

## Table of Contents

<b>Research for a Flexible Production of Lightweight Space Frame Structures</b>	
A. Klaus and M. Kleiner	1
<b>Three-Dimensional Curved Profile Extrusion – First Results on the Influence of Gravity</b>	
A. Klaus, D. Becker and M. Kleiner	5
<b>Composite Extrusion – Determination of the Influencing Factors on the Positioning of the Reinforcing Elements</b>	
M. Kleiner, A. Klaus and M. Schomäcker	13
<b>Mechanical Properties of Compound-Extruded Aluminium-Matrix Profiles under Quasi-Static Loading Conditions</b>	
K.A. Weidenmann, E. Kerscher, V. Schulze and D. Löhe	23
<b>Flying Cutting of Spatially Curved Extrusion Profiles</b>	
C. Munzinger, J. Fleischer and G. Stengel	35
<b>3D-Laser Processing of Spatially Curved Profiles</b>	
J. Fleischer, S. Kies, C. Munzinger and R. Rilli	43
<b>Analysis and Simulation of Cutting Technologies for Lightweight Frame Components</b>	
K. Weinert, N. Hammer and J. Rautenberg	53
<b>Laser Bifocal Hybrid Welding of Aluminum</b>	
A. Trautmann and M.F. Zaeh	65
<b>Investigation of the Influence of Process Parameters on the Structure and the Mechanical Properties of Joints Produced by Electromagnetic Compression</b>	
V. Schulze, P. Barreiro and D. Löhe	79
<b>Joining by Forming of Lightweight Frame Structures</b>	
W. Homberg, M. Marré, C. Beerwald and M. Kleiner	89
<b>Seam Weld Positioning for Composite Extrusion</b>	
M. Schikorra and M. Kleiner	101
<b>In-Process Simulation of Multi-Axis Milling in the Production of Lightweight Structures</b>	
E. Ungemach, S. Odendahl, M. Stautner and J. Mehnen	111
<b>Analysis of Cutting Technologies for Lightweight Frame Components</b>	
K. Weinert, S. Grünert and M. Kersting	121
<b>Structural Behavior of an EN AW-6060 Profile during and Immediately after Welding by a Laser-Laser-Hybrid System</b>	
M.F. Zaeh and S. Roeren	133
<b>Qualitative Knowledge and Manufacturing Considerations in Multidisciplinary Structural Optimization of Hybrid Material Structures</b>	
M. Huber and H. Baier	143
<b>Flexible and Intelligent Gripping Technology for Machining and Handling of Spatially Curved Extruded Aluminum Profiles</b>	
G. Lanza, J. Fleischer and D. Ruch	153
<b>Design and Optimization of an Innovative Machine Kinematics for Combined Handling and Machining</b>	
J. Fleischer and J.P. Schmidt-Ewig	163