National Institute of Standards and Technology
U.S. Department of Commerce

COMMERCIALIZATION OPPORTUNITY

Optofluidic Flow Meter

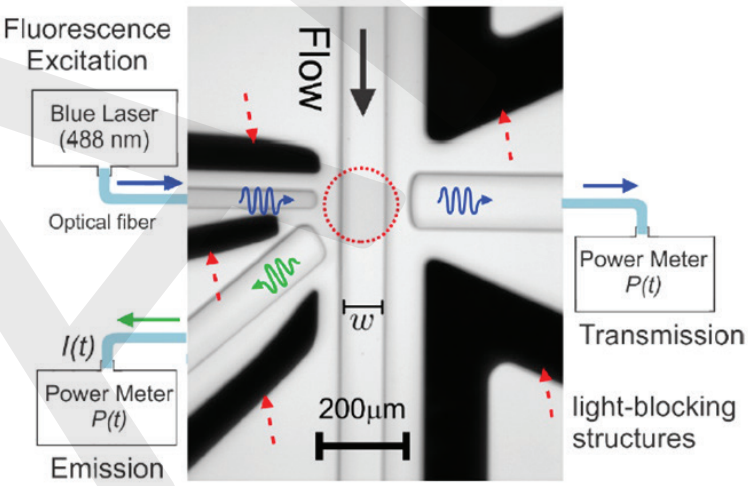
Patent Number: 10,151,681; Ref. No. 16-026

NEW ENABLING TECHNOLOGY

Optofluidics is the marriage of microfluidics and optical technology. The NIST Optical Flow Meter (US Patent 10,151,681) provides on chip assessment of flow and heat transfer resulting in vast improvements in fluid metrology and advances in biological sensing.

BETTER FASTER EFFICIENT TECHNOLOGY

Pressure measurements still rely on external pressure transducers. The problem is one cannot accurately measure the local pressure in a microfluidic system due to the pressure dissipation and delay in transmission. The NIST Optical Flow Meter provides on-chip assessment of flow and heat transfer which enables improvement in fluid metrology AND paves the way for new opportunities in microscale calorimetry and biological sensing.



OptoFluidic Flow Meter

PLACING PRESSURE SENSORS INTO MICROFLUIDIC CHIP IS A MOST FOR ACCURATE IN SITU PRESSURE MEASUREMENT.

- Flow measurement at 10 nL/min with 5% uncertainty using dosage relationship to scale down existing flow calibration by approximately a factor of 10 (calibrated meter at 150 nL/min).
- Flow control to within 5 % uncertainty down to 1 nL/min

CONTACT

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NOW ACCURATE MEASUREMENT OF CHEMICAL AND PHYSICAL PROPERTIES OF FLUIDS IN MICROLITER VOLUMES IS AVAILABLE

- Point of Care Diagnostics
- Flow Cytometry
- Microfluidic Drug Administration at the Cellular Level
- Cell Counting
- Live Cell Imaging

Opportunity for multiple collaborative development relationships with research and development. There is an opportunity for collaboration with fabrication facilities!

THE SOLUTION FOR A HOST OF ISSUES THAT PLAGUE MULTIPLE INDUSTRIES

1. Makes precise measurements of smaller quantities in real time.

2. New strategy to accurately determine measurement uncertainty near zero flow – useful for flow control and determination of fluidic conductance.

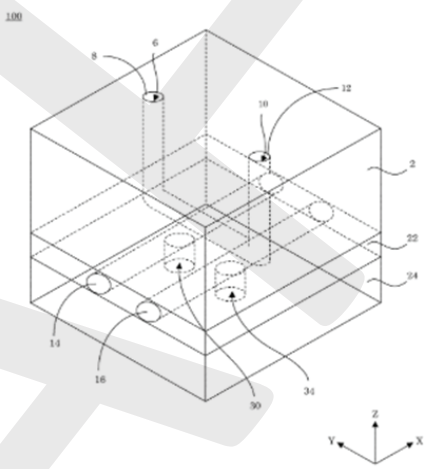
MARKET

Provides measurement of microscale forces pressures for a fluid carrying article

PARTNERSHIPS

Cooperative Research and Development Agreements (CRADAs), Patent License Agreements (PLAs) Abound

Environmental monitoring, energy production and harvesting, biomedical applications, defense, public safety, inkjet printing and chemical analysis.



OptoFluidic Flow Meter

COST EFFECTIVE AND EASY TO USE

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