EPIC B2B Roundtable Meeting

The event is organized by EPIC, hosted by SELEX and Elettronica.

High Resolution Imaging for Security and Defence

Distinguishing military targets and combatants from civilians is crucial in operations. To achieve high resolution imaging, experts will present emerging technologies in Photonics of great potential for instance in large focal plane arrays, gated viewing, distributed apertures or dynamic super resolution, and other suggestions.

10 June 2014

12:00: Lunch and company visit Elettronica
Address: Via Tiburtina Km 13,700 - 00131 Rome

12:00 Welcome and registration at Elettronica
12:30 Sandwich lunch
13:00 Elettronica company presentation
13:30 Elettronica company visit
14:30 Departure to SELEX

15:00: EPIC B2B Roundtable and company visit to Selex
Address: Via Tiburtina Km. 12,400 - 00131 Rome

Welcome presentation by Selex

- **On board image processing requirement for high resolution airborne sensor**
  Jean-Claude Fontanella, Thales (France)
- **Technology trends for infrared detectors for military applications**
  Rolf Muenter, AIM INFRAROT-MODULE (Germany)
- **High resolution Iimaging in the IR: Simulation and image enhancement algorithms**
  Helge Bürsing, Fraunhofer IOSB (Germany)
- **Type II super lattice for high resolution IR imaging**
  Fredrik Sjöström, IRnova (Sweden)
- **High resolution long focal length objectives**
  Andres Cifuentes, ASE Optics (Spain)
- **Imaging lidar camera capable of measuring mid-range and very high spatial resolution 3D images**
  Jordi Riu, UPC-CD6 (Spain)
- **Research topics on passive and active high resolution imaging**
  Judith Dijk, TNO (The Netherlands)

18:00 Transfer by shuttle bus to Rome

20:00 Dinner at "il pomodorino", Via Campania, 45/e 00187 Roma, Tel. 06 42011356

22:00 Return by shuttle to OC Hotel Roma

Registration and Fee
Participation is limited to 40 attendees. 1 representative per company except system integrators. EPIC members and system integrators: 95 EUR. Non-Member 325 EUR. Register online at www.epic-assoc.com/events

Aerospace & Defence http://www.linkedin.com/groups/Aerospace-Defence-65111/about

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EPIC is the industry association that promotes the sustainable development of organisations working in the field of photonics in Europe. Our members encompass the entire value chain from LED lighting, PV solar energy, Photonic Integrated circuits, Optical components, Lasers, Sensors, Displays, Projectors, Optic fiber, and other photonic related technologies. We foster a vibrant photonics ecosystem by maintaining a strong network and acting as a catalyst and facilitator for technological and commercial advancement. EPIC works with its members to build a more competitive photonics industrial sector, capable of both economic and technological growth.

SPEAKERS

"On board image processing requirement for high resolution airborne sensor" by Jean-Claude Fontanella, Thales (France)

The continuous increase of focal plane array size leads to dramatic increase of image flow in airborne sensors. Data link and image interpreters are then overburden. On-board image processing can reduce this flow. Starting from Reco-NG airborne reconnaissance pod, example and preliminary requirements are presented and discussed. www.aim-ir.com

Member of EPIC

AIM

"Technology trends for infrared detectors for military applications" by Rolf Muenter, AIM INFRAROT-MODULE (Germany)

The general rule is that only those people fighting you are legitimate targets of attack. Modern Infrared-Detectors support these efforts by distinguishing the military targets from civilian. To perform this task, the soldier needs to have a lightweight system, providing the right information from safe distance in excellent quality. To discriminate between persons with weaponry or just tools or to identify a threat in the IR, optronic sights need to be 2 to 10 times better in resolution than for a tank as reference target in symmetric warfare. The market is looking for reduced size and weight, less power, higher resolution, intelligent wavebands.

"High resolution Iimaging in the IR: Simulation and image enhancement algorithms" by Helge Bürsing, Fraunhofer IOSB (Germany)

In the presentation high resolution imaging with respect to atmospheric limitations will be discussed. Image simulation and image enhancement algorithms will be presented and their advantages and disadvantages will be considered.

"Type II super lattice for high resolution IR imaging" by Fredrik Sjöström, Sales Manager, IRnova (Sweden)

IRnova T2SL technology has advantages for the development of high resolution IR-detectors through smaller pixel pitch with kept high quantum efficiency. This in combination with higher operating temperatures and low cost production provides great advantages for new high resolution IR-detectors for SW (Short Wave), MW (Mid Wave) and LW (Long Wave). Due to the broadbanded nature of T2SL it will also enable solutions for future high resolution Dual band detectors.

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ase OPTICS EUROPE

A Rochester Precision Optics Company

"High resolution long focal length objectives" by Andres Cifuentes, ASE Optics (Spain)

Current development of SWIR detectors makes this waveband suitable for surveillance applications, especially in a marine or hazy environment due to its higher penetration. This waveband has important advantages when high resolution is needed for recognition purposes. We propose a family of High Resolution Long Focal Length Objectives designed for 1280x720x12.5microns megapixel detectors, that are compact and ruggedized for unmanned airborne applications. www.aseoptics.eu

Member of EPIC

Centre for Sensors, Instruments and Systems Development
UNIVERSITAT POLITÈCNICA DE CATALUNYA

"Imaging lidar camera capable of measuring mid-range and very high spatial resolution 3D images" by Jordi Riu, UPC-CD6 (Spain)

We present an innovative imaging lidar camera capable of measuring mid-range and very high spatial resolution 3D images. The proprietary scanning system provides dense point clouds up to megapixel level which represent 50 times more spatial resolution compared to well-known flash ladar systems. At the same time, the system is reconfigurable by software so frame-rate and spatial resolution may be reconfigured on real time depending on the operative needs. The system also provides tolerance to bad weather environment through a specially designed CMOS time-to-digital converter. The present stage of prototype development, and performance estimations, will be presented, with pilot testing of the camera possible in September 2014. www.cd6.upc.edu

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TNO innovation for life

"Research topics on passive and active high resolution imaging" by Judith Dijk, TNO (The Netherlands)

Electro-optical (EO) passive and active sensors are the only means to provide direct visual information for recognition and identification purposes. They are essential tools for important capabilities as situational awareness, increasing detection range, improving target identification, and automatic target recognition. High spatial resolution can be interpreted most intuitively by human operators and be used in the automated target detection/recognition processes. However, at present limitations are set by resolution aspects of the EO sensors as well as atmospheric turbulence. To improve the performance of these EO sensors several challenges can be defined. The general objective is to improve high resolution imaging techniques for improvement of Detection, Recognition and Identification capabilities for EO/IR sensors, especially by optimization techniques for spatial resolution, so that these capabilities can be optimally used in present and future theatres for air, land and sea applications. We focus on various wavelength ranges, EO and UV (solar blind), UV, Visible, and IR up to LWIR (14 micrometer). In this talk we give an overview of these topics. www.tno.nl

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ICFO
The Institute of Photonic Sciences

"Technology on super-resolution novel design combining lens-free microscopy, CCD or CMOS image sensing for environment situational awareness sensors" by Marc Jofre, ICFO (Spain)

Abstract to be received on technology on super-resolution novel design combining lens-free microscopy, CCD or CMOS image sensing for environment situational awareness sensors.
www.icfo.es

PARTICIPANTS


Vincenzo Rinaldi, Technical Project Officer on Optronics (Europe)

The **EUROPEAN DEFENCE AGENCY** is an agency of the European Union based in Brussels, Belgium. Set up in 2004, it is a Common Foreign and Security Policy body reporting to the Council of the European Union. Its primary role is to foster European defence cooperation. eda.europa.eu

Holger Mundt, Deputy Director for Simulation, Reconnaissance and Sensors (Germany)
Test Center for Weapons and Ammunition
Bundeswehr, German CNC EOST

Zoë Williams, CEO, **Carlton Connections** (United Kingdom)


Carlton Connections specialises in helping technology companies do business with international organisations and markets, such as NATO, EDA, European MoDs as well as other organisations, particularly in Defence and Security. Carlton Connections cuts through the complexity of organisational structures, processes and strategic drivers to revolutionise a company's approach and to achieve business success in the challenging world of C4ISR and associated sectors, globally and nationally. The company is run by Zoë Williams, a well-known character in the international defence and security circuit, with extensive international experience and a global network.

ELT – Elettronica (Italy)
ELT studies and develops new technologies and projects to be applied to Electronic defence systems. ELT offers systems with adequate technical performances and takes care of the technological evolution of its products and develops new ones. It integrates them, both together and with other sensors or contrasting and telecommunications means, and installs them on customer platforms: ships, aircraft and land vehicles. It handles configuration and integrated logistics support. It processes and supplies operating support systems enabling customisation of scenario analysis and ECM contrast functions, related to the different operating needs (intelligence, tactical sensoristics, self-protection, SEAD, mutual and wide range protection).

- Raffaella Mazzoli, EO Project Manager, Product Innovation & Advanced EW Solutions area
- Alessandro Albertoni, EO Project Manager, Product Innovation & Advanced EW Solutions area
- Giorgio Mazzi, EO Project Manager, Product Innovation & Advanced EW Solutions area
- Andrea Usai, EO Project Manager, Product Innovation & Advanced EW Solutions area
- Antonio Tafuto, EO area Manager, Product Innovation & Advanced EW Solutions area
- Marco Bartocci, HW Development , Project & Product Engineering & Development area
- Federica Luciani, Procurement Engineer, Procurement & Supply Management area
- Patrizio Ciuffa, EO Project Manager, Product Innovation & Advanced EW Solutions area

Finmeccanica (Italy)

- 
Mauro Varasi, Corporate Technology Officer
- Ennio Giaccari, Senior Advisor

 Armando Orlandi, CEO ITS Srl (Italy)

Progetti Speciali Italiani Srl (**PSI**) has been incorporated along the 2006 with the convincement that the deep change in Italy on the Aerospace Sector need a modification also of the industrial structure. With this in mind e group of manager with deep experience in the Aerospace Sector incorporated **PS**I with the mandate to operate in the following areas: Aerospace, Defence, Homeland Security, Energy.

Rheinmetall Defence Electronics (Germany)
Hans-Wilhelm Warnke, Head of R&T Coordination, Air Defence & Naval Systems
Brüggeweg 54, D-28309 Bremen, Germany

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SEE FAST TECHNOLOGIES

Eric Dréan, CEO, **See Fast Technologies**

See Fast Technologies designs, manufactures and sells smart high speed cameras. High speed: from 200 to 500 frames per second in full resolution, and more with ROI. Smart: an FPGA, Field Programmable Gate Array, embedded inside the camera, to authorize in real time, ultra high speed image processing (at the camera frame rate) The purpose of our products: To offer the possibility to achieve real time image processing during high speed shooting, in order to reduce the amount of data transmitted and to make the following possible: real time data transfer through standard interfaces like USB2 or Ethernet, achieve high speed feedback loop, long time recording on standard PC. Our engineers are specialized in: VHDL programming for FPGA, GUI (Graphical User Interface) design, design of electronic cards for images processing. With these skills, we propose, with specifications and based on our products, the following services: development and integration of custom algorithms, development of custom GUI, dedicated intelligent or smart high speed or high resolution camera design. www.seefastechnologies.com

SELEX ES is a large international supplier with an extensive portfolio of electronic and information solutions for defence, aerospace, space, security high-integrity surveillance, network management, information security and mission-essential services. In relation to the OPTRO 2014 conference, we are a world leading supplier of sensors and systems, including surveillance and fire control radar and advanced electro-optical/infrared surveillance, platform protection and targeting systems.

-  Giorgio Gulienetti, CTO, Head of International Projects & Grants
-  Antonio Porta, Head of Imagers
-  Alessandro Garibbo, CTO Head of Technical Scouting

-  Stuart Duncan, Head of Capability – Electro Optics
-  Sergio Vicàri, Relations with Universities - office of the CTO
- Alessandro Mura, Head of Integrated Demonstration Tools & Rooms

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Marc Larive, Marketing Manager (France)

SOFRADIR is the leading developer and manufacturer of highly advanced infrared (IR) detectors for military, space and industrial applications. Its vast IR product portfolio covers the entire spectrum from the visible and near infrared to very far infrared. Sofradir pioneers developments in cooled IR detectors based on a sophisticated high performance technology, Mercury Cadmium Telluride (MCT) to which Indium Antimonide (InSb), Indium Gallium Arsenide (InGaAs) and Quantum Well Infrared Photodetector (QWIP) technologies are now added. Many of the world's missile seekers, targeting pods, armored vehicle cameras, handheld goggles and other airborne, naval and ground vehicle applications use Sofradir's military-grade, battlefield proven IR equipment. Sofradir holds the unique position as the only maker of IR detectors in Europe to be space-qualified. www.sofradir.com

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Thierry Robin, Partner, **TEMATYS**

Tematys provides a complete range of services to companies and public organizations in the fields of optics, photonics, sensors and material Engineering. Our clients are companies of any size, from international groups to SMEs and start-up. We have also developed a special expertise in R&D valorization and marketing of emerging technologies for Research Organizations and Laboratories. We provide strategic views on optics and photonics markets for publics for clusters and publics agencies. www.tematys.com