

Explosive vapor detection using microcantilever sensors

L. A. Pinnaduwege
Life Sciences Division
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831

An introduction to microcantilever sensors was presented. This was followed by the recent advances that we have made at ORNL on the detection of explosive vapors using coated and uncoated cantilevers. In particular, (i) the capability to detect parts-per-trillion levels of explosive vapors using mercaptobenzoic acid monolayer coating, (ii) the results with the polymer coated cantilevers, and (iii) the recent results obtained with uncoated piezoresistive cantilevers were presented. The presentation was concluded with a video showing the mini-deflagration of TNT on a piezoresistive cantilever by heating it with a voltage pulse.