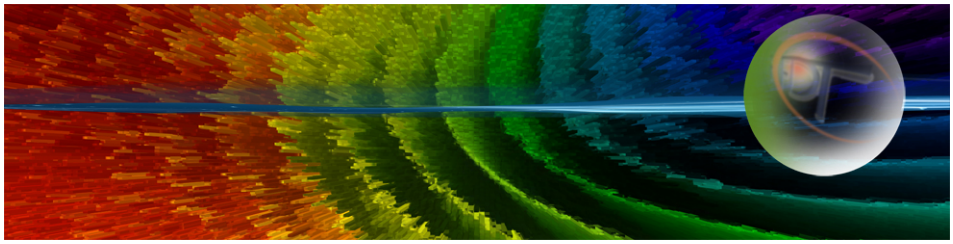

Contribution ID: **69** Type: **not specified**

Stand off optical systems for chemical detection and identification tool to improve public security

Nowadays the intentional diffusion in air (both in open and closed environments) of chemical and biological contaminants presents a dramatic risk for the health of the public worldwide. The needs of a high-tech network composed by diagnostics, software, decision support systems and cyber security tools are urging all the stakeholders (military, public, research & academic entities), who are working on the subject, to develop innovative solutions to face this problem. The Quantum Electronics and Plasma Physics (QEP) Research Group is working since the 1960s on the development of laser-based technologies for the stand-off detection of contaminants in the atmosphere. Actually, four demonstrators have been developed (two LIDAR-based and two DIAL-based) and have been deployed in experimental campaigns during 2015. These systems have the demonstrated capability to detect and/or identify chemical substances in different environmental conditions. All the apparatuses developed will be presented together with a critical analysis of the data collected.

Primary author: Dr GAUDIO, Pasquale (University of Rome Tor Vergata)

Co-authors: Dr MALIZIA, Andrea (Dipartimento di Ingegneria Industriale, Università degli Studi di Roma "Tor Vergata"); Dr MURARI, Andrea (Consorzio RFX); Prof. BELLECCI, Carlo (CRATI scrl); Dr DI GIOVANNI, Daniele (University of Rome Tor Vergata); Dr PELUSO, Emmanuele (University of Rome Tor Vergata); Mr POGGI, Luigi Antonio (Associazione EUROFUSION-ENEA, Department of Industrial Engineering, University of Rome Tor Vergata, Via del Politecnico 1, 00133 Rome, Italy); Dr CARESTIA, Mariachiara (University of Rome Tor vergata); Dr GELFUSA, Michela (University of Rome "Tor Vergata"); Mr LUNGARONI, Michele (Associazione EURATOM-ENEA - University of Rome "Tor Vergata", Roma, Italy); Dr CENCIARELLI, Orlando (University of Rome Tor Vergata); Dr TALEBZADEH, Saeed (University of Rome Tor Vergata); Dr PARRACINO, Stefano (University of Rome Tor Vergata); Dr GABBARINI, Valentina (University of Rome Tor Vergata)

Presenter: Dr GAUDIO, Pasquale (University of Rome Tor Vergata)