

Low-Power Capacitive Sensor Arrays

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Microfabricated cantilever sensor arrays use resonant or non-resonant chemo-mechanical and thermo-mechanical transduction. Capacitive readout provides an extremely low-power and sensitive electronic interface ideal for compact-battery-powered applications. An appropriate set of thin-film coatings provides the basis for an electronic nose with sub-ppm detection limits without preconcentration. One design (Cal-Spec) allows optical spectra to be very sensitively recorded on physisorbed analytes. Cantilever platforms are being explored for chemical and biochemical sensing as well as being commercially exploited.