Japan)	Nanostructurization via FSP with ceramic and metallic additives	<b>J.Adamus</b> <sup>1</sup> , A.Derlatka <sup>1</sup> , G.Luty <sup>2</sup> Czestochwowa University of Technology <sup>1</sup> PZL Mielec A Sikorsky Company <sup>2</sup> (Poland)
10h40 - 11h00	<b>R.Acuña</b> <sup>1</sup> , M.J.Cristóbal <sup>1</sup> , D.Verdera <sup>2</sup> University of Vigo <sup>1</sup> AIMEN <sup>2</sup> (Spain)	Fabrication of surface metal matrix composite via friction stir processing (FSP) on aluminium alloys: wear behavior	<b>J.Andres</b> , T.Gałączyński, G.Luty, A.Wróńska PZL Mielec A Sikorsky Company (Poland)	Effect of RFSSW process parameters on lap joints quality of thin aluminum 7075 T6 sheets
11h00 - 11h20	<b>J.G.Santos Macías</b> <sup>1</sup> , B.Van Hooreweder <sup>2</sup> , E.Maire <sup>3</sup> , J.Adrien <sup>3</sup> , P.Jacques <sup>1</sup> , A.Simar <sup>1</sup> Université catholique de Louvain <sup>1</sup> KU Leuven <sup>2</sup> (Belgium) INSA Lyon <sup>3</sup> (France)	Friction stir processing of additive manufactured AISi10Mg parts to improve mechanical behaviour	<b>B.Fua</b> , J.Shen, A.C. Pereira, U.F.H. Suhuddin, J.F.Dos Santos Helmholtz-Zentrum Geesthacht (Germany)	Microstructure and mechanical properties of friction spot welds of AZ31 magnesium alloy to galvanized steel
11h20 - 11h40	<b>M.Alvarez-leal</b> <sup>1</sup> , F.Carreño <sup>1</sup> , A.Orozco-Caballero <sup>2</sup> , O.A.Ruano <sup>1</sup> CENIM-CSIC <sup>1</sup> (Spain) University of Manchester <sup>2</sup> (UK)	Improvement of mechanical properties after Friction Stir Processing of a magnesium-rare earth alloy	<b>H.Su</b> , J. Shen, U.F.H. Suhuddin, B. Fu, J.F. Dos Santos Helmholtz-Zentrum Geesthacht (Germany)	Numerical simulation of the temperature distribution in refilled friction spot welding
11h40 - 12h00	<b>F.Hannard</b> <sup>1</sup> , S. Castin <sup>1</sup> , E. Maire <sup>2</sup> , R.Mokso <sup>3,4</sup> , T.Pardoen <sup>1</sup> , A.Simar <sup>1</sup> Université catholique de Louvain <sup>1</sup> (Belgium) INSA-Lyon <sup>2</sup> (France) Swiss Light Source <sup>3</sup> , (Switzerland) MAX-lab <sup>4</sup> (Sweden)	Ductilization of aluminium alloy 6056 by friction stir processing	<b>A.Regensburg</b> , F.Peizoldt, T.Benß, T.Köhler, J.P.Bergmann Technische Universität Ilmenau (Germany)	Solid-liquid interdiffusion during Friction Stir Spot Welding of EN AW 1070 / EN CW 004A dissimilar joints
12h00 - 12h20	<b>A. Zens</b> <sup>1</sup> , M.Gnedel <sup>2</sup> , M.F.Zaeh <sup>1</sup> , F.Haider <sup>2</sup> Technical University of Munich <sup>1</sup> University of Augsburg <sup>2</sup> (Germany)	Mechanical Alloying via Friction Stir Processing	<b>M.Reimann</b> , J.F.Dos Santos Helmholtz-Zentrum Geesthacht (Germany)	Keyhole repair in aluminium alloys using refill friction stir spot welding

### 12h20 - 14h20 LUNCH AND VISITS

SESSION 7		MICROSTRUCTURE AND DISSIMILAR 1	
Chairs: TBD			
14h20 - 14h40	<b>D.Verdera</b> <sup>1</sup> , C.Llovo <sup>1</sup> , S.Señorís <sup>2</sup> , R.Fernández <sup>2</sup> , G.González Doncel <sup>2</sup>	AIMEN <sup>1</sup> CENIM <sup>2</sup> (Spain)	Dissimilar friction stir welding between a highly reinforced composite (AA6061-40%SiC) and a monolithic AA6061-T6 aluminium alloy.
14h40 - 15h00	<b>V.Pereira</b> <sup>1</sup> , E.Fonseca <sup>1</sup> , E. S. N. Lopes <sup>2</sup>	Brazilian Nanotechnology National Laboratory <sup>1</sup> University of Campinas <sup>2</sup> (Brazil)	Friction Stir Welding of AA2024/Ti6Al4V Butt Joints
15h00 - 15h20	<b>M.-N.Aveffand-Fenoel</b> <sup>1</sup> , T.Nagaoka <sup>2</sup> , H.Fujii <sup>3</sup> , R.Taillard <sup>1</sup>	UMET <sup>1</sup> (France) Osaka Municipal Technical Research Institute <sup>2</sup> Osaka University <sup>3</sup> (Japan)	Refractory dissimilar friction stir welding of steel and WC/Co cermet
15h20 - 15h40	<b>Chin-Pao</b> , Cheng <sup>1</sup> Yang-Sheng You <sup>1</sup> , Chaur-Jeng Wang <sup>2</sup> , Huang-Chang Liang <sup>2</sup> , Wei-Chun Cheng <sup>2</sup>	National Taiwan Normal University <sup>1</sup> , National Taiwan University of Science and Technology <sup>2</sup> (Taiwan)	Microstructure and Mechanical properties of Friction Stir welding on Dissimilar Inconel alloy and Stainless Steel

15h40 - 16h00 COFFEE BREAK

SESSION 8		MICROSTRUCTURE AND DISSIMILAR 2	
Chairs: TBD			
16h00 - 16h20	<b>R.Bertrand</b> <sup>1,2</sup> , D.Texier <sup>2</sup> , H.Robe <sup>1,3</sup> , Y.Zedan <sup>2</sup> , E.Feulvarch <sup>2</sup> , P.Bocher <sup>1</sup>	ENISE <sup>1</sup> (France) École de technologie supérieure, Québec <sup>2</sup> (Canada) TRA-C industrie <sup>3</sup> (France)	Heterogeneous mechanical behavior of dissimilar FSWed joints assessed by OHR-DIC characterizations
16h20 - 16h40	<b>I.Quintana</b> , E.ARRUTI, E.Aldanondo	IK4 Lortek (Spain)	Effects of sealants, tool design and welding parameters on the properties of dissimilar magnesium/aluminum friction stir welded lap joints
16h40 - 17h00	<b>M.N.Ilman</b> , F.X.A.Wahyudianto, M.Bayudaji	Universitas Gadjah Mada (Indonesia)	Static, Fatigue and Corrosion Behaviours of AA6061-T6/AA5083-H116 Dissimilar Metal Friction Stir Welded Joints
17h00 - 17h20	<b>Y.Hovanski</b> <sup>1</sup> , P.Upadhyay <sup>2</sup> , E.Boettcher <sup>3</sup>	Brigham Young University <sup>1</sup> Pacific Northwest National Laboratory <sup>2</sup> (USA)	Joining Aluminum to Steel with Friction Stir Scribe
17h20 - 17h40	<b>A.Kar</b> , S.Suwas, S.V.Kailas	Indian Institute of Science, Bangalore (India)	Microstructural Evolution and Mechanical Properties in Friction Stir Welding of Aluminum to Titanium

17h40 - 18h00 CLOSING

OPTIONAL – INDUSTRIAL VISIT TO INSTITUT DE SOUDURE FACILITIES  
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POSTERS SESSION

Author(s)	Affiliation	Title
B.C.Patela, H.Desaiib	Uka Tarsadia University (India)	Experimental study on effect of different process parameters in friction stir welded joint of AA6082 (he30) aluminium
J.P.Bonnafe <sup>1</sup> , A. Ben Attar <sup>2</sup> , P.Nennig <sup>2</sup>	ArianeGroup <sup>1</sup> Institut de Soudure <sup>2</sup> (France)	Defects in Friction Stir Welded Joint: Analysis and Consequences for the Assembly
N. Manuel <sup>1,2</sup> , J. M.Costa <sup>1</sup> , A.Loureiro <sup>1</sup>	CEMUC <sup>1</sup> (Portugal) Escola Superior Politecnica do Namibe <sup>2</sup> (Angola)	Effect of material properties on quality of FSW dissimilar T-joints
P.Naresh, Adepu Kumar	National Institute of Technology, Telangana (India)	Fabrication and characterization of Al/SiC composite joint by Friction stir welding
N.Jemal, A.Houas, Z.Bouaziz	Laboratoire de Mécanique des Fluides Appliquée, Génie des Procédés et Environnement (Tunisia)	Experimental investigation on FSSW tool pin profile
J. Andres, T.Gałączyński, G.Luty, A.Wrońska	PZL Mielec A Sikorsky Company (Poland)	FSW joining of thin aluminum 7075 T6 sheets
J.N.Aoh, C.W.Huang	National Chung Cheng University (Taiwan)	Texture of a Friction Stir Zone of Al6061 containing Copper-coated SiC Particulate Reinforcement
V.S.M. Magalhães, C. Leitão, D.M.Rodrigues	University of Coimbra (Portugal)	An overview on Friction Stir Welding technology research, development and industrial implementation
R.Chamorro, A.L.Serp	University of Campinas (Brazil)	Fault detection using the Fast Fourier Transform spectrogram of the tool forces and spindle torque in a FSW process
Jay J. Vora, Vivek Patel, Vaideek Chaudhary, Anmol Bhojani, Jay Ghelani, Ujjawal Patel	Pandit Deendayal Petroleum University (India)	Effect of process parameters on Friction stir spot welding of dissimilar Aluminium to Titanium joints
P. Lacki <sup>1</sup> , J.Winowiecka <sup>1</sup> , T.Gałączyński <sup>2</sup>	Częstochowa University of Technology <sup>1</sup> PZL Mielec A Sikorsky Company <sup>2</sup> (Poland)	Optimization of Friction Stir Welding process parameters for aluminum alloys

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