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Detection of nerve agents and biological molecules using embedded piezoresistive microcantilever sensors. TIMOTHY PORTER, TIM VAIL, AMANDA WOOLEY, Northern Arizona University — Embedded piezoresistive microcantilever (EPM) sensors have been used in the detection of a variety of analyte species. EPM sensors utilize a tiny piezoresistive microcantilever partially embedded into a sensing material to produce a sensing element that is compact, simple, resistant to movement and shock, and suitable for remote sensing applications. In the current project, we have used sensing materials comprised of an immobilizing polymer functionalized with either target enzymes or antibodies to detect two biological agents, bacillus globigi (BG) and Diisopropyl fluorophosphate (DFP). DFP is an organophosphate used as a simulant for organophosphate nerve agents, while BG is a large bacterial spore used as a simulant for other bacterial spores such as bacillus anthracis. Sensing results are presented for both types of EPM sensors.

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