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## **Highly sensitive stand-off detection of explosives in condensed and gas phase** (ref. 983789)

Another effort in this field has involved researchers from Israel and Germany. Beginning in March 2010, these scientists have cooperated to develop and test new spectroscopic techniques for the stand-off detection of explosives and other hazardous materials in the gas phase as well as solid state. The combination of stimulated Raman excitation (SRE), coherent anti-stokes Raman spectroscopy (CARS) and quartz enhanced photoacoustic spectroscopy (QEPAS) applying single beam femtosecond or broadband nanosecond laser pulse excitation offers a novel approach and up to now unexplored possibilities for engineering a new generation of multi-compound sensor devices that will find several applications in civil engineering. In the coming months, experiments will be focused on investigating the explosive properties of various plastic compositions of TATP by thermo gravimetric analysis (TGA), BAM friction test and impact tests.

The German and the Israeli groups have long going relationships with variety of security organizations and with commercial enterprises that develop and market security-related products. Therefore, it seems natural that these bodies will be informed about the results of this proposed research in order to implement them first in field experiments and later in commercial explosive detectors. For example, in Germany the developed technology will be applied and tested during the project by KABA Gallenschütz GmbH as an upgrade of their security gates frequently used at airports, sports events etc. The company Diehl BGT Defence GmbH will apply this new technology for standoff applications on robotic platforms and the new spin-off company MIOPAS GmbH has interest in manufacturing laser based standoff detection systems. In Israel much of the implementation and field experiments with actual samples of explosives will be done with the Division of Identification and Forensic Sciences (DIFS) and with the bomb squads of the Israeli police, the security unit of Ben Gurion Airport and with the Israel Security Agency (ISA). In addition, four relevant Israeli companies that specialize in the developemtn of explosive detectors are Acro Security, Xurity, Ray Technologies and Laser Detect Systems.

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