InfraRed detection for Space Applications IRSA 2025

3rd workshop

17th to 19th, June 2025

TOULOUSE, France

DIAGORA, CENTRE DE CONGRÈS ET D'EXPOSITION
150 Rue Pierre Gilles de Gennes, 31670 Labège

Co-organised by CNES, ESA, LABEX FOCUS, ONERA, CEA-LETI, ISAE-SUPAERO, AIRBUS DEFENCE & SPACE, THALES ALENIA SPACE

FINAL PROGRAM

InfraRed detection for Space Applications
IRSA 2025

17th- 19th June 2025

CNES, ESA, ONERA, CEA-LETI, Labex Focus, ISAE-SUPAERO, Airbus Defence & Space and Thales Alenia Space are pleased to inform you that they are organising the 3rd workshop dedicated to InfraRed detection for Space Applications **IRSA 2025**, that will be held in Toulouse from 17th to 19th, June 2025 in the frame of the Optics and Optoelectronics Technical Expertise Community (COMET).

The aim of this workshop is to focus on Infrared Detectors technologies and components, Focal Plane Arrays and associated subsystems, control and readout ASICs, manufacturing, characterization and qualification results. The workshop will only address IR spectral bands between 1µm and 100 µm.

Due to the commonalities with space applications and the increasing interest of space agencies to qualify and to use COTS IR detectors, companies and laboratories involved in defence applications, scientific applications and non-space cutting-edge developments are very welcome to attend this workshop.

ORAL PRESENTATIONS

The workshop official language is English (oral presentation and posters).

The authors are requested to prepare their presentation in PDF or PowerPoint format, to be presented at the workshop. Presentations shall be limited to 15 minutes + 5 minutes for questions.

The presentations must be received before the June, 12th. (anne.rouvie@cnes.fr and matthew.soman@esa.int)

Authors are also required to provide a version of their presentation to the organization committee along with an authorization to make it available for Workshop attendees and on-line for COMET members. No proceedings will be edited therefore no detailed manuscript needs to be submitted.

POSTER SESSION

One poster session will happen but the posters can remain displayed during the complete workshop.

Any participant is welcome to display a poster as support for informal discussions. Please contact the organization committee if you wish to expose your work and trigger discussions around it.

EXHIBITION

Several booths will be available during the workshop. If you are interested, please contact the organization committee. Price will be fixed based on the numbers of exhibitors.

SCHEDULE

Call for abstracts	December 2024
Abstracts due date	28th February 2025
Authors notification & preliminary program	15th April 2025
Final program	16th May 2025
Workshop	17th to 19th June 2025

REGISTRATION

CNES, ESA, Labex FOCUS, ONERA, CEA-LETI, Airbus Defence & Space and Thales Alenia Space will sponsor the workshop. Registration fee covers coffee breaks and lunches for the 3 days and the welcome cocktail.

Attendee	120 €
Student discount	60 €

On-line registration is here available: https://evenium.events/infrared-detection-for-space-applications-2025/

This online registration requires several steps:

- On line Pre-registration

- You will be notified that the pre-registration is accepted and invited to pay the registration fee by credit card

- You will be notified that the registration is completed and will receive an invoice

During the registration process, you will be asked if you plan to take part to the IEEE Student branch event on Wednesday evening (see flyer on last page). Your answer will be used to size the cocktail, thanks in advance for your responsible answer!

ORGANIZATION COMMITTEE

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Comet link: https://www.comet-cnes.fr/liste-evenements-futur/ooe

Tuesday, June 17th - Program

Schedule	*Ref*	*Title*	*Presenter / Session chair*	*Organisation*
08:45 - 09:15		Welcome and coffee		
09:15 - 09:25		**Introduction**	**Cédric VIRMONTOIS**	**CNES**
Session	**1**	**Infrared Activities by Space Agencies**	**Cédric VIRMONTOIS**	**CNES**
09:30 - 09:50	1-1	Infrared detector development supported by the European Space Agency	Matthew SOMAN	ESA
09:50 - 10:10	1-2	Infrared detectors at CNES: status and prospects	Hervé GEOFFRAY	CNES
Session	**2**	**MWIR/LWIR Detectors**	**Olivier GRAVRAND**	**CEA-LETI**
10:15 - 10:35	2-1	T2SL and QWIP HD detectors at IRnova for MWIR, LWIR and polarimetric imaging	Linda HOGLUND	IRnova
10:35 - 10:55	2-2	Infrared detectors and technologies Leonardo Long wave infrared detectors status	Vinita MITTAL	Leonardo
10:55 - 11:15	2-3	New developments of VLWIR Infrared sensors for space applications at Lynred	Jocelyn BERTHOZ	LYNRED
11:15 - 11:35	2-4	A new generation of MCT-based p-on-n technology for focal-plane arrays ranging from SWIR to VLWIR	Clément LOBRE	CEA-LETI
11:35 - 11:55		Exhibition presentation		
11:55 - 13:25		*Lunch*		
13:25 - 13:45	2-6	Measurement of RTS populations on II-VI and III-V FPA	Antoine CLARET	CEA-LETI
13:45 - 14:05	2-7	Study of traps activity in MWIR HgCdTe and T2SL using bias variations of a DI focal plane array	Hugo ROUSSET Titouan LE GOFF	CEA-LETI
14:05 - 14:25	2-8	Simulation Model of Electrical and Electro-Optical Performances of Mid-wave Infrared Ga-free T2SL Barrier Photodetector.	Imane DAZZAZI	Open University
14:25 - 14:45	2-9	First characterization results of two infrared engineering grade detectors in the MWIR/LWIR band for the ARIEL space mission	Clara BATAILLON	CEA-IRFU
14:45 - 15:05	2-10	Trishna Cryogenic Subsystem and Related Thermal IR Detection Chains	Sébastien LE FOLL	ADS
15:05 - 15:25	2-11	MTG FCI and IRS-DEA: Overview of IR performance	Nadège REMOUE	TAS
15:25 - 15:45	2-12	Cryogenically Cooled Large Format Midwave Infrared (MWIR) Sensor System for Small Satellite Payloads	Atul JOSHI	SAAZ
15:45 - 16:15		*Coffee break*		
Session	**3**	**Components and sub-systems**	**Matthew SOMAN**	**ESA**
16:20 - 16:40	3-1	Performance of SWaP rotary coolers for space application	Charlotte DESCARGUES	THALES-CRYO
16:40 - 17:00	3-2	Thin film multilayer infrared coatings for space environment	Dragan STOJCEVSKI	HEF-Kerdry
17:00 - 17:20	3-3	Development of black absorber coating for NIR spectral range	Colin BONDET	CILAS
17:20 - 17:40	3-4	Pyxel 2.0: collaborative detector and instrument modelling brought to the next level	Eloy HERNANDEZ	ESA
17:40 - 18:00		Pyxel 2.0: Demonstration and Training session	E. HERNANDEZ, F. LEMMEL, V. AFFATATO	ESA
18:00 - 20:00		*Cocktail and posters session*		

Wednesday, June 18th - Program

Schedule	*Ref*	*Title*	*Presenter / Session chair*	*Organisation*
Session	**4**	**Innovative Detector Technologies**	**Antoine SALIH ALJ**	**ISAE-SUPAERO**
08:35 - 09:15	4-T	**Nanocrystals based infrared detection and imaging**	**Emmanuel LHUILLIER**	**Univ Sorbonne**
09:15 - 09:35	4-1	Characterization of SWIR Camera based on Colloïdal Quantum Dots for Space Application	Alexandre NEYRET	ISAE-SUPAERO
09:35 - 09:55	4-2	Enabling manufacturing technologies for disruptive short-wave infrared image sensors	Pawel MALINOWSKI	IMEC
09:55 - 10:15	4-3	Technological Concepts for Broad- and Narrow-Band Absorbers in Uncooled Thermal Imagers Visualizing MWIR and LWIR	Dirk WEILER	Fraunhofer IMS
10:15 - 10:45		*Coffee break*		
Session	**5**	**SWIR Detectors**	**Nadège REMOUE**	**TAS**
10:50 - 11:10	5-1	Status Report on Teledyne's High Performance Visible and Infrared Spaceflight FPAs for European Space Missions	Jérôme PRATLONG	Te2v
11:10 - 11:30	5-2	Latest developments of SWIR detectors for space applications at LYNRED	Alexandre GAUCHER	LYNRED
11:30 - 11:50	5-4	Characterizing Persistence and Anti-Persistence in Euclid H2RG Detectors: Initial Findings and Environmental Dependencies	Naomie DE ARAUJO	CPPM
11:50 - 12:10	5-5	CAGIRE Camera's ALFA Detector: Characterization and Scientific Performance	Marie TOURNEUR-SILVAIN	CPPM
12:10 - 13:40		*Lunch*		
13:40 - 14:20	5-T	**Technologies for extended SWIR imaging**	**Jean-Luc REVERCHON**	**III-Vlab**
14:20 - 14:40	5-6	Extended SWIR type-II superlattice detectors at Irnova	David RAMOS	IRnova
14:40 - 15:00	5-7	Optimization of an InGaAs/GaAsSb on InP superlattice for extended SWIR: a comprehensive study from Photodiode to Focal Plane Array	Jordi ROUBICHOU	LAM
15:00 - 15:20	5-8	Dark-Current Random Telegraph Signal in InGaAs Image Sensor for SWIR domain	Marco BENFANTE	CNES
15:20 - 15:40	5-9	SIRIS : The new, fast, ultra-high dynamic, and very low noise SWIR camera	David DARSON	LPENS-LYTID
15:40 - 16:10		*Coffee break*		
Session	**6**	**Radiations Effects**	**Clémentine DURNEZ**	**CNES**
16:15 - 16:35	6-1	The InGaAs detector for the Venus Emissivity Mapper on VERITAS and EnVision – A radiation qualification	Andreas POHL	DLR
16:35 - 16:55	6-2	Proton Radiation Effects on a Long-Wave HgCdTe Infrared Sensor at Cryogenic Temperature	Thibaud FRIESS	CEA-LETI
16:55 - 17:15	6-3	Radiation effects on both II-VI and III-V infrared detectors	Nicolas PÈRE-LAPERNE	LYNRED
17:15 - 17:35	6-4	Proton radiation measurements on a HOT MWIR T2SL COTS focal plane array in IDDCA configuration	Sylvie BERNHARDT	ONERA
17:35 - 17:55	6-5	Dark current simulation and understanding of proton-irradiated midwave infrared T2SL barrier photodetectors	Hassen MEZOUAR	IES
17:55 - 19:55		*Student event*		

Thursday, June 19th - Program

Schedule	*Ref*	*Title*	*Presenter / Session chair*	*Organisation*
Session	**7**	**ROICs and ASICs**	**Denis MARCHAIS**	**ADS**
08:35 - 09:15	7-T	**Evolution of readout integrated circuits (ROICs): past, present, and future**	**Atul JOSHI**	**SAAZ**
09:15 - 09:35	7-1	Exploration of Hot Carrier Injection mechanism impact of Infrared Focal Plane Array, ROIC operated at cryogenic temperature	Valentin BADEFORT-BARIL	ISAE-SUPAERO
09:35 - 09:55	7-2	Electrical and Lifetime Model developments for Cryogenics ROIC Design at ISAE-SUPAERO	Ayoub EL-ABDI	ISAE-SUPAERO
09:55 - 10:15	7-3	Digital Pixel Sensor for very-high Full-Well charge capacity	Martin LAPEYRE	ISAE-SUPAERO
10:15 - 10:45		*Coffee break*		
10:45 - 11:05	7-4	Infrared FPA Readout with the NIRCA MkII ASIC	Amir HASANBEGOVIC	IDEAS
11:05 - 11:25	7-5	Advances in application specific integrated circuit (ASIC) technology for space imaging applications	Atul JOSHI	SAAZ
Session	**8**	**Detectors characterization and signal processing**	**Sylvie BERNHARDT**	**ONERA**
11:30 - 11:50	8-1	Tests strategies development for space applications at LYNRED	Lilian MARTINEAU	LYNRED
11:50 - 12:10	8-2	Pixel modular transfer function measurement by continuously self-imaging grating : extension to quasi-monochromatic measurement	Pierre ARRONDEAU	ONERA
12:10 - 12:30	8-3	A new probe for PSF and MTF measurements on infrared focal plane arrays: Electron Beam Induced Current	Nicolas BAIER	CEA-LETI
12:30 - 14:00		*Lunch*		
14:00 - 14:20	8-4	Refining Non-Uniformity Correction of IR cameras using a physics-based model	Paul DATIN	TLAS
14:20 - 14:40	8-5	In-orbit linearity calibration concepts	André BÖDDEKER	ADS
14:40 - 15:00	8-6	CAGIRE : near-infrared image pre-processing for the detection of faraway gamma-ray bursts.	Francis FORTIN	IRAP
15:00 - 15:30		*Coffee break*		
Session	**9**	**Avalanche Photodetectors**	**Fabien MALBET**	**ESA**
15:35 - 15:55	9-1	InGaAs Detectors for Space: recent developments	Denis BOIREAU	Excelitas
15:55 - 16:15	9-2	Infrared detectors and technologies Leonardo Short Wave Avalanche Photo diodes	Vinita MITTAL	Leonardo
16:15 - 16:35	9-3	ESA's First Characterisation of the IBEX 2k x 2k MCT LAPD Detector for Scientific Space Missions	Vincent AFFATATO	ESA
16:35 - 16:55	9-4	HgCdTe APDs for linear mode single photon detection	Arthur CHARRIER	CEA-LETI
16:55 - 17:15	9-5	The High Alps project : on the path for a commercial offer of high operating temperature HgCdTe APD detectors for FSO and Lidar	Johan ROTHMAN	CEA-LETI
17:15 - 17:30		Workshop closure		

INFRARED DETECTION FOR SPACE APPLICATIONS