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PHOTOACOUSTIC DETECTION SENSOR FOR THE CLASSIFICATION OF CELLS

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T-020887

Value Proposition: *A photoacoustic sensor device that can expand detection area and provide selectivity to improve the classification of cells and enhance biological sensing performance.*

Technology Description

Researchers at Washington University in St. Louis have developed a Photoacoustic (PA) Sensor designed for biological sensing applications utilizing Whispering Gallery Mode (WGM) Microbubble Resonators. Conventional WGM sensing platforms rely heavily on the direct interaction between light and target, such as in the detection of biomolecules bound to the sensor area. The small sensing area restricts their practical applications in various sensing scenarios.

This sensor device has a larger effective sensing area compared to conventional WGM sensors, allowing for the detection of photoacoustic signals generated by targets of interests, such as gold nanoparticles, and classification of different types of red blood cells without additional PA contrast agents; thus, expanding sensing functionality while improving biological detection capabilities.

Stage of Research

Research and Prototype Stage

Applications

- Molecular detection

- Cell characterization and classification

- Biomedical sensing and diagnostics

Key Advantages

- Increased sensing area allows for better biological detection capabilities.

- Thick-walled design protects high-quality optical modes, ensuring sustained effectiveness.

- Transition from typical refractive index biosensing to photoacoustic biosensing allows for new application areas.

Patents

Patent application filed

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