Nanoscale Gas Chromatography Device

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TECHNOLOGY NEED
Chemical vapor sensing is vital to a developing society. Whether the goal is to collect resources from, protect, study, or shape our environment, knowledge of what chemical vapors are in a sample keep members of our society safe. Current gas sensors have the ability to sense multiple chemicals but lack sensing selectivity. This issue becomes more troublesome when real-world samples contain tens to hundreds of volatile organic compounds (VOC). Gas chromatography (GC) is the current state of the art in laboratories, but attempts to miniaturize these systems are disqualified for certain applications due to their lack of chromatographic resolution.

INVENTION DESCRIPTION/SOLUTION
Researchers at UTA have developed an optical cavity enhanced nanoscale gas chromatography device. Separation capabilities achieved by the dimensions of the device enable the device to compete with conventional bench top GC systems. Nano-sensor arrays provide portable, wearable, ultra-fast, and high separation resolution VOC analysis. The capabilities of the device are suitable for research, security, and industry environments.

APPLICATIONS
• Analyzer- Analysis of fluids and other materials by Gas Chromatography
• Continuous monitoring systems
  - Refinery, Industrial plants, Environmental monitoring
• Food Analysis

KEY BENEFITS
• Rapid, portable, all-encompassing gas sensing capabilities
• Cheaper and more compact GC system

STAGE OF DEVELOPMENT
Prototyped

INTELLECTUAL PROPERTY STATUS
Patent Pending - PCT