

# **1st CIRP Global Web Conference: Interdisciplinary Research in Production Engineering**

**(CIRPE2012)**

**Procedia CIRP Volume 2**

**Held Online  
12 – 13 June 2012**

**Editors:**

**J. M. Jauregui-Becker**

**ISBN: 978-1-62748-511-1  
ISSN: 2212-8271**

**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. (2013)

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: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

<b>Preface</b> .....	1
<b>Scientific Committee</b> .....	2
<b>Knowledge Structuring and Simulation Modeling for Product Development</b> .....	4
<i>J. M. Jauregui-Becker, W. W. Wits</i>	
<b>New Business Models and Configuration Approaches for Focused-Flexibility Manufacturing Systems</b> .....	10
<i>G. Copani, Marcello Urgo</i>	
<b>Towards Multidisciplinary Support Tools for Innovation Tasks</b> .....	16
<i>W. W. Wits, H. M. Bakker, L. S. Chechurin</i>	
<b>AutomationML Server - A Prototype Data Management System for Multi Disciplinary Production Engineering</b> .....	22
<i>S. Makris, K. Alexopoulos</i>	
<b>A Systematic Method for Increasing the Energy and Resource Efficiency in Manufacturing Companies</b> .....	28
<i>S. Thiede, G. Bogdanski, C. Herrmann</i>	
<b>Correction Strategies for the Use of a Conventional Micro-CT Cone Beam Machine for Metrology Applications</b> .....	34
<i>R. Jiménez, S. Ontiveros, S. Carmignato, J. A. Yagüe</i>	
<b>An Integrated Approach for Joint Process Planning and Machine Tool Dynamic Behavioral Assessment</b> .....	38
<i>M. Leonesio, L. M. Tosatti, S. Pellegrinelli, A. Valente</i>	
<b>External Sensor-Less Tool Contact Detection by Cutting Force Observer</b> .....	44
<i>Y. Kakinuma, T. Kamigochi</i>	
<b>Chip Form Classification in Carbon Steel Turning through Cutting Force Measurement and Principal Component Analysis</b> .....	49
<i>T. Segreto, A. Simeone, R. Teti</i>	
<b>Machinability of Multiphase Microalloyed Steel</b> .....	55
<i>V. Sivaraman, S. Sankaran, L. Vijayaraghavan</i>	
<b>A Study on Throughput Time of Multi-technology Platforms</b> .....	60
<i>S. Tönissen, F. Klocke, B. Feldhaus, S. Buchholz</i>	
<b>Digital Manufacturing Cell Design for Performance Increase</b> .....	64
<i>A. Caggiano, R. Teti</i>	
<b>Model Based In-process Monitoring with Optical Coherence Tomography</b> .....	70
<i>Y. Li, R. Su, M. Hedlind, P. Ekberg, T. Kjellberg, L. Mattsson</i>	
<b>Modeling and Simulation of Electrical Discharge Machining</b> .....	74
<i>E. Weingärtner, F. Kuster, K. Wegener</i>	
<b>Residual Stresses in Milled Titanium Parts</b> .....	79
<i>J. Köhler, T. Grove, O. Maiß, B. Denkena</i>	
<b>Modeling Techniques for the Prediction of Workpiece Deflections in NC Milling</b> .....	83
<i>P. Kersting, D. Biermann</i>	
<b>Optimization of Micromilling by Adjustment of Inclination Angles</b> .....	87
<i>T. Surmann, E. Krebs</i>	
<b>Multi-Scale Positioning Control Model of a Novel Fluid Dynamic Drive by Coupling Process and Adapted CFD Models</b> .....	92
<i>H.-C. Möhring, H. Kayapinar, B. Denkena</i>	
<b>Technological and Economical Comparison of Roughing Strategies via Milling, EDM and ECM for Titanium- and Nickel-based Blisks</b> .....	98
<i>F. Klocke, M. Zeis, A. Klink, D. Veselovac</i>	
<b>MHD Printhead for Additive Manufacturing of Metals</b> .....	102
<i>M. Suter, E. Weingärtner, K. Wegener</i>	
<b>Modelling Injection Moulding Machines for Micro Manufacture Applications Through Functional Analysis</b> .....	107
<i>G. Fantoni, G. Tosello, D. Gabelloni, H. N. Hansen</i>	
<b>Influence of Mould Thermal Properties on the Replication of Micro Parts Via Injection Moulding</b> .....	113
<i>G. Lucchetta, E. Ferraris, G. Tristo, D. Reynaerts</i>	
<b>Author Index</b>	