

18th Machining Innovations Conference for Aerospace Industry (MIC 2018)

Procedia Manufacturing Volume 18

Garbesen, Germany
28-29 December 2018

Editor:

Berend Denkena

ISBN: 978-1-5108-7902-7

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© by Elsevier B.V.
All rights reserved.

Printed by Curran Associates, Inc. (2019)

For permission requests, please contact Elsevier B.V.
at the address below.

Elsevier B.V.
Radarweg 29
Amsterdam 1043 NX
The Netherlands

Phone: +31 20 485 3911
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Smoothed Particle Hydrodynamics Simulation of the Machining Process of Inconel 718	1
<i>Eckart Uhlmann, Enrico Barth</i>	
Automated Manufacturing of Mechatronic Parts by Laser-Based Powder Bed Fusion	12
<i>Maximilian Binder, Christine Anstaett, Raven Reisch, Georg Schlick, Christian Seidel, Gunther Reinhart</i>	
Investigations on the Effects of an Innovative Flank Face Modification for the Drilling of Nickel-base Alloys	20
<i>Milan Buecker, Ekrem Oezkaya, Mike Zimon, Dirk Biermann</i>	
A Novel Tool Concept for Roughing and Finishing Operations	27
<i>B. Denkena, T. Grove, L. Ellersiek</i>	
Flexible and Automated Production of Sandwich Panels for Aircraft Interior	35
<i>Henrik Eschen, Martin Harnisch, Thorsten Schüppstuhl</i>	
Estimation of the Load Torque in a Hobbing Machine Using Effective Power Signals	43
<i>F. Klocke, B. Döbbeler, S. Goetz</i>	
Investigations on a Standardized Process Chain and Support Structure Related Rework Procedures of SLM Manufactured Components	50
<i>Berend Denkena, Marc-André Dittrich, Stefan Henning, Peter Lindecke</i>	
Process Monitoring on Drilling Fiber-reinforced Plastics and Aluminum Stacks Using Acoustic Emissions	58
<i>H.-C. Möhring, M. Kimmelman, S. Eschelbacher, K. Güzel, C. Gauggel</i>	
A Basic Study on Metal Foam Fabrication with Titanium Hydride in Direct Energy Deposition	68
<i>Ryo Koike, Takashi Matsumoto, Yasuhiro Kakinuma, Tojiro Aoyama, Yohei Oda, Tatsuhiko Kuriya, Masaki Kondo</i>	
A Study of the High Frequency Force Variations in Milling of Carbon Fiber Reinforced Plastic Composite Material	74
<i>Vinh Nguyen, Shreyes N. Melkote</i>	
Comparison of Tool Core Temperature and Active Force in Milling of Ti6Al4V under different Cooling Conditions	81
<i>C. Praetzas, T. Tepperneegg, J. Mayr, C. Czettl, J. Shafer, E. Abele</i>	
Helical Milling of Bore Holes in Ti6Al4V Parts Produced by Selective Laser Melting with Simultaneous Support Structure Removal	89
<i>Wolfgang Hintze, Robert Schötz, Jan Mehnen, Lars Köttner, Carsten Möller</i>	
Surface Texturing of TiAl6V4 Using Cutting Tools in Reverse	97
<i>Eric Segebade, Daniel Kümmel, Frederik Zanger, Johannes Schneider, Volker Schulze</i>	
Modeling of Process Deflections in a Point-based Grinding Simulation System	104
<i>T. Siebrecht, N. Potthoff, P. Wiederkehr, D. Biermann</i>	
Surface Integrity and Economical Assessment of Alternative Manufactured Profiled Grooves in a Nickel-based Alloy	112
<i>T. Bergs, G. Smeets, M. Seimann, B. Doebbler, A. Klink, F. Klocke</i>	
4D Printing Prospects for the Aerospace Industry: A Critical Review	120
<i>Kyriakos Ntounoglou, Panos Stavropoulos, Dimitris Mourtzis</i>	
Experimental Analysis of Influence of Discharge Current, Pulse Interval Time and Flushing Conditions on WEDM Performance	130
<i>T. Bergs, U. Tombul, T. Herrig, A. Klink, F. Klocke</i>	
Analysis of Characteristic Process Parameters to Identify Unstable Process Conditions During Wire EDM	138
<i>T. Bergs, U. Tombul, T. Herrig, M. Olivier, A. Klink, F. Klocke</i>	
Evaluation of Contemporary Wire EDM for the Manufacture of Highly Loaded Titanium Parts for Space Applications	146
<i>F. Klocke, L. Welschhof, T. Herrig, A. Klink</i>	
Programmable Optimal Design of Sinusoidal Spindle Speed Variation for Regenerative Chatter Suppression	152
<i>Shuntaro Yamato, Takamichi Ito, Hirohiko Matsuzaki, Yasuhiro Kakinuma</i>	
Author Index	