MEMS Aerosol Impactor

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**Summary:** This invention includes aerosol impactors with micromechanical resonators.

**Description:** Microelectromechanical system (MEMS) oscillators are devices that generate highly stable reference frequencies. This MEMS aerosol impactor can provide size classifications and/or concentration of landing aerosol particulates. Aerosol impactors use an air flow device, such as a pump, to create a constant flow of air. This allows for the mass measurement of micro/nanoscale particles landing on the surface by measuring the frequency change of the micromechanical resonator.

**Advantages of this Invention:** MEMS resonators can be integrated into arrays to provide mass sensitivity in a small, lightweight, and cost effective package.

- Can be constructed in a portable, wearable package allowing particulates to be measured in real time
- Ability to measure at the micro/nanoscale
- Fabricated from silicon layers

**Potential Areas of Application:** Industrial or scientific applications to monitor the concentration of airborne particulates.

- Airborne particles affects air quality, human health, and atmosphere visibility
- For example, measuring could be used to measure particulates in scientific laboratories, mining sites, and air quality generally
- Used in conjunction with existing and future technologies

**Intellectual Property Status:** Patent No. 10,203,272

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