

Microcantilever Terminology

Analyte: A substance or chemical constituent that is undergoing analysis or being measured.

Angular deflection: The angle formed between the two extremes of deflection.

Atomic Force Microscopes (AFM): A device for mapping surface atomic structures by measuring the force acting on the tip of a sharply pointed object that is moved over the surface.

BioMEMS: MEMS with applications for the biological / analytical chemistry market.

Cantilever: A beam supported at one end and with the other end suspended freely outwards.

Chemical Sensor Arrays (CSA): An array of sensors that chemical reacts with a target material resulting in a measurable change (i.e. resonant frequency or mass) with the sensor.

Chemisorption: The molecular bonding of gas to a solid.

Displacement: The difference between the initial position of something (as a body or geometric figure) and any later position.

Dynamic: Of or relating to energy or to objects in motion.

Electrostatic: Of or related to electric charges at rest or static charges.

Hooke's Law: The stress on a material is directly proportional to the strain on that material, provided the stress is less than the material's limit of elasticity.

MEMS: Micro-Electro Mechanical Systems – microscopic devices such as sensors and actuators, normally fabricated on silicon wafers.

Piezoresistive: The piezoresistive effect describes the changing electrical resistance of a material due to applied mechanical stress.

Resonant frequency: The frequency at which a moving member or a circuit has a maximum output for a given input.

Resonators: A device or system that exhibits resonance or resonant behavior.

Selectivity: The pumping speeds for specific gases. Pumps that are selective do not pump all gases at the same rate.

Sensors: A device that responds to a stimulus, such as heat, light, or pressure, and generates a signal that can be measured or interpreted.

Spring constant (k): For an object that obeys Hooke's law, spring constant is the force per unit extension (N/m).

Static: Of or relating to bodies at rest or forces that balance each other.

Transducer: A substance or device that converts input energy of one form into output energy of another form.

Young's Modulus of Elasticity (E): The measure of the stiffness or elasticity of a given material. The stiffer or less elastic a material is, the higher the E value.