Detection of terrorist threats using microcantilever platform

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Abstract:

Recent terrorists events have shown that an urgent and widespread need exists for development of novel sensors for threat detection. The advent of inexpensive, mass-produced microcantilever sensors, promises to bring about a revolution in detection of terrorists threats. Extremely sensitive and highly selective sensors can be developed for the using microcantilever platform. Microcantilever resonance response such as resonance frequency, deflection, and Q-factor undergo variation due to extremely small changes in external stimuli. Cantilever geometry determines sensitivity while selectivity is governed by analyte-substrate interaction mechanism. We have developed a number of sensors for explosive, chemical agents, biological weapons, explosives, and radiation using microcantilever platform. An array-based approach offers the flexibility of multi-analyte detection using a single sensor platform.