

## Day 1

### Am - NATO ARW ONLY

9:00 - 9:30 - Opening ceremony/organization details/refund procedure explained/details of proceedings publication

#### ***State of Art in detection of explosives, CBRNs and dual use diagnostics***

9:30 - 10:00 - invited Key speaker - Frank Tittel - Detection of explosives and hazardous substances with compact mid-infrared semiconductor laser based chemical sensing technologies

10:00 - 10:30 - invited Key speaker - X.-C. Zhang - Recent research on standoff sensing of CBRN with THz waves

10:30 - 11:00 - invited Key speaker Gregory Nusimovich - The concept of a high-power THz system for remote detection of concealed radioactive materials

#### **Coffee Break**

11:30 - 12:00 - invited Key speaker - Norbert Palka - THz detection and identification of dangerous objects and substances.

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12:00 - 12:30 - Key speaker – Anatoli Sidorenko- Far infrared system for detection of explosives and CBRN agents for post office security

12:30 - 13:00 - invited Key speaker – Francesco Palma - IR-THz combined spectrometry for medicine and security systems

#### **Lunch 13:00 – 15:00**

15:00 - 15:30 - invited Key speaker - Wojciech Knap, Physical Limits of Plasma Field Effect Transistor Detectors used for THz sensing of Explosives and CBRN

15:30 - 16:00 - Key speaker Lilian Sirbu - Integrating THz sensors/structures through Electro wetting in Dielectrics (EWOD) for Security Applications

16:00 - 16:30 - invited Key speaker - Hakan Altan - Compressive Sensing for the Detection of Concealed Objects

#### **Coffee Break**

### START OF THE JOINT WORKSHOP COST ACTION MP1204 TERA-MIR Workshop on THz Detection and Diagnostics overlapping with the NATO ARW

#### ***Quantum Cascade Lasers and their applications to sensing***

17:00 - 17:30 - invited Key speaker - Manijeh Razeghi - World's first mW power, room temperature, continuous wave 3.5 THz diode laser, based on QCL difference frequency generation

17:30 - 18:00 - invited Key speaker - Karl Unterreiner - Phase-locked spectroscopy of THz QCLs

**18:00 - 18:30** - invited Key speaker - Qing Hu - THz Quantum Cascade Lasers and applications

**18:30 - 19:00** - invited Key speaker - Federico Capasso - Broadly tunable quantum cascade laser arrays for sensing applications

**19:00 – 20:00 Poster Session**

**20:00 Dinner**

## **Day 2**

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**9:00 - 9:30** - invited Key speaker – Jerome Faist – Mid-Infrared and THz quantum cascade laser frequency combs and their applications

**9:30 - 10:00** - invited Key speaker - Andreas Wacker - Optimizing THz Quantum Cascade Lasers

**10:00 - 10:30** - invited Key speaker - Antoine Mueller - Advances in QCLs optimized for chemical sensing

**10:30 - 11:00** - invited Key speaker - Edmund Linfield - The development and applications of terahertz quantum cascade lasers

**11:00 - 11:30** - Speaker Miriam Vitiello – Engineering Quantum Cascade Lasers as a low divergence and narrow-linewidth source across the infrared

**Coffee Break**

pm

### ***Beyond Quantum Cascade Lasers: Competing Materials and Technologies for THz and Mid Infrared Radiation Detection and Applications***

**12:00 - 12:30** Key speaker- Elliott Brown - Sensitivity and Selectivity in the THz Spectroscopy of Bio particles and Biomolecules

**12:30 - 13:00** invited Key speaker Jeffrey Hesler - Solid-state THz Transceiver Development for Spectroscopic Detection Systems

**13:30 - 14:00** invited Key speaker - Arunas Krotkus - THz emission from bulk and nanowire semiconductor surfaces

**Lunch 14:00 – 15:00**

**15:00 - 15:30** invited Key speaker Peter Uhd Jepsen - Ultrabroadband linear and nonlinear THz spectroscopy of molecular crystals

**15:30 - 16:00** invited Key speaker - Chiko Otani - THz Spectroscopy of Polymers and Soft materials

**16:00 - 16:30** invited Key speaker - Feo Kusmartzev - THz generation by means of nonlinear effects of a linear resonator

**16:30 - 17:00** invited Key speaker – Alessandro Tredicucci - Device concepts for graphene-based terahertz photonics

**Coffee Break**

**17:30 - 18:00** invited key speaker Carlo Sirtori - Mid-infrared superradiant emission from low-dimensional plasmons

**18:00 - 18:30** invited Key speaker - Mircea Guina - GaAsBi THz emitters grown by Molecular Beam Epitaxy

**18:30 - 19:00** invited Key speaker - Martin Koch - Devices to guide and to manipulate THz waves

**19:00 - 19:30** invited Key speaker - Lutfi Ozyuzer - Detection of Terahertz Waves from High Temperature Superconducting Bi<sub>2</sub>Sr<sub>2</sub>CaCu<sub>2</sub>O<sub>8+d</sub>

**20:00 – Dinner**

## Day 3

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**9:00 - 9:30** invited Key Speaker - Johan Stiens - THz Wave Sensing @ ETRO-VUB: Beyond the Conventional Limits

**9:30 - 10:00** Key speaker - Mauro Fernandes Pereira – Microscopic Theory for the Interaction of THz Radiation with Semiconductor Materials – from Bulk to Nanostructures

**10:00 - 10:30** invited key speaker - Guido Guiliani - Monolithic emitter/detector of tunable mm/THz-waves based on photomixing with integrated photonic circuit

**Coffee Break**

**11:00 - 11:30** invited key speaker - Roberto Morandotti - Novel Devices and Components for THz Applications

**11:30 - 12:00** invited key speaker - Traian Dascalu - High Energy THz Pulses for Pump-Probe Experiments on Picoseconds Range Timescale

pm

**12:00 - 12:30** invited key speaker - Yehuda Leviatan - Design Aspects of Antennas for THz Bolometers

**Lunch 13:00 – 15:00**

**15:00 - 20:00** *half-day devoted to formulating workshop conclusions and recommendations*, starting with a roundtable in MIR and THz applications in security area problems/possible science for peace proposals. This discussion will go hand in hand with the "**Forum: From Academia to Industry**" in which research intensive industrial partners can propose pathways for turning fundamental science presented in the Workshop into concrete development projects for commercialization and where they can further express their "industrial wish list" of problems that they feel that the academic partners can solve to support their current projects and future commercial endeavours. We already have the following confirmed industrial representatives: New Tera Tech (NTT) (Italy), Alpes Lasers (Switzerland), Virginia Diodes (USA), Julight (Italy) and TeraVil (Lithuania). They will deliver important talks in the program and take part in the forum.

**20:00 Dinner**

**10 June 2014 - Departure**

The Poster Sessions will have contributions from Armenia, Azerbaijan, Tunisia, Ukraine and Uzbekistan as well as contributions from MP1204 ESRs to be selected by the Conference Committee.