

## Pei-Kuen Wei (魏培坤)

Professor/Research Fellow/Director

B.S. in Mechanical engineering,  
National Taiwan University, 1989  
Ph.D. in Electrical Engineering,  
National Taiwan University, 1994



Prof. Pei-Kuen Wei joined the Institute of Applied Science and Engineering Research (preparatory house), Academia Sinica, in 2000. From 2009 to 2014, he served as the acting Executive Officer of the thematic center for Mechanics and Engineering Science at Academia Sinica. Currently, he holds the positions of research fellow and director at the Research Center for Applied Sciences (RCAS). Additionally, in 2024, Prof. Wei joined the Department of Applied Mechanics at National Taiwan University as an adjunct professor.

Prof. Wei has published more than 220 SCI papers and has acquired 15 patents/3 technology transfers. Some of his works have been selected as significant research by Academia Sinica and have been reported by news or professional magazines. He received the Investigator Award from Academia Sinica in 2015 and Sinica Presidential scholarship in 2021. His research interests include nanoplasmonic devices, optical bioimaging/sensing systems, and nanotechnologies for biomedical/green-energy devices.

### Selected Journal Papers

- (1) Ting-Wei Chang, Sheng-Hann Wang, Iuan-Sheau Chin, Pei-Zhen Li, Shu-Cheng Lo, Shu-Yi Hsieh, Jung-Hsin Lin\*, Pei-Kuen Wei\*, "Biomimetic affinity sensor for the ultrasensitive detection of neonicotinoids", *Biosens. & Bioelectron.* 239, (2023) 115630
- (2) Shu-cheng Lo, Chia-wei Lee, Ruey-lin Chern, and Pei-kuen Wei, "Hybrid modes in gold nanoslit arrays on Bragg nanostructures and their application for sensitive biosensors," *Opt. Express* 30, 30494-30506 (2022)
- (3) Shu-Cheng Lo, Sheng-Hann Wang, Ting-Wei Chang, Kuang-Li Lee, Ruey-Lin Chern, and Pei-Kuen Wei\*, "Dual Gold-Nanoslit Electrodes for Ultrasensitive Detection of Antigen–Antibody Reactions in Electrochemical Surface Plasmon Resonance", *ACS Sensors* 2022 7 (9), 2597-2605
- (4) Yi-Ru Li, Kuang-Li Lee, Kuan-Ming Chen, Yun Cheng Lu, Pin Chieh Wu, Sy-Hann Chen, Jiun-Haw Lee, and Pei-Kuen Wei\*, "Direct detection of virus-like particles using color images of plasmonic nanostructures," *Opt. Express* 30, 22233-22246 (2022)
- (5) Chia-Wen Kuo, Sheng-Hann Wang, Shu-Cheng Lo, Wei-Han Yong, Ya-Lun Ho, Jean-Jacques Delaunay, Wan-Shao Tsai, and Pei-Kuen Wei\*, "Sensitive Oligonucleotide Detection Using Resonant Coupling between Fano Resonance and Image Dipoles of Gold Nanoparticles", *ACS Applied Materials & Interfaces* Article 2022
- (6) Sheng-Hann Wang; Chia-Wen Kuo; Shu-Cheng Lo; Wing Kiu Yeung; Ting-Wei Chang; Pei-Kuen Wei\*, "Spectral Image Contrast-Based Flow Digital Nanoplasmon-metry for Ultrasensitive Antibody Detection", *Journal of Nanobiotechnology.* 2 20, 6 (2022)
- (7) Shu-Cheng Lo, Chun-Wei Yeh, Sheng-Hann Wang, Chia-Wen Kuo, Kuang-Li Lee, Ruey-Lin Chern, Pei-Kuen Wei\*, "Self-Referencing Biosensors Using Fano Resonance in Periodic Aluminium Nanostructures", *Nanoscale*, 2021, 13, 17775-17783
- (8) Sheng-Hann Wang, Shu-Cheng Lo, Yung-Ju Tung, Chia-Wen Kuo, Yi-Hsin Tai, Shu-Yi Hsieh, Kuang-Li Lee, Shune-Rung Hsiao, Jenn-Feng Shenn, Ju-Chun Hsu, and Pei-Kuen Wei\*, "Multichannel Nanoplasmonic Platform for Imidacloprid and Fipronil Residues Rapid Screen Detection", *Biosensors and Bioelectronics* 170 (2020) 112677