



## SMART MATERIALS FOR CHEMICAL SENSING

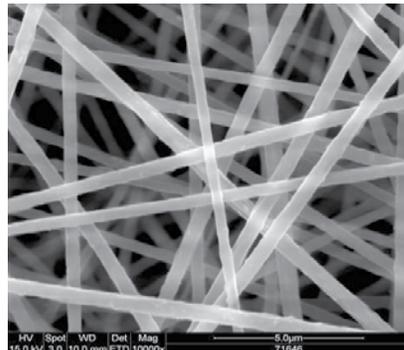
### OBJECTIVE:

Develop responsive materials technologies for integration into CB clothing.

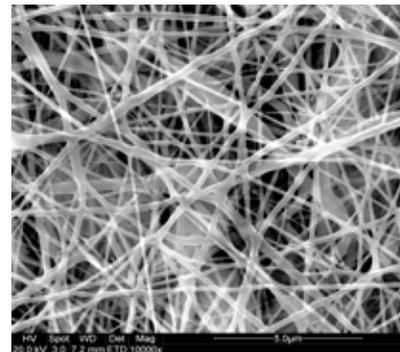
### DESCRIPTION:

Develop nanofiber-based chemical sensor for integration with CB garments. Utilize more than one polymer. Test prototypes for ability to detect a variety of chemicals to include methyl salicylate (MeS) and TICs. Determine sensitivity, specificity, and ruggedness of sensors. Demonstrate ability to detect CWAs/NTAs. Integrate with garment system.

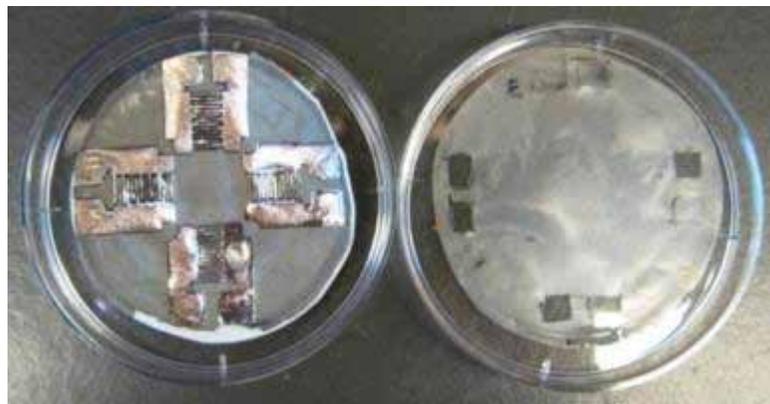
Benefits of proposed technology: Increased protection based on the ability to detect the presence of hazardous chemicals in real time. Decreased logistics burden because of sensor integration into garment.



PMMA/5wt% SWCNTs NFs



PU/5wt% SWCNTs NFs



PMMA/SWCNTs NF sensor mat (left)

Silicone membrane (middle)

In a non-optimized condition, PMMA/SWCNT material with silicone protective membrane was able to detect 20 ppb of MeS vapor.

### POINT OF CONTACT:

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