



Qingshan Wei



Assistant Professor of Chemical & Biomolecular Engineering

Member, Emerging Plant Disease and Global Food Security Cluster

Member, Comparative Medicine Institute

B.S. Zhejiang University, China
M.S. Zhejiang University, China
Ph.D. Purdue University

Address:

Department of Chemical and Biomolecular Engineering
Campus Box 7905
911 Partners Way
Raleigh, NC 27695

Phone: 919-515-3154

Email: qwei3@ncsu.edu

<https://weigroup.wordpress.ncsu.edu/>

Portable Devices for Point-of-Care Molecular Diagnostics

Research emphasis:

Dr. Wei's lab develops cost-effective and field-deployable imaging and sensing devices for point-of-care (POC) diagnostics. These include portable telemedicine tools based on mobile phones for rapid biomarker screening, genetic testing, and early disease surveillance. Dr. Wei's lab also work on lab-on-a-chip and microfluidic devices to simplify and miniaturize sample preparation and molecular diagnostic assays to develop fully automated "sample-to-answer" diagnostic platforms in the long run.

Application:

- Infectious disease
- Cancer
- Genotyping
- Global health
- Plant disease/food pathogen

Collaboration potential:

- Diagnostic assay development
- Molecular biology/pathology
- Genetics
- Clinical applications
- Environmental sensing

Selected publications:

J. Kong, Q. Wei, D. Tseng, J. Zhang, E. Pan, M. Lewinski, O. B. Garner, A. Ozcan, and D. Di Carlo. Highly Stable and Sensitive Nucleic Acid Amplification and Cell-Phone based Readout. **ACS Nano** 2017, 11, 2934-2943

M. Kühnemund†, Q. Wei†, E. Darai, Y. Wang, I. Hernandez-Neuta, Z. Yang, D. Tseng, A. Ahlford, L. Mathot, T. Sjöblom, A. Ozcan, and M. Nilsson. Targeted DNA Sequencing and *in situ* Mutation Analysis Using Mobile Phone Microscopy. **Nature Commun.** 2017, 8, 13913 († Equal contribution)

Q. Wei, W. Luo, S. Chiang, T. Kappel, C. Mejia, D. Tseng, R. Y. L. Chan, E. Yan, H. Qi, F. Shabbir, H. Ozkan, S. Feng, and A. Ozcan. Imaging and Sizing of Single DNA Molecules on a Mobile Phone. **ACS Nano**, 2014, 8, 12725-12733

Q. Wei, H. Qi, W. Luo, D. Tseng, S. J. Ki, Z. Wan, Z. Göröcs, L. A. Bentolila, T.-T. Wu, R. Sun, and A. Ozcan. Fluorescent Imaging of Single Nanoparticles and Viruses on a Smart Phone. **ACS Nano**, 2013, 7, 9147-9155