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Title: Impact of Surface Chemistry on the Adhesion of an Energetic Small Molecule to a Conducting Polymer Surface

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# Impact of Surface Chemistry on the Adhesion of an Energetic Small Molecule to a Conducting Polymer Surface

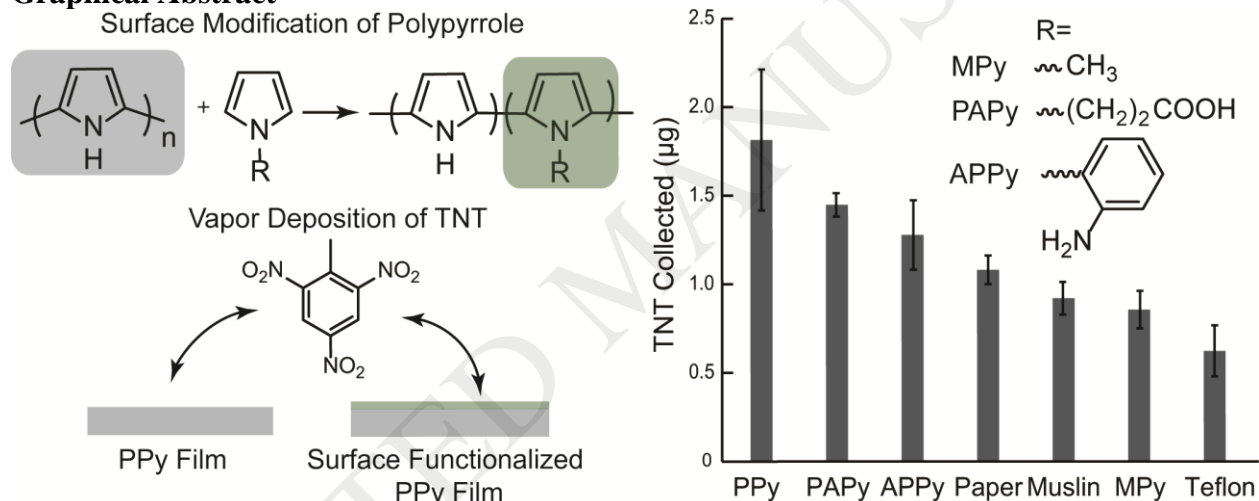
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## Graphical Abstract



## Abstract

The modification of the surface chemistry of a film is a key strategy to enhance the binding of molecules of interest in various sensing and detection applications. For example, the adhesion of explosive residues to a swab is critical for the detection of trace explosives in air transportation environments, and it can be enhanced by increasing the affinity of the swab to target molecules through favored chemical interactions. Here, the surface chemistries of polypyrrole (PPy) films were systematically tuned through the electropolymerization of thin layers of N-substituted pyrrole monomers to evaluate their interactions with a model explosive compound, trinitrotoluene (TNT). The surface groups examined included carboxylic acid, methyl, and amino-phenyl groups, in order to address a wide range of chemical functionalities. The interaction between the functionalized

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