

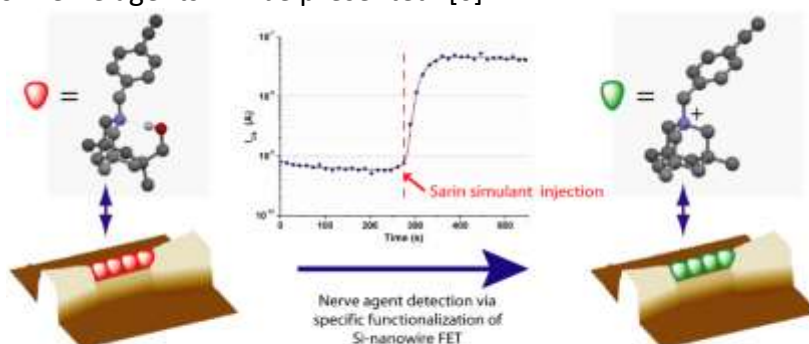
# Chemically functionalized nanomaterials based sensors and colorimetric papers for the detection of nerve agents

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Organophosphorus compounds represent one of the most important and lethal classes of chemical warfare agents (e.g. Sarin, Soman, Tabun, VX). These agents have been used for terrorist attacks in the past (e.g. 1995 Japanese subway attack). The efficient detection of OPs has recently become an increasingly important research goal to circumvent the drawbacks of commercially available detectors. Nanomaterials based field effect transistors are extremely sensitive towards electrostatic change. Different strategies have been developed for the detection of organophosphorus compounds (OPs) using nanomaterials based field effect transistors functionalized with a chemical receptor specific to traces of organophosphorus agents.[1-5] We demonstrated new concepts for electrical detection of OPs based on the chemical functionalization of a silicon nanowire field-effect transistor (SiNW-FET) or by the functionalization of the gold electrodes of a carbon nanotubes field effect transistor (CNTFET). The sensors are a very sensitive towards OPs. Their integration into hand held device will be presented. In a second part, efficient colorimetric papers for the detection and the identification of nerve agents will be presented. [6]



**Figure 1:** Detection of nerve agents via specific functionalization of nanomaterials based field effect transistors

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