Washington University in St. Louis
Office of Technology Management

SINGLE NANOPARTICLE DETECTION BY MODE SPLITTING IN ACTIVE MICRORESONATORS USING HETERODYNE TECHNIQUE

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Dr. Lan Yang, Professor at Washington University in St. Louis, is a pioneer in the field of micro- and nano photonics. She recently developed a uniquely sensitive and versatile particle detector using whispering gallery mode (WGM) optical microresonators. Realtime detection and accurate sizing of label-free single nanoparticles (NPs) has been demonstrated using gold, polystryrene, and NaCl NPs. The detection capability of the technology ranges to 10 nm and is suitable for use in air or liquid. Its compact size, affordability, and low power consumption make microresonators ideal for use in a single-chip detector array enabling simultaneous sizing of different particles. Click **here** for more information.

Application Spaces:

- Cleanroom HVAC and air filter manufacturing
- Cleanroom air testing
  - The sensor meets all ISO cleanroom standards for particle detection sensitivity
- Ultrapure water testing
- Ultrapure water production quality assurance
  - The compact design enables placement in bulk storage, throughout distrubution, and at point of application
- Nanoparticle manufacturing
  - Sizing, characterization, and quality assurance of NPs for application in e.g. batteries and solar cells