7th CIRP CSI Conference on Surface Integrity 2024 - Programm 1st Conference Day - 15th May, 2024

Conference Program

Start	End			
08:30	09:30	**Open Registration**		
09:30	09:50	**7th CIRP CSI - Opening Ceremony - Room: Hanse**		
09:50	10:20	**Round Table of Surface Integrity - Room: Hanse**		
10:20	10:50	**Keynote Presentation: Prof. Fengzhou Fang - University of Dublin, University of Tianjin Room: Hanse**		
10:50	11:20	**Coffee break**		
		Milling I Room: Hanse	**Grinding I** Room: Bremen	**Laser machining I** Room: Weser
Start	**End**	Chair: Jose Outeiro	Chair: Bernhard Karpuschewski	Chair: Andreas Klink
11:20	11:40	**Surface Integrity Analysis in Orthogonal Milling of Inconel 718** Hui Liu, Markus Meurer, Thomas Bergs	**Experimental analysis of chemical removal effect in RISA grinding of optical glas** Kodai Shimodo, Hinata Takamaru, Yusuke Chiba, Hidebumi Kato, Mikinori Nagano, Masahiko Fukuta, Katsutoshi Tanaka, Kentaro Watanabe, Kazuhisa Hamazono, Yasuhiro Kakinuma	**Laser Micromachining of Bionic Transport Structures on Cemented Tungsten Carbide Tools for Passive Directional Transport of Lubricants** Daniel Holder, Kathrin Placzek, Christian Hagenlocher, Rudolf Weber, Thomas Graf
11:40	12:00	**Multi-axial ultrasonic vibration-assisted machining of Inconel 718 using Al2O3-CuO hybrid nanofluid MQL** Ramazan Hakkı Namlu, Bahram Lotfi, Sadık Engin Kılıç	**Surface integrity assessment in rail grinding for different rail grades and generated facets** L. Biazon, M. Mesaritis, J.F. Santa, L.F. Molina, M. Palacio, A. Toro, R. Lewis	**Preliminary study on surface processing of silica glass by atmosphere inductively coupled plasma for direct bonding** Jianwen Liang, Yi Zhang, Binqi Jiang, Hui Deng
12:00	12:20	**Experimental Investigation on the Surface Integrity in Micromilling AISI H11 Tool Steel** Timo Platt, Alexander Leonard Meijer, Dirk Biermann	**Rail Surface Integrity Analysis in Laboratory** Michael Mesaritis, Juan Felipe Santa, Alejandro Toro, Roger Lewis	**Investigating surface integrity of laser-machined polycrystalline diamond using a 300 W picosecond laser** Stephen Dondieu, Sundar Marimuthu, Priyanka Ghosh, Helen Elkington, Paul Butler-Smith
12:20	12:40	**Influence of constant feed per tooth via spindle speed adaption on groove quality in micro milling** Benjamin Kirsch, Andreas Lange, Nicolas Altherr, Tobias Mayer	**Detection of thermo-mechanical damages by in-process Barkhausen Noise Analysis combined with Grinding Power Evaluation** Rahel Jedamski, Gerrit Kuhlmann, Bernhard Karpuschewski, Jérémy Epp	**High Power Laser Cutting of SiC-Al2O3 Ceramic Matrix Composites** Priyanka Ghosh, Joseph Nix, Helen Elkington, Bethan Smith, Sundar Marimuthu
12:45	14:15	**Lunch**		
		Milling II Room: Hanse	**Additiv Manufacturing** Room: Bremen	**EDM I** Room: Weser
Start	**End**	Chair: Joel Rech	Chair: Jens Sölter	Chair: Carsten Heinzel
14:15	14:35	**Simultaneous high-speed cutting and high-feed milling: An investigation on surface integrity** Gerrit Kuhlmann, Dmytro Borysenko, Jens Sölter, Bernhard Karpuschewski	**Effect of process parameters during wire arc additive manufacturing (WAAM) and mechanical finishing on the surface zone properties** Berend Denkena, Marcel Wichmann, Philipp Pillkahn	**Surface integrity analysis of single discharge characteristics derived from the continuous wire EDM process** Jan Wittenburg, Ugur Küpper, Tim Herrig, Thomas Bergs
14:35	14:55	**Assessment of workpiece surface integrity and dimensional/geometrical accuracy following finish plunge end milling of holes drilled with worn tools in PM-processed nickel based superalloy** G.J. Deng, S.L. Soo, R. Hood, K. Marshall, A.L. Mantle, D. Novovic	**Surface Integrity of 20MnCr5 Laser Powder Bed Fusion Parts Subject to Contact Fatigue Test** Guilherme Fernandes Guimarães, Alfredo Rocha de Faria, Ronnie Rodrigo Rego	**Residual Stress Effects of Multiple Thermal Material Loads due to a Roughing-Finishing Sequence of Electrical Discharge Machining Processes** Kai Osswald, Sebastian Schneider, Andreas Klink, Thomas Bergs
14:55	15:15	**Evolution of surface quality in micromilling Ti-6Al-4V alloy with increasing machined length** Maria Clara Coimbra Goncalves, Rob Alsters, David Curtis, Rachid M'Saoubi, Hassan Ghadbeigi	**Stream Finishing of Additively Manufactured AlSi10Mg PBF-LB Parts: Influence on Surface Quality and Fatigue Behaviour** Helena Wexel, Steffen Kramer, Johannes Schubert, Volker Schulze, Frederik Zanger	**Surface integrity of 316L steel machined sequentially by wire EDM and wire ECM.** Thomas Van Riel, Jun Qian, Bert Lauwers
15:15	15:35	**Chip Morphology Prediction in Inconel 718 Milling through Machine Learning to Control Surface Integrity** Omkar Mypati, Hakan Doğan, Zhirong Liao, Alborz Shokrani Chaharsooghi	**On the surface integrity of machined aero-engine grade Ni-based superalloy billets produced by the field-assisted sintering technology (FAST) route** Henry Boyle, Kyle Marshall, Mario Epler, Katerina Christofidou, Susanne Norgren, Pete Crawforth, Martin Jackson	**Ultrasonic Vibration assisted Silver Integration by Powder Mixed EDM for Antibacterial Surfaces** Viet Duc Bui, André Martin, Thomas Berger, Karsten Harnisch, Joachim Döring, Jessica Bertrand, Andreas Schubert
15:35	16:05	**Coffee break**		
		Ultraprecision machining Room: Hanse	**Grinding II** Room: Bremen	**Mechanical surface treatment I** Room: Weser
Start	**End**	Chair: Yasuhiro Kakinuma	Chair: Tobias Hüsemann	Chair: Volker Schulze
16:05	16:25	**Effect of material composition on the action of surface active medium in ultra-precision microcutting** Jibin Boban, Afzaal Ahmed	**Tool concept for the increase of the mechanical process effect in grinding** Marco Eich, Carsten Heinzel	**Surface Integrity of Additively Manufactured Workpieces after Machine Hammer Peening** M. Dadgar, S. Gräfe, M. Müller, T. Herrig, T. Bergs
16:25	16:45	**Effect of cutting speed on the surface integrity of single point diamond turned (100)Ge** Michele Tunesi, Eann Lawing, Colton Estes, John Gasson, Brian S. Dutterer, Matthew A. Davies, Don A. Lucca	**Surface Integrity induced by the Belt Finishing Process and Effects on the Fatigue Limit of a 27MnCr5 Carburized Steel** O. Cherguy, U. Elecegui, S. Han, F. Cabanettes, J. Rech	**Influence of the strain rate on the Surface Integrity on 42CrMo4 generated by machine hammer peening** Oliver Maiß, Daniel Meyer
16:45	17:05	**Influence of the width of cut in ultrasonic vibration superimposed face milling of X46Cr13 and X40CrMoV5-1 on the surface microstructure and CVD diamond coating adhesion** Richard Börner, Andreas Schubert	**Surface Integrity Evolution in Grinding by means of In-Process Eddy Current Inspections** P.Ruiz, J.Mendikute, J.L.Lanzagorta, D.Barrenetxea	**Reluctance Based Actuator for Discrete Machine Hammer Peening** Markus Prießnitz, Stephan Krall, Helmut Caudr, Severin Maier, Christian Baumann, Friedrich Bleicher
17:05	17:25	**Influences of tool tip geometry on surface/subsurface damage formation in nanoscratching of single-crystal 4H-SiC** Weihai Huang, Jiwang Yan		**Application behavior of a piezo-actuated deep rolling tool** Vannila Prasanthan, Bernd Breidenstein, Miriam Handrup, Paul Herrmann
17:25		**End of Conference Day**		

7th CIRP CSI Conference on Surface Integrity 2024 - Programm 2nd Conference Day - 16th May, 2024

Conference Program

Start	End			
09:00	09:30	**Keynote Presentation: Dr. André Walter - Chairman of Management Board AIRBUS Aerostructures GmbH Room: Hanse**		
09:30	10:00	**Keynote Presentation: Prof. Marc Avila - Center of Applied Space Technology and Microgravity ZARM Room: Hanse**		
10:00	10:30	**Coffee break**		
		Milling III Room: Hanse	**Modelling I** Room: Bremen	**Mechanical surface treatment II** Room: Weser
		Chair: Jens Sölter	Chair: François Ducobu	Chair: Friedrich Bleicher
10:30	10:50	**The effect of workpiece grain size on surface integrity in orthogonal cutting of Inconel 718** Jian Weng, Dongdong Xu, Jinming Zhou, Rachid M'Saoubi, Kejia Zhuang	**Numerical modelling of the BTA deep hole drilling process** Andreas Zabel, Robert Schmidt, Tim Rödder, Simon Strodick, Frank Walther, Dirk Biermann	**Fatigue life analysis of deep rolled bearing inner rings** Benjamin Bergmann, Bernd Breidenstein, Gerhard Poll, Florian Pape, Simon Dechant, Henke Nordmeyer
10:50	11:10	**Effect of cutting parameters and CO2 flow rate on surface integrity in milling AISI 316L steel using supercritical CO2** K. K. Wika, P. Litwa, A. Maurotto	**Development of an Analytical Model for Correlation with Workpiece Roughness in Stream Finishing using a LiDar Sensor** Florian Sauer, Patrick Neuenfeldt, German Gonzalez, Volker Schulze	**Surface changes and fretting fatigue evaluation of Ti6Al4V burnished hip necks** Maria Rosaria Saffioti, Giovanna Rotella, Domenico Umbrello
11:10	11:30	**Modeling of high-feed milling and surface quality applied to Inconel 718** Thomas Jacquet, Guillaume Fromentin, David Prat, Fabien Viprey	**Analytical model to identify crack initiation in machined aluminium parts** G. Ortiz-de-Zarate, A. Madariaga, I. Perez, , P.J. Arrazola	**Experimental study on the influence of blasting time on the surface topography of machined steel samples** Stefanie Stöckel, Zhen Li, Sophie Groeger
11:30	11:50	**Effect of surface integrity on Inconel 718 thin part distortion during finish flank milling** Fabien Viprey, Guillaume Fromentin, Côme Maurel, Théo Dorlin, Habib Karaouni	**Atomic-scale study on mechanical behaviours of copper under elliptical vibration-assisted cutting** Jiaming Zhan, Ye Tian, Hao Wang	**Effect of shot peening with different peening intensity and coverage on surface integrity of Inconel 718 alloy** Wei Feng, Jun Zhang*, Hongguang Liu, Wanhua Zhao
11:50	12:20	**Coffee break**		
		Turning I Room: Hanse	**Drilling I** Room: Bremen	**Laser machining II** Room: Weser
		Chair: Pedro Jose Arrazola	Chair: Andreas Zabel	Chair: Tobias Hüsemann
12:20	12:40	**Mechanics and surface characterization of high-speed diamond turning of germanium** Eann Lawing, Michele Tunesi, Colton Estes, John Gasson, Brian S. Dutterer, Don A. Lucca, Matthew A. Davies	**Effect of cooling scheme and coating on surface quality in drilling of Inconel 718** JM Zhou, K Slipchenko, S Frejd, C Windmark, R M'Saoubi	**In-situ surface roughness evaluation of laser powder bed fusion surfaces using optical tomography** Cagdas Sen, Gokhan Sail, Levent Subasi, Soner Oren, Gokhan Dursun, Akın Orhangul
12:40	13:00	**Tool Dynamics-induced Surface Topography Error in Fast Tool Servo-Based Diamond Turning of Micro Dome Arrays** Takeshi Hashimoto, Jiwang Yan	**Influence of a cutting fluid on the surface integrity and fatigue strength of 42CrMo4 drilled parts.** Raphael Lorain, Rosalinda Solis, Joël Rech	**Investigating the variation of particle distribution and surface texture of top surfaces based on build position in laser powder bed fusion** Cindy Sithole, Helia Hooshmand, Luke Todhunter, Ian Gibson, Sipke Hoekstra, Athena Jalalian, Samanta Piano
13:00	13:20	**Distribution of plastic strain in cutting of Ti-6Al-4V titanium alloy using experimental and modelling approaches** Jose Outeiro, Wenyu Cheng	**Automatic diagnosis and thickness determination for white etching layers in deep drilled steels based on thresholding and machine learning algorithms** Simon Strodick Robert Schmidt, Andreas Zabel, Dirk Biermann, Frank Walther	**Improving surface integrity and wear resistance of selective laser melted 316L stainless steel using ultrasonic nanocrystal surface modification** Yu Zhang, Lan Peng, Youwang Wang, Chang Ye
13:20	14:50	**Lunch**		
		Turning II Room: Hanse	**Modelling II** Room: Bremen	**EDM II** Room: Weser
		Chair: Oltmann Riemer	Chair: Domenico Umbrello	Chair: Bernhard Karpuschewski
14:50	15:10	**Investigation of the surface topography and cutting tool kinematics in Hammering Turning** Jannik Schwalm, Mike Görtz, German Gonzalez, Frederik Zanger, Volker Schulze	**Simulative surface topography prediction of tribological surfaces on whirled thread flanks** Berend Denkena, Benjamin Bergmann, Christian Wege, Hans Gereke-Bornemann, Moritz von Soden	**Bending fatigue performance due to different roughing-finishing sequences and post-processing of components produced by Wire EDM** Lukas Welschof, Tim Herrig, Andreas Klink, Thomas Bergs
15:10	15:30	**Surface integrity after hard turning using specially ground cemented carbides** Mateus Keniti Nakashima Sinzato, Ueliton Carvalho Alves, Armando Italo Sette Antonialli, Carlos Eiji Hirata Ventura, João Vitor Carvalho Fontes, Joël Rech	**Surface microstructuring by Ultrasonic Vibration Assisted Deformational Machining (UVADM) – Simulation and experimental results** Nithin Kumar Bandaru, Hendrik Liborius, Niclas Hanisch, Philipp Steinert, Andreas Nestler, Thomas Lampke, Andreas Schubert	**Surface integrity analysis on selective removal by EDM of near-circular shapes from deterministic lattice structures fabricated by LPBF** Sumit Gusain, Sarvesh Kumar Mishra, Amaia Callej, Janakarajan Ramkumar, Luis Norberto Lopez de Lacalle
15:30	15:50	**The role of retained austenite on the formation of the nanostructured hard-turned induced white layer in AISI 52100 bearing steel** S. Kokkirala, K. Osman, J. Holmberg, S. Kimming, H. Iwasaki, U. Klement, S.B. Hosseini	**Simulative and experimental investigation of the surface integrity obtained by Non-Circular-Rotary-Turning (NCRT)** Tassilo Arndt, Volker Schulze	**Identification of surface roughness parameters for the function-oriented description of EDMed surfaces** R.Hess, U. Küpper, T. Herrig, A. Klink, T. Bergs presented by: J. Wittenburg
15:50	16:10	**Experimental study of residual stress profiles evolution in face turning with flank wear progress** Sangil Han, Emilie Viéville, Herve Pascal, Mehmet Cici, Thierry André, Frédéric Valiorgue, Joël Rech	**Inverse analysis of machining residual stress based on hybrid model** Zheng-Yan Yang, Dong Zhang, Guang-Chao Nie, Xiao-Ming Zhang, Han Ding	**Investigation of high entropy alloy coatings produced by electrical discharge machining** Jan Wittenburg, Lisa Ehle, Ugur Küpper, Tim Herrig, Thomas Bergs
16:10	16:30	**Experimental study of residual stress profiles evolution in longitudinal turning with flank wear progress** Sangil Han, Emilie Vieville, Hervé Pascal, Mehmet Cici, Thierry Andre, Frédéric Valiorgue, Joël Rech	**Towards the numerical simulation of tool wear induced residual stress drift** F.Clavier, F.Valiorgue, C.Courbon, J.Rech, A.Van Robaeys, Y.Chen, J.Kolmacka	**Investigation of Surface Characteristics in Magnetic Field assisted Electrical Discharge Machining** Viet Duc Bui, André Martin, Thomas Berger, Andreas Schubert
16:30	17:00	**Coffee break**		
17:00	18:00	**River transfer to Conference Dinner**		
18:00	22:30	**Conference Dinner - GOP Varieté Bremen**		

7th CIRP CSI Conference on Surface Integrity 2024 - Programm 3rd Conference Day - 17th May, 2024

Conference Program

Start	End			
09:00	09:30	**Keynote Presentation: Prof. Bernhard Karpuschewski - University of Bremen / Leibniz-IWT Bremen** **Room: Hanse**		
09:30	10:00	**Keynote Presentation: Prof. Jiwang Yan - Keio University Tokyo** **Room: Hanse**		
10:00	10:30	**Coffee break**		
		Turning III Room: Hanse	**Tool optimisation** Room: Bremen	**Metrology** Room: Weser
		Chair: Fengzhou Fang	Chair: Rachid M'Saoubi	Chair: Carsten Heinzel
10:30	10:50	**Analyzing the Impact of In Situ Workpiece Temperature on Thermally Induced Part Distortion during Turning** Anna Kibireva, Hui Liu, Markus Meurer, Thomas Bergs	**Tool Geometry Optimisation for LCO2 Assisted Milling of Ti6Al4V** Iñigo Rodriguez, Denis Soriano, Mikel Cuesta, Franci Pusavec, Pedro José Arrazola	**Surface Integrity Evaluation Based on Barkhausen Noise Analysis: A Conceptual Approach** Jakob Lötfering, Markus Meurer, Thomas Bergs
10:50	11:10	**Machining Effect On The Surface Integrity And Superelasticity Of Additively Manufactured And Heat-Treated Nitinol** Rachele Bertolini, Saeed Khademzadeh, Andrea Ghiotti, Stefania Bruschi	**Surface Integrity in Laser De-coating of Tooling** Muhammad Tajuddin Bin Reduan, Paul Mativenga	**Non-destructive X-ray diffraction surface integrity inspection of an aeroengine component** Matthew Brown, Mattis Lieder, Pete Crawforth, David Curtis
11:10	11:30	**Electric heat machining of SiCp/Al composites** Xiao-Chen Liu, Dong Zhang*, Guang-Chao Nie, Zheng-Yan Yang, Xiao-Ming Zhang, Han Ding	**Effect of Nose Radius on Surface Integrity and its Consequences on Tribological Performance of Machined Component** Shravan Kumar Yadav, Sudarsan Ghosh, Aravindan Sivanandam	**Comparison of 2D and 3D measurement methods for evaluating laser structured aluminum surfaces using fractal dimension** Niclas Hanisch, Philipp Steinert, Erik Saborowski, Hendrik Liborius, Thomas Lindner, Nithin Kumar Bandaru, Andreas Schubert, Thomas Lampke
11:30	11:50		**The treatment of cemented carbide cutting tool by plasma discharges** Tomáš Vopát, Štefan Podhorský, Jozef Peterka, Martin Sahul, Marián Haršáni	
11:50	12:20	**Coffee break**		
		Drilling II & punching Room: Hanse	**Turning IV** Room: Bremen	**Hybrid machining** Room: Weser
		Chair: Oltmann Riemer	Chair: Jiwang Yan	Chair: Daniel Meyer
12:20	12:40	**Tool wear and surface finish analysis after drilling Al-SiC metal matrix composite with DLC-coated tools at varying feed** Edoardo Ghinatti, Rachele Bertolini, Marco Sorgato, Andrea Ghiotti, Stefania Bruschi	**Prediction of Surface Profile in CFRP Machining through Phenomenological Analysis and inverse Continuous Wavelet Transformation** Alexander Brouschkin, Jan Dege, Wolfgang Hintze	**Hybrid tools for improved removal and surface finish of metals and non-metals** Ashwani Pratap, Anthony Beaucamp
12:40	13:00	**Influence of the cutting edge preparation of carbide punching tools for punching of ultra-high strength spring steel strips** Nermin Redžić, Sven Winter, Elmar Galiev, Sarah Baron, Christian Stein, Markus Höfer, Joachim Regel, Martin Dix	**The influence of an ambient energetic field on precision cutting** Tjarden Zielinski, Oltmann Riemer presented by: L. Arera	**Milling or grinding for manufacturing of an Alloy 718 gas turbine component? – A comparison of surface integrity and productivity** Jonas Holmberg, Johan Berglund, Anders Wretland, Anki Klason, Roger Persson
13:00	13:20	**Effect of Cutting Conditions on Surface Integrity when Robotic Drilling of Aluminum 6082-GFRP Stacks** Thomas Beuscart, Pedro José Arrazola, Noémie Tinel, François Ducobu		
13:20	15:20	**Lunch / Closing Ceremony**		
15:20		**End of Conference**		