MEMS-based microgrippers and force sensors for automated measurement systems

I-Micronews

These new silicon MEMS based gadgets provide integrated force feedback to handle and characterize nano and micro scale objects. Calibrated individually, they do not degrade even after millions of load cycles, and operate in vacuum, air, or liquid, facilitating dependable operating in almost environment. According to Nanoscience Instruments’ Co-Founder Sebastian Kossek, the inclusion of FemtoTools products has increased the portfolio of Nanoscience beyond the imaging tools.

He added that these distinctive force sensors and microgrippers would enable manipulation and measurement functions hitherto considered impossible or difficult while handling objects. He explained that it will be possible to integrate them in automated measurement systems and also customize them for various material and life science applications.

The microgrippers use electrostatic actuation for opening, closing, and sensing the forces applied through measured capacitance. Force values are transmitted to the user and indicate how tightly the object is held. Objects in the 1 to 100 microns size range can be manipulated, rendering the grippers useful for pick and place manipulation of every substance ranging from individual cells to fibers to tissue.

The Force Sensors are able to detect forces ranging from nanonewtons to millinewtons, permitting precise measurements of Van-der-Waals forces, surface tension and electrostatics forces. They can be utilized for dynamic studies related to membranes, mechanical structures, and cells.

SOURCE [1]

Source URL (retrieved on *08/01/2014 - 11:50pm*):
http://www.mdtmag.com/news/2010/06/mems-based-microgrippers-and-force-sensors-automated-measurement-systems

Links:
[1] http://www.i-micronews.com/lectureArticle.asp?id=5021