

Preface

The CHINA-JAPAN International Conference on Ultra-Precision Machining Process (CJUMP), sponsored by Chinese Production Engineering Institution, CMES (CPEI) and Japan Society for Precision Engineering (JSPE) from 1985, is a regional international conference devoted to improve academic exchanges between Chinese and Japanese scholars previously, and now researchers on ultra-precision machining attend CJUMP from around the world. The International Conference on Surface Finishing Technology (ICSFT), sponsored by the Chinese Committee for surface finishing technology, CPEI, is held biennially aiming at advancing surface finishing technology. In order to adapt the new situation of ultra-precision machining and surface finishing technology, this conference will cover new developments for process technology on machine tool, instruments and metrology in precision measurement, micro and nano-machining, and advance in the field of surface finishing technology.

The 10th CHINA-JAPAN International Conference on Ultra- Precision Machining Process(CJUMP 2014) will be held in conjunction with 2014 International Conference on Surface Finishing Technology (ICSFT 2014) in Jiaozuo in 2014. CJUMP 2014 and ICSFT 2014 conference was organized by Henan Polytechnic University, Dalian Institute of Technology, and MFL, RIKEN, associated by National Natural Science Foundation of China (NSFC), the Chinese Committee of Abrasive Technology, CPEI (CCAT) and the Chinese Committee for Precision Engineering and Nano Technology, CPEI.

This book selected papers from the submissions to the CJUMP 2014 and ICSFT 2014. All the papers have gone through a peer-review process online for their originality and quality. The topics covered in this book include:

- Single point diamond turning
- Ultra-precision grinding technology
- High speed and high efficiency machining
- Ultra-precision machine design
- Machine tools and systems
- Coolant and cooling
- In-process measurement and monitoring
- Metrology and evaluation of Ultra-precision Surface
- Finishing, lapping and polishing
- Micro/nano machining and fabrication
- Beam-aided polishing processes
- Controlling for ultra-precision position
- Optical, ceramic & composite components machining
- CMP, MCP and silicon wafer processing
- Brittle material machining
- Surface hardening technology & application
- Advanced surface deburring methods & new technology
- EDM, ultrasonic machining & laser machining
- Ultrasonic machining and polishing
- Nondestructive processing
- Related precision machining method
- Related surface finish research

We hope that this book provides a valuable and fruitful reference for researchers in the field of ultra-precision machining process who and surface finishing technology wish to further understand the underlying mechanisms and create new and practical design technologies, systems and processes. It should also be particularly useful for practicing engineers in ultra-precision machining and surface finishing technology who are responsible for the efficient, precision and effective operations. We would like to thank all the authors for their contributions to the book and the referees for their constructive comments on the papers.

The Editors
17 July, 2014

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