

Wei-Chang Li (李尉彰)

Assistant Professor

Ph.D., Electrical Engineering & Computer Sciences,
University of California, Berkeley, 2015

M.S., Graduate Institute of Electronics Engineering,
National Taiwan University, 2005

B.S., Electrical Engineering,
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Wei-Chang Li joined the Institute of Applied Mechanics at National Taiwan University in 2016 as an Assistant Professor. Prior to starting at NTU, he was a MEMS design engineer at mCube Inc., San Jose. He received the B.S. and M.S. degrees in electrical engineering from National Taiwan University, Taipei, Taiwan, in 2003 and 2005, respectively. He received the Ph.D. in electrical engineering from the University of California, Berkeley, in 2015. His research interest focuses on resonant micro electromechanical systems (MEMS)-enabled technology and includes switches, signal processors, sensors, energy harvesters, and mechanical properties and engineering of advanced materials towards ultra-low power autonomous wireless sensor networks.

Publications

1. C.-E. Hsu and W.-C. Li, "Mitigating the Insufficient Etching Selectivity in the Wet Release Process of CMOS-MEMS Metal Resonators via Diffusion Control," *IEEE J. Microelectromech. Syst. Lett. (JMEMS Letters)*, doi: 10.1109/JMEMS.2020.3028291.
2. C.-P. Tsai, J.-R. Liu, and W.-C. Li, "Experimental Study on Frequency Stability of Micromechanical Resonators Operating in the Nonlinear Tapping Mode," *Proc., 2020 IEEE Int. Frequency Control Symposium (IFCS'20)*, Virtual Conference, July 19-23, 2020.
3. W.-J. Su, J.-H. Lin, and W.-C. Li, "Analysis of a Cantilevered Piezoelectric Energy Harvester in Different Orientations for Rotational Motion," *Sensors*, vol. 20, no. 4, p. 1206, Feb. 2020.
4. C.-P. Tsai, Y.-Y. Liao, and W.-C. Li, "A 125-kHz CMOS-MEMS Resoswitch Embedded Zero Quiescent Power OOK/FSK Receiver," *Proc., the 32nd IEEE Int. Conf. on Micro Electro Mechanical Systems (MEMS'20)*, Vancouver, Canada, Jan. 18-22, 2020.
5. Y.-H. Chen, W.-C. Li, X.-W. Xiao, C.-C. Yang, and C.-H. Liu, "Design Optimization of a Compact Double-Ended-Tuning-Fork-Based Resonant Accelerometer for Smart Spindle Applications," *Micromachines*, vol. 11, Issue 1, 42, Dec. 2019.
6. J.-R. Liu and W.-C. Li, "Temperature-compensated CMOS-MEMS resonators via electrical stiffness frequency pulling," *J. Micromech. Microeng. (JMM)*, vol. 30, no. 1, pp. 014002, Nov. 2019. (*in the special issue of JMM Emerging Leaders*)
7. J.-S. Chen, W.-J. Su, Y. Cheng, W.-C. Li and C.-Y. Lin, "A metamaterial structure capable of wave attenuation and concurrent energy harvesting," *Journal of Intelligent Material Systems and Structures*, vol. 30, issue 20, pp. 2973-2981, Dec. 2019.
8. J.-R. Liu and W.-C. Li, "A Temperature-Insensitive CMOS-MEMS Resonator Utilizing Electrical Stiffness Compensation," *Proc., the 32nd IEEE Int. Conf. on Micro Electro Mechanical Systems (MEMS'19)*, Seoul, South Korea, Jan. 27-31, 2019, pp. 161-164.
9. J.-R. Liu, Y.-C. Lo, and W.-C. Li, "A Novel Micromechanical Mode-Localized Resonator Utilizing Anti-Resonating Structures," *Proc., the 32nd IEEE Int. Conf. on Micro Electro Mechanical Systems (MEMS'19)*, Seoul, South Korea, Jan. 27-31, 2019, pp. 214-217.
10. S.-C. Lu, C.-P. Tsai, Y.-C. Huang, W.-R. Du, and W.-C. Li, "Surface Condition Influence on

the Nonlinear Response of MEMS CC-Beam Resoswitches," *IEEE Electron Device Letters (EDL)*, vol. 39, no. 10, pp. 1600-1603, Oct. 2018.

11. S.-C. Lu, W.-R. Du, Y.-C. Huang, C.-P. Tsai, and W.-C. Li, "MEMS surface coating condition monitoring via nonlinear tapping of resoswitches," *Proc., 2018 IEEE Frequency Control Symposium (IFCS'18)*, Olympic Valley, CA, May 21-24, 2018. (Student Best Paper Finalist)
12. J.-R. Liu, S.-C. Lu, C.-P. Tsai and W.-C. Li, "A CMOS-MEMS clamped-clamped beam displacement amplifier for resonant switch applications," *Journal of Micromechanics and Microengineering*, 065001, Mar. 2018.
13. S.-C. Lu, C.-P. Tsai, and W.-C. Li, "A CMOS-MEMS CC-Beam Metal Resoswitch for Zero Quiescent Power Receiver Applications," *Proc., the 31st IEEE Int. Conf. on Micro Electro Mechanical Systems (MEMS'18)*, Belfast, North Ireland, UK, Jan. 21-25, 2018, pp. 801-804.

Projects

1. 應用於互補式金屬氧化物半導體微機電共振元件之單晶圓無接合真空封裝技術(科技部專題研究計畫) 職務：計畫主持人；總預算：NTD\$903,000；執行期間：2020/08/01~2021/07/31
2. 嵌入高可靠度高靈敏度共振式開關之近零功耗喚醒接收機(優秀年輕學者研究計畫) 職務：計畫主持人；總預算：NTD\$4,337,000；執行期間：2020/08/01~2023/07/31
3. 基於電漿增強式共振器之微機械氣體感測器(科技部專題研究計畫) 職務：計畫主持人；總預算：NTD\$1,233,000；執行期間：2019/08/01~2020/07/31
4. 適用於超低功率無線感測器之微機電共振器開關式無線電模組(科技部專題研究計畫)職務：計畫主持人；總預算：NTD\$2,975,000；執行期間：2016/10/01~2019/09/30