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New detector for shoe bombs developed

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CHAMPAIGN, Ill., Oct. 19 (UPI) -- A new simple sensor to detect an explosive used in shoe bombs could lead to easy-to-use devices for luggage and passenger screening, U.S. researchers say.

University of Illinois chemists have developed a sensor that changes color when it detects even tiny amounts of triacetone triperoxide, a high-powered explosive used in several bombing attempts in recent years, a university release said.

TATP, easily prepared from readily available components, is difficult to detect by standard methods of chemical sensing since it doesn't fluoresce, absorb ultraviolet light or readily ionize.

The few methods available to screen for TATP, requiring large, expensive equipment, extensive sample preparation or relatively high concentrations of TATP in solid or liquid form, aren't feasible for on-the-ground use in airports, the researchers say.

The new detector uses a printed array of dots, no larger than a postage stamp, that changes color in the presence of TATP vapor, they say.

"The pattern of the color change is a unique molecular fingerprint for TATP at any given concentration and we can identify it in a matter of seconds," UI chemistry Professor Kenneth Suslick said.

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