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**Title:**

Micro/Nano Manufacturing and Its Applications - Under One Roof Report - Part VIII

**Abstract:**

The “Under One Roof Report” made its first appearance, later as Part I, in Jeju Island during the 2<sup>nd</sup> JCK in 2011. Since then, with the support of JCK Family of both committees and participants, the “Under One Roof Report” has been continued and kept improving until today as a series of conference reports, i.e., Part II (4<sup>th</sup> JCK in Sendai, 2013), Part III (6<sup>th</sup> JCK in Xi’an, 2015), Part IV (7<sup>th</sup> JCK in Sapporo, 2016), Part V (8<sup>th</sup> JCK in Seoul, 2017), Part VI (9<sup>th</sup> JCK in Dalian, 2018), and Part VII (10<sup>th</sup> in Asahikawa, 2019). Now this year, Part VIII has been relayed back to Xi’an once again.

The “Under One Roof Report – Part VIII” is the 2021 report of our group, Micro Engineering and Micro Systems Laboratory (JLU MEMS LAB), originally established in 2004 in Japan, and continued its international exchange culture value conception - Under One Roof with the world. As a fruit, more than 17 group members have started their Ph.D. or Joint Cultivating Programs etc. mainly at Tohoku University and The University of Tokyo, since 2017. Some of the latest research, such as nature-inspired spider-web design for energy harvesting, virtual-movement concept for eliminating spot positioning errors applicable to quadrant detectors, cantilever-based current sensing (CCS) methodology for multiphase current detecting and monitoring, as well as various smart sensing schemes with coupled oscillators for high-sensitivity mass sensing or for

synchronous identification/detection of multiple traces are selectively introduced here for further applied research and possible industrial-academic-research cooperation.

All co-authors below,

Cao Xia, Xuesong Shang, Ziqi Zhao, Luwei Zheng, Wujie Fu, Shaokang Cheng, #Dong F. Wang\*, Takahito Ono, Toshihiro Itoh, Ryutaro Maeda, and Masayoshi Esashi, contribute equally to the Part VIII.

## **Biography :**

Dong F. Wang received a B.E. and a M.E. in materials science and engineering from Zhejiang University, China, and a Ph.D. degree in mechatronic engineering from Tohoku University, Japan. He was with Prof. Masayoshi Esashi at MEMS Laboratory of Tohoku University, where his research was focused on nano-machining of ultrathin hard films, nano-mechanics of ultrathin silicon resonators, and micro/nano magnetic mesa structures for all-silicon quantum computers. Since 2014, he has been a Leading Professor/Head with the Micro Engineering and Micro Systems Laboratory (JML), Jilin University, China. He authored two international book chapters in Micro Electro Mechanical Systems (Springer, 2018), published 200+ peer-reviewed articles in international journals, including MSSP, TIE, TIM etc., and conference proceedings, holds 40+ Chinese patents and 2 Japanese patents, and given 20+ invited presentations in universities/institutes and 10+ keynote/plenary addresses at international conferences. His research interests include fundamental studies with a focus on Non-linear Micro/Nanoelectromechanical Systems (NMNS). He received several awards from Japan, USA, and China, and serves as General Chair, Co-Chairman etc. for 10+ international conferences, and as contributing reviewer for 30+ SCI indexed journals. He is one of the founders of the Annual IEEE NEMS since 2006, as well as the Japan-China-Korea Joint Conference on MEMS/NEMS dated back to 2006. His group is also collaborating with researchers from Tohoku University, The University of Tokyo, as well as National Institute of Advanced Industrial Science and Technology in Ubiquitous MEMS and Micro Engineering. He is a Senior Member of CMES, CSMNT, a Member of IEEE, JSME (Japan), IEEJ (Japan), Japan Society of Next Generation Sensor Technology, and MEMS Industry Forum.