

1. Record Nr.	UNINA9910674392403321
Titolo	Design and applications of coordinate measuring machines // edited by Kuang-Chao Fan
Pubbl/distr/stampa	Basel, Switzerland : , : MDPI - Multidisciplinary Digital Publishing Institute, , 2016
Descrizione fisica	1 online resource (xii, 198 pages)
Disciplina	670.425
Soggetti	Coordinate measuring machines
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	<p>List of Contributors -- About the Guest Editor -- Preface to "Design and Applications of Coordinate Measuring Machines" -- Gaoliang Dai, Michael Neugebauer, Martin Stein, Sebastian Butefisch and Ulrich Neuschaefer-Rube Overview of 3D Micro- and Nanocoordinate Metrology at PTB, Reprinted from: Appl. Sci. 2016, 6(9), 257, http://www.mdpi.com/2076-3417/6/9/2571 -- Rudolf Thalmann, Felix Meliand Alain Kung State of the Art of Tactile Micro Coordinate Metrology, Reprinted from: Appl. Sci. 2016, 6(5), 150, http://www.mdpi.com/2076-3417/6/5/15025 -- Hui-Ning Zhao, Lian-Dong Yu, Hua-Kun Jia, Wei-Shi Li and Jing-Qi Sun A New Kinematic Model of Portable Articulated Coordinate Measuring Machine, Reprinted from: Appl. Sci. 2016, 6(7), 181, http://www.mdpi.com/2076-3417/6/7/18143 -- Shih-Ming Wang, Yung-Si Chen, Chun-Yi Lee, Chin-Cheng Yeh and Chun-Chieh Wang Methods of In-Process On-Machine Auto-Inspection of Dimensional Error and Auto-Compensation of Tool Wear for Precision Turning, Reprinted from: Appl. Sci. 2016, 6(4), 107, http://www.mdpi.com/2076-3417/6/4/10759 -- Qiangxian Huang, Kui Wu, Chenchen Wang, Ruijun Li, Kuang-Chao Fan and Yetai Fei Development of an Abbe Error Free Micro Coordinate Measuring Machine, Reprinted from: Appl. Sci. 2016, 6(4), 97, http://www.mdpi.com/2076-3417/6/4/9780 -- Yin Tung Albert Sun, Kuo-Yu Tseng and Dong-Yea Sheu Investigating Characteristics of the Static Tri-Switches Tactile Probing Structure for Micro-Coordinate Measuring Machine</p>

(CMM), Reprinted from: Appl. Sci. 2016, 6(7), 202, <http://www.mdpi.com/2076-3417/6/7/20297> -- So Ito, Hirotaka Kikuchi, Yuanliu Chen, Yuki Shimizu, Wei Gao, Kazuhiko Takahashi, Toshihiko Kanayama, Kunmei Arakawa and Atsushi Hayashi A Micro-Coordinate Measurement Machine (CMM) for Large-Scale Dimensional Measurement of Micro-Slits, Reprinted from: Appl. Sci. 2016, 6(5), 156, <http://www.mdpi.com/2076-3417/6/5/156112> -- Hiroshi Murakami, Akio Katsuki, Takao Sajima and Mitsuyoshi Fukuda Reduction of Liquid Bridge Force for 3D Microstructure Measurements, Reprinted from: Appl. Sci. 2016, 6(5), 153, <http://www.mdpi.com/2076-3417/6/5/153139> -- Rui-Jun Li, Meng Xiang, Ya-Xiong He, Kuang-Chao Fan, Zhen-Ying Cheng, Qiang-Xian Huang and Bin Zhou Development of a High-Precision Touch-Trigger Probe Using a Single Sensor, Reprinted from: Appl. Sci. 2016, 6(3), 86, <http://www.mdpi.com/2076-3417/6/3/86153> -- Adam Gaska, Piotr Gaska and Maciej Gruza Simulation Model for Correction and Modeling of Probe Head Errors in Five-Axis Coordinate Systems, Reprinted from: Appl. Sci. 2016, 6(7), 190, <http://www.mdpi.com/2076-3417/6/7/190>.

Sommario/riassunto

Coordinate measuring machines (CMMs) have been conventionally used in industry for 3-dimensional and form-error measurements of macro parts for many years. Ever since the first CMM, developed by Ferranti Co. in the late 1950s, they have been regarded as versatile measuring equipment, yet many CMMs on the market still have inherent systematic errors due to the violation of the Abbe Principle in its design. Current CMMs are only suitable for part tolerance above 10 μ m. With the rapid advent of ultraprecision technology, multi-axis machining, and micro/nanotechnology over the past twenty years, new types of ultraprecision and micro/nano-CMMs are urgently needed in all aspects of society. This Special Issue accepted papers revealing novel designs and applications of CMMs, including structures, probes, miniaturization, measuring paths, accuracy enhancement, error compensation, etc. Detailed design principles in sciences, and technological applications in high-tech industries, were required for submission. Topics covered, but were not limited to, the following areas: 1. New types of CMMs, such as Abbe-free, multi-axis, cylindrical, parallel, etc. 2. New types of probes, such as touch-trigger, scanning, hybrid, non-contact, microscopic, etc. 3. New types of Micro/nano-CMMs. 4. New types of measuring path strategy, such as collision avoidance, free-form surface, aspheric surface, etc. 5. New types of error compensation strategy.
