OPTRO2020 PROGRAMME

15-janv-20

DAY 1 - TUESDAY 28 JANUARY 2020

09:00	**REGISTRATION – MORNING COFFEE**
	CC1-3 **PLENARY SESSION**
	WELCOME ADDRESSES
09:40	**Louis LE PORTZ** , President of 3AF, FR **Claudine BESSON**, OPTRO 2020 General Chair - ONERA, The French Aerospace Lab, FR
	OPTRO 2020 HONORARY PRESIDENT KEYNOTE ADDRESS Introduced by **Michel SCHELLER,** Honorary President of 3AF, FR
09:50	**Emmanuel CHIVA**, Director - Defense & Innovation Agency AID, FR
	INTRODUCTION TO OPTRO 2020
10:10	**"Scientific Perspectives - Special Fibers"** **Prof. Philip RUSSELL**, Director - Max Planck Institute for the Science of Light MPL, DE
	KEYNOTES ADDRESSES Chair: **Claudine BESSON**, OPTRO 2020 General Chair
10:50	**"EDA research and technology development for EU defence"** **Jean-François RIPOCHE,** Research, Technology and Innovation Director - European Defence Agency EDA, EU
11:10	**"The European Defence Fund: boosting Europe's defence R&D capacity"** **Erno VANDEWEERT** - DG Defence Industry & Space – European Commission, EU
11:30	**"Sensor Component Investments for Tactical Army Imaging"** **Dr. Michael GROENERT,** Science & Technology Director - Night Vision and Electronic Sensors Directorate NVESD, US Army, US
11:50	"**The Extremely Large Telescope: the future of European ground-based astrophysics"** **Dr. Michele CIRASUOLO,** Programme Scientist of the European Extremely Large Telescope ELT - European Southern Observatory ESO, EU
12:10	**"Perspectives on hyperspectral imaging"** **Dr. Ingmar RENHORN** - Renhorn IR Consultant AB, SE
12:30	**LUNCH BREAK**
	KEYNOTES ADDRESSES Chair: **Jacques LONNOY,** 3AF Optronics Technical Committee
14:30	**"Optronics and image exploitation : prospects, challenges and current achievements "** **Prof. Marc EICHHORN**, Director, Photonics and Optronic Systems Division - Fraunhofer IOSB, DE
15:00	**"Photonics and Optronics for Future Defence Sensing"** **Dr. Paul KEALEY**, Division Head for Cyber and Information Systems - Defence Science and technilogy Laboratory DSTL, UK
15:30	**"Fiber-optic sensors : Research on new tools for defence applications"** **NATO: Dr. Gianluca GAGLIARDI,** Head of INO-CNR **& Dr. Angelo VOLPI,** Space, Security and Defence R&D Officer, CNR, IT
16:00	**COFFEE BREAK & EXHIBITION**
	SYMPOSIUM ROUND TABLE Chair: **Jean-François COUTRIS,** co-President of the 3AF Optronics Technical Committee
16:30	**"Optronics for Defence & Space - A unique technology"** **Capt R. THOMAS -** French Navy EMM, FR **Lt Col C. BERTHILLOT,** Programme Officer - French Joint Space Command CIE, FR **Lt Col D. PAPPALARDO -** French Air Force EMAA, FR **Lt Col F. DEVOUGE -** Special Operations COS, FR
18:00	**END OF FIRST DAY PROGRAMME**
20:00	**OPTRO2020 DINNER (Optional)**

DAY 2 - WEDNESDAY 29 JANUARY 2020

	ROOM 1 (CC7)	ROOM 2 (CC5)	ROOM 3 (CCauditorium)
	SENSORS AND COMPONENTS - 1	**IMAGING AND SYSTEMS - 1**	**LASER SENSOR AND SYSTEMS - 1**
Chair	**Pierre CASTELEIN, CEA-LETI, FR**	**Dietmar LETALICK, FOI, SE**	**Mark SILVER, Thales, UK**
08:30			
	10 **Developments towards very small pitch HgCdTe focal-plane-arrays** S. BISOTTO, J. ABERGEL, B. DUPONT, A. FERRON, O. GRAVRAND, O. MAILLIART, J.A. NICOLAS, S. RENET, F. ROCHETTE, J.L. SANTAILLER, A. YÈCHE CEA, FR	86 **HGTE nanocrystals for the design of SWIR focal plane arrays** C. GREBOVAL (1), S. FERRE (2), V. NOGUIER (2), A. CHU (1), B. MARTINEZ (1), C. LIVACHE (1), Y. PRADO (1), G. VINCENT (3), E. LHUILLIER (1) (1) Sorbonne Université, CNRS, Institut des NanoSciences de Paris, INSP, FR, (2) New Imaging Technologies SA, FR (3) ONERA, FR	49 **Coherent combining of optical parametric oscillators: challenges and experimental demonstrations** P. BOURDON , R. CHTOUKI, L. LOMBARD, C. PLANCHAT, M. RAYBAUT , A. GODARD, A. DURÉCU ONERA, FR
08:50			
	66 **Status of science detectors developments at Lynred and CEA** A. LAMOURE (1), B. FIEQUE (1), G. BADANO (2), O. GRAVRAND (2), O. BOULADE (3) (1) Lynred, FR, (2) CEA-LETI, FR, (3) CEA-IRFU, FR	70 **Multi-user wide field stereovision system with infrared technology for rotorcrafts navigation in Degradred Visual Environement** C. PEYROT, T. JAKOWLEFF, P. VAQUETTE, L. HURÉ, E. KLING Safran Electronics & Defense, FR	14 **Femtosecond Coherent Beam Combining of 61 Fiber Amplifiers** J.C. CHANTELOUP (1), I. FSAIFES (1), L. DANIAULT (1), S. BELLANGER (1), M. VEINHARD (1), J. BOURDERIONNET (2), C. LARAT (2), E. LALLIER (2), E. DURAND (3), A. BRIGNON (2) (1) Ecole Polytechnique, FR, (2) Thales TRT, FR, (3) Thales LAS, FR
09:10			
	65 **ROIC glow reduction in very low flux short wave infra-red focal plane arrays for astronomy** T. LE GOFF (1), N. BAIER (1), O. GRAVRAND (1), J.A. NICOLAS (1), T. PICHON (2), O. BOULADE (2), S. MOUZALI (2) (1) Univ. Grenoble Alpes, CEA-LETI, FR, (2) CEA-IRFU, FR	76 **Digital readout integrated circuit for small pixel pitch cooled infrared detectors in Lynred** N. RICARD, L. RUBALDO, G. VOJETTA, A. BRUNNER, L. BAUD, P. JENOUVRIER Lynred, FR	69 **Towards a high power and high efficiency Holmium doped fiber laser at 2.1 µm** J. LE GOUËT (1), F. GUSTAVE (1), P. BOURDON (1), T. ROBIN (2), A. LAURENT (2), B. CADIER (2) (1) ONERA, FR, (2) iXblue Photonics, FR
09:30			
	37 **Optimization of cooled MCT LWIR modules by introducing a p-on-n detector technology** H. LUTZ, R. BREITER, D. EICH, H. FIGGEMEIER, S. HANNA AIM Infrarot-Module GmbH, DE	71 **Predictive controllers for high dynamic atmospheric turbulence compensation. Application to Low-Earth Orbit satellite tracking** L. PRENGERE (1), C. KULCSÁR (1), H.F. RAYNAUD (1), J.M. CONAN (2) (1) Laboratoire Charles Fabry, FR, (2) ONERA, FR	59 **30 W gain-switched holmium-doped fiber laser at 2.09 µm** E. LALLIER Thales Research & Technology, FR
09:50			
	4 **Development of HgCdTe infrared detectors by heterogeneous processing** T. MELLA, J. ABERGEL, S. GOUT, S. RENET, J.L. SANTAILLER, L. DI CIOCCIO CEA, FR		67 **Target-in-the-loop coherent combining of 7 fiber lasers: first results** P. BOURDON (1), H. JACQMIN (1), L. LOMBARD (1), B. AUGÈRE (1), A. DURÉCU (1), D. GOULAR (1), R. DOMEL (1), D. FLEURY (1), C. PLANCHAT (1), B. ROUZÉ (1), T. HUET (1), B. TANGUY (1), B.S. TAN (2), J.W. LAM (2), K. LIM (2) (1) ONERA, FR, (2) DSO National Laboratories, SG
10:10	**COFFEE BREAK & EXHIBITION**		

DAY 2 - WEDNESDAY 29 JANUARY 2020

	ROOM 1 (CC7)	ROOM 2 (CC5)	ROOM 3 (CCauditorium)
	SENSORS AND COMPONENTS - 2	**IMAGING AND SYSTEMS - 2**	**LASER SENSOR AND SYSTEMS - 2**
Chair	**Holger LUTZ, AIM, DE**	**Daniel LEMASTER, AFRL, US**	**Eric LALLIER, Thales R & T, FR**
10:40			
	44 **Quantum sensors for timing, navigation and RF sensing** L. MAYER (1), P. BERGER (1), A. BRIGNON (1), T. DEBUISSCHERT (1), M. DUPONT-NIVET (1), J. KERMORVANT (2), L. MORVAN (1), P. NOUCHI (1), J. TRASTOY (1), F. VAN DAU (1), D. DOLFI (1) (1) Thales Research and Technology, FR (2) Thales SIX GTS, FR	54 **Colorimetry and multispectral imaging using four filter discrimination in the shortwave infrared** M. GERKEN, H. SCHLEMMER Hensoldt Optronics, DE	58 **Development of a Dual-Frequency VECSEL for a compact CPT clock** J. COTXET (1), G. GREDAT (2), F. GUTTY (1), F. TRICOT (1), G. BAILI (1), P. NOUCHI (1), D. DOLFI (1), R. SCHMEISSNER (3), S. GUÉRANDEL (4), D. HOLLEVILLE (4), F. BRETENAKER (2), F. GOLDFARB (2), H. LIU (2), G. LUCAS-LECLIN (5), S. JANICOT (5), P. GEORGES (5), I. SAGNES (6), G. BEAUDOIN (6) (1) Thales Research & Technology France, (2) Laboratoire Aimé Cotton, CNRS, FR, (3) Thales AVS-MIS, FR, (4) LNE-SYRTE, Observatoire de Paris, CNRS, FR, (5) Laboratoire Charles Fabry, IOGS, CNRS, FR, (6) Centre de Nanosciences et Nanotechnologie (C2N), CNRS, FR
11:00			
	74 **Nanophotonics for high speed sampling and RF oscillators** I. GHORBEL (1, 2), L. CONSTANS (2), S. COMBRIÉ (1), A. MARTIN (1), L. MORVAN (1), F. RAINERI (2), R. BRAIVE (2), A. DE ROSSI (2) (1) Thales Research & Technology, FR (2) Centre de Nanosciences et de Nanotechnologies, FR	29 **Multispectral plenoptic infrared camera for remote sensing applications** F. DE LA BARRIERE (1), G. DRUART (1), J.B. VOLATIER (1), S. JOURDAN (2), E. VANNEAU (3), F. BRYGO (4) (1) ONERA, FR, (2) LYNRED, FR, (3) NOXANT, FR (4) BERTIN, FR	83 **High beam quality quantum cascade lasers for high power applications** M. CARRAS, G. MAISONS, J. ABAUTRET mirSense, FR
11:20			
	57 **InP/SiN hybrid integrated laser sources for sensing and metrology** F. VAN DIJK (1), F. DUPORT (1), S. BOUST (1), H. EL DIRANI (2), Y. ROBERT (1), A. LARRUE (1), Y. LAURENE (3), C. PETIT-ETIENNE (3), E. VINET (1), S. KERDILES (2), E. PARGON (2), M. VALLET (4), C. SCIANCALEPORE (2), J.M. FEDELI (2) (1) III-V Lab, FR, (2) Univ. Grenoble Alpes, CEA-Leti, FR, (3) Univ. Grenoble Alpes, CNRS, LTM, FR, (4) Univ. Rennes, CNRS, Institut FOTON, FR	46 **Calibration and measurement precision of division-of-focal-plane polarization sensors** F. GOUDAIL, S. ROUSSEL, M. BOFFETY Laboratoire Charles Fabry, FR	45 **DFB-ridge laser diodes at 852 nm and 894 nm for Cesium atomic clocks** M. KRAKOWSKI, M. GARCIA, C. THÉVENEAU, P. AFUSO ROXO, A. LARRUE, P. RESNEAU, Y. ROBERT, E. VINET, J.P. LEGOEC, O. PARILLAUD, B. GÉRARD III-V Lab, FR
11:40			
	61 **Improving laser communication with Multi-Plane Light Conversion technology** N. LAURENCHET, A. BILLAUD, D. ALLIOUX, P. JIAN, O. PINEL, G. LABROILLE Cailabs, FR	35 **Test of a LWIR cryogenic multispectral infrared camera for methane gas leak detection and quantification in TADI platform and ESPERCE site** G. DRUART (1), P.Y. FOUCHER (1), S. DOZ (1), X. WATREMEZ (2), S. JOURDAN (3), E. VANNEAU (4), F. BRYGO (5) (1) ONERA, FR, (2) TOTAL, FR, (3) Lynred, FR, (4) Noxant, FR, (5) Bertin, FR	11 **Laser Diodes and Photodiodes for LiDAR** D. BOIREAU, P. ROUTHIER, E. DESFONDS Excelitas Technologies, CA
12:00			
	55 **AlGaN focal plane array detectors for the solar-blind ultraviolet regime** R. REHM, R. DRIAD, L. KIRSTE, S. LEONE, T. PASSOW, F. RUTZ, L. WATSCHKE, A. ZIBOLD Fraunhofer Institute for Applied Solid State Physics IAF, DE	22 **Toward UAV based Compact Thermal Infrared Hyperspectral Imaging Solution for Real-time Gas Detection Identification and Quantification** S. BOUBANGA TOMBET, E. GUYOT, M. CHAMBERLAND Telops, FR	50 **Ruggedised Opto-electronic Components for High Speed (Multi-Gigabit) Digital and "RF-over-Fibre" Optical Links** D. BASUITA (1), R. LOGAN (2) (1) Glenair UK Limited,UK, (2) Glenair Inc, US
12:20	**LUNCH BREAK & EXHIBITION**		

DAY 2 - WEDNESDAY 29 JANUARY 2020

	ROOM 1 (CC7)	ROOM 2 (CC5)	ROOM 3 (CCauditorium)
	SENSORS AND COMPONENTS - 3	**IMAGING AND SYSTEMS - 3**	**LASER SENSOR AND SYSTEMS - 3**
Chair	**Laurent RUBALDO, SOFRADIR, FR**	**Karin STEIN, Fraunhofer-IOSB, DE**	**Gilles FOURNIER, ArianeGroup, FR**
14:00			
	24 **3D additive manufacturing of chalcogenide preforms : a new approach for the elaboration of chalcogenide microstructured optical fibers** J. CARCREFF (1), F. CHEVIRÉ (1), E. GALDO (1), R. LEBULLENGER (1), A. GAUTIER (1), J.L. ADAM (1), L. BRILLAND (2), G. RENVERSEZ (3), J. TROLES (1) (1) Univ Rennes, CNRS, ISCR-UMR 6226, FR, (2) Selenoptics, FR, (3) Aix–Marseille Univ, CNRS, Centrale Marseille, Institut Fresnel, UMR 7249, FR	16 **Recent Improvements on the Thermal Infrared Hyperspectral Images of the SIELETERS Airborne System** O. GAZZANO, Y. FERREC, C. COUDRAIN, L. ROUSSET-ROUVIÈRE ONERA, FR	38 **LED pumping for rugged and long lifetime lasers systems** P. PICHON, H. TALEB, F. DRUON, P. GEORGES, F. BALEMBOIS Laboratoire Charles Fabry, IOGS, FR
14:20			
	56 **Challenges and perspectives with freeform optics** R. GEYL Safran Reosc, FR	20 **Studies of new architectures of compact spectro-imagers for atmospheric sciences** N. CARIOU (1, 2), F. DE LA BARRIÈRE (1), Y. FERREC (1), N. GUERINEAU (1) (1) ONERA, FR, (2) CNES, FR	48 **Single-frequency Tm:YAP laser tunable between 1.94 and 1.96 µm for the generation of LWIR radiation** Q. BERTHOMÉ (1, 2), A. GRISARD (3), E. LALLIER (3), B. FAURE (1), G. SOUHAITÉ (1), J.M. MELKONIAN (2), A. GODARD (2) (1) Teem Photonics, FR, (2) DPHY, ONERA, FR, (3) Thales Research & Technology, FR
14:40			
	53 **Design-to-technology for Night Vision** P. FEREYRE (1), P. KUNTZ (1), B. RÉMI (2) (1) Teledyne-e2v, FR, (2) IPNL, FR	34 **Key performance parameters required for hyperspectral imaging use** H. HANNU Specim, Spectral Imaging Ltd., FI	51 **Compact tunable laser source emitting in the LWIR for standoff gas sensing** M. FAVIER (1), B. FAURE (1), G. SOUHAITÉ (1), J.M. MELKONIAN (2), A. GODARD (2), A. ARNAUD (3), E. LALLIER (3) (1) Teem Photonics, FR, (2) ONERA, FR, (3) Thales Research and Technology, FR
15:00			
	19 **Design Strategies of three mirror design with freeform surfaces** L. DUVEAU (1), G. DRUART (1), E. HUGOT (2), T. LEPINE (3) (1) ONERA, FR, (2) Aix-Marseille Univ, CNRS, CNES, LAM, FR, (3) Univ. Lyon, Laboratory Hubert Curien, CNRS, FR		
15:20	**COFFEE BREAK & EXHIBITION**		

DAY 2 - WEDNESDAY 29 JANUARY 2020

	ROOM 1 (CC7)	ROOM 2 (CC5)	ROOM 3 (CCauditorium)
	SENSORS AND COMPONENTS - 4	**PHOTONICS R&T AND EMERGING TECHNOLOGIES**	**SIGNAL, IMAGE PROCESSING AND ARTIFICIAL INTELLIGENCE - 1**
Chair	**Jacques LONNOY, 3AF, FR**	**Philippe ADAM, ADI, FR**	**Emmanuel KLING, SAFRAN, FR**
16:00			
	43 **A novel MOSFET-based uncooled sensor for disruptive IRFPAs** A. ALBOUY (1), J.J. YON (1), P. LEDUC (1), G. DUMONT (1), A. ALIANE (1), F. BALESTRA (2) (1) Univ. Grenoble Alpes, CEA, LETI, FR, FR, (2) Univ. Grenoble Alpes, CNRS, Grenoble INP, IMEP-LAHC, FR	89 **THALES Hand-Held-Thermal-Imager (HHTI) New Generation** P. JEROT Thales, FR	25 **A Generative Adversarial Neural Network Approach to Demosaicing Integrated Microgrid Polarimeter Imagery** G. SARGENT, B. RATLIFF, V. ASARI University of Dayton, US
16:20			
	12 **Infrared unipolar XBn and XBp superlattice photodetectors** U. ZAVALA-MORAN (1), R. ALCHAAR (2), J.P. PEREZ (2), J.B. RODRIGUEZ (2), F. DE ANDA (1), P. CHRISTOL (2) (1) IICO, UASLP, Mexique, (2) IES, University of Montpellier, FR	81 **Metasurface modeling by use of the Fast Multipole Method** A. GOURDIN (1), D. FELBACQ (2), P. GENEVET (3) (1) Safran E&D, L2C, FR, (2) L2C, FR, (3) CRHEA, FR	31 **Real-Time Embedded Video Denoiser Prototype** A. PETRETO (1, 2), T. ROMERA (1), F. LEMAITRE (2), I. MASLIAH (2), B. GAILLARD (3), M. BOUYER (2), Q. MEUNIER (2), L. LACASSAGNE (2) (1) Lheritier, FR, (2) LIP6, FR
16:40			
	80 **A new read-out method of dielectric bolometers with a few µK sensitivity** A.H. WALENTA, H.W. SCHENK University of Siegen, DE	60 **10 PetaWatts Lasers for Extreme Light Applications** F. LUREAU (1), G. MATRAS (1), S. LAUX (1), O. CHALUS (1), C. RADIER (1), O. CASAGRANDE (1), S. RICAUD (1), L. BOUDJEMAA (1), C. SIMON-BOISSON (1), D. URSESCU (2), I. DANCUS (2) (1) Thales LAS France, FR, (2) IFIN-HH, RO	78 **Automatic Target Detection and Classification using Artificial Intelligence** V. FIGUÉ, R. PICOT, Y. DUMORTIER, J. BUDIN Safran Electronics & Defense, FR
17:00			
	13 **Low SWaP MWIR detector and a video core** G. GERSHON (1), D. CHEN (1), R. GAZIT (1), A. KARABCHEVSKY (1), Z. KIBLITSKI (1), O. MAGEN (1), B. MILGROM (2), T. MARKOVITZ (1), R. OHAYON (1), K. ROZENSHEIN (1), N. SYREL (1), I. VLADOVSKY (1), M. WEINSTEIN (1), I. SHTRICHMAN (1) (1) SCD, IL, (2) IMOD, IL	52 **Laser power stabilisation investigations for a cesium clock optical bench compatible with a dual-frequency VECSEL** J. COTXET (1, 2), F. GUTTY (1), F. TRICOT (3), D.H. PHUNG (2), G. BAILI (1), R. SCHMEISSNER (3), P. NOUCHI (1), D. DOLFI (1), D. HOLLEVILLE (2), S. GUÉRANDEL (2) (1) Thales Research & Technology France, FR, (2) LNE-SYRTE, Observatoire de Paris, Université PSL, CNRS,	6 **Scene motion detection in the presence of atmospheric optical turbulence with performance analysis using numerical wave simulation data and ground truth** R. VAN HOOK United States Air Force, US

18:00	**COCKTAIL & OPTRO AWARDS - EXHIBITION AREA**
20:00	**END OF SECOND DAY PROGRAMME**

DAY 3 - THURSDAY 30 JANUARY 2020

	ROOM 1 (CC7)	ROOM 2 (CC5)	ROOM 3 (CCauditorium)
	SENSORS AND COMPONENTS - 5	**SPACE APPLICATIONS - 1**	**DEFENCE TECHNOLOGY RESEARCH WITH EDA**
Chair	**Mario MÜNZBERG, Hensoldt, DE**	**Roland GEYL, SAFRAN, FR**	**Fabrizio BERIZZI, EDA, EU**
08:30			
	5 **Progress Towards On-Chip Photonic Data Transfer in Cryogenic Digital Readout Circuitry** J. ZEIBEL US Army Night Vision Lab, US	62 **Large-Stroke Fast Steering Mirror for Space Free-Space Optical communication** F. CLAEYSSEN, K. BENOIT, G. AIGOUY, O. SOSNICKI, M. FOURNIER Cedrat Technologies, FR	72 **Strategic Research Agenda for Optronics EDA CapTech Optronics** J. DIJK (1), S. MAGRINI (2), G. UDA (3), F. BERIZZI (4) (1) TNO, NL, (2) Freelance business consultant, IT, (3) Leonardo, IT, (4) EDA, BE
08:50			
	17 **Key parameters for infrared detectors range improvement in the SWAPc and pitch reduction context** J. BERTHOZ (1), L. RUBALDO (1), A. BRUNNER (1), G. VOJETTA (1), M. MAILLARD (1), N. JOMARD (1), S. COURTAS (1), F. ROCHETTE (2) (1) Lynred, FR, (2) CEA, FR	64 **Modular camera system for satellite monitoring and protection Modular camera system for satellite monitoring and protection** J. BEZINE 3D PLUS, FR	18 **The project SPIDVE - Study on EO Sensors Performance Improvement in Degraded Visual Environment** R.A. ROSSI (1), J. VITI (1), G. UDA (1), G. TOCI (2), B. PATRIZI (3), M. VANNINI (3), A. MASINI (4) (1) Leonardo, IT, (2) CNR, IT, (3) INO, IT, (4) FlyBy, IT
09:10			
	23 **Simultaneous Detection in two Spectral IR-Bands: AIM's Bispectral MCT-Detectors** D. EICH, C. AMES, R. BREITER, H. FIGGEMEIER, S. HANNA, H. LUTZ, K.M. MAHLEIN, T. SCHALLENBERG, A. SIECK, J. WENISCH AIM Infrarot-Module GmbH, DE	27 **Cryogenic Infrared Relay Optics Design And Testing** C. SIEMENS, T. GROSS, M. HINZ Hensoldt Optronics GmbH, DE	36 **Real-Time Target Detection in Maritime Scenarios based on YOLOv3 Model** A. BETTI, B. MICHELOZZI, A. BRACCI, A. MASINI Flyby srl, IT
09:30			
	73 **End-to-end production line for Short-Wavelength InfraRed camera development: use case of a 2048 pixel 7.5 µm pitch line scan sensor** S. FERRÉ (1), M. SCHWEITZER (2) (1) Material Expert, FR, (2) Application Field Engineer, FR	8 **Coherent characterization of backscattering in LISA instrument** V. KHODNEVYCH, M. LINTZ, N. DINU-JAEGER, D. HUET Artemis, OCA, FR	7 **LASERONUAV – Development of a laser microdiode in 2.1um as countermeasure system from RPAS** B. COLOMER (1), R. ORTIZ (1), L. ROSO (2), M. RICO (2) (1) AERTEC, ES, (2) CLPU, ES
09:50			
	84 **InfraRed Optical Testing for High Precision Metrology Control Using Shack-Hartmann Wavefront Technology** G. TISON Imagine Optic, FR		1 **DEBELA - DEtect BEfore LAunch, an EDA CAT-B project proposal** C. EISELE (1), D. SEIFFER (1), M.T. VELLUET (2), M. HENRIKSSON (3), L. SJÖQVIST (3) (1) Fraunhofer IOSB, DE, (2) ONERA, FR, (3) FOI, SE
10:10	**COFFEE BREAK & EXHIBITION**		

DAY 3 - THURSDAY 30 JANUARY 2020

	ROOM 1 (CC7)	ROOM 2 (CC5)	ROOM 3 (CCauditorium)
	SENSORS AND COMPONENTS - 6	**SPACE APPLICATIONS - 2 / SIMULATION**	**AIRBORNE APPLICATIONS - 1**
Chair	**Dietmar LETALICK, FOI, SE**	**Roland GEYL, SAFRAN, FR**	**Michael GROENERT, NVESD, US**
10:40			
	32 **From Development and Qualification to Production of Ricor's Innovative SWaP-C Cryocoolers for HOT detector** A. FILIS, I. NACHMAN, S. SOBOL, M. CARMIEL, V. SEGAL, I. VAINSHTEIN, A. ASHKENAZI, G. FRANKEL, S. BARUCH, O. BEN DAVID, D. GOVER Ricor, IL	63 **Optical capabilities for observation of LEO objects** S. VOURC'H, G. FOURNIER, L. HENNEGRAVE ArianeGroup, FR	15 **Architectures study for sensor integration in RPAS** E. PEREZ (1), A. JIMENEZ (1), V. POLO (2), M. ALFAGEME (2), D. LLAMAZARES (2), S. SIMON (2) (1) Everis Aeroespacial y Defensa, ES, (2) DAS Photonics, ES
11:00			
	33 **High-power, high-availability Stirling coolers** T. BENSCHOP, D. WILLEMS, R. ARTS, P. BOLLENS, B. DE VEER Thales Cryogenics, NL	30 **Radiation induced degradation of optoelectronic sensors** C. INGUIMBERT (1), T. NUNS (1), D. HERVÉ (2), A. VRIET (2), J. BARBERO (3), J. MORENO (3), A. NEDELCU (4), S. DUCRET (4) (1) ONERA, FR, (2) Sodern, FR, (3) Alter Technology, FR, (4) Lynred, FR	9 **Threat-agnostic Electro-Optical countermeasure against Infrared seekers** G. TOSTENE, F. SEUBE, V. PARTHENAY, P. HOULES DGA, FR,
11:20			
	3 **The RMs1 cooler, an efficient, flexible and reliable cooler** C. VASSE (1), V. ABOUSLEIMAN (1), J.Y. MARTIN (1), J.M. CAUQUIL (1), T. BENSCHOP (2) (1) Thales LAS, FR, (2) Thales Cryogenics, FR	90 **10PW laser system for ELI-NP** F. LUREAU, G. MATRAS, O. CHALUS, O. CASAGRANDE Thales, FR	68 **Hostile Fire Indicator using uncooled Long-Wavelength Infrared Detectors** L. BROUANT, A. PICARD, P. VAQUETTE, P. QUILLET, E. KLING Safran Electronics & Defense, FR
11:40			
	87 **Optronic Systems in today's Naval Warfare** P. LE CLÉACH Naval Group, FR	85 **Creating a MATISSE component for NV-IPM** G. SWIATHY (1), J. REYNOLDS (2), M. LE PORT (1) (1) DGA / DGA Aeronautical Systems, FR, (2) US Army CCDC C5ISR NVESD, US	88 **THALES Spy'Ranger mini UAV systems** P. JEROT Thales, FR
12:00			
		41 **Ballistic Missile Infrared Signature: Towards a Surrogate Model** V. RIALLAND, A. NICOLE, A. SITJES ALOMAR, G. AURELIEN, S. LEFEBVRE ONERA, FR	75 **Operational airborne lidar sensor for 3D wind measurement** A. DOLFI-BOUTEYRE, B. AUGERE, M. VALLA, A. DURÉCU, D. GOULAR, F. GUSTAVE, C. PLANCHAT, D. FLEURY, T. HUET, C. BESSON ONERA, FR
12:20	**LUNCH BREAK & EXHIBITION**		

DAY 3 - THURSDAY 30 JANUARY 2020

	ROOM B2B (CC18)	ROOM 2 (CC5)	ROOM 3 (CCauditorium)
	EPIC ROUNDTABLE	**SIGNAL, IMAGE PROCESSING AND ARTIFICIAL INTELLIGENCE - 2**	**AIRBORNE APPLICATIONS - 2**
Chair	**Jose POZO, EPIC**	**Claudine BESSON, ONERA, FR**	**Philippe ADAM, ADI, FR**
14:00	Organized by the European Photonics Industry Consortium		
		42 **Uncertainty estimation for robust small object detection** C. ABGRALL, G. HENAFF Thales LAS France, FR	2 **Challenges raised by new WAMI sensors** C. DEANTONI, I. GAZEYEFF Thales LAS France, FR
14:20			
		39 **Hyperspectral target detection using deep neural networks** L. GIRARD, V. ROY Defence Research and Development Canada, CA	82 **IR image Processing and Validation Methodology applied to Airborne Self-Protection systems** P. OSMA, Á. PUEYO, J. MUÑOZ Indra, ES
14:40			
	Quantum Optronics	26 **Automated hostile fire detection using uncooled thermal imaging** C. BARBANSON, A. WOISELLE, J. BUDIN Safran, FR	79 **NATO SET-249 Joint Measurement Campaign on Laser Dazzle Effects in Airborne Scenarios** B. EBERLE (1), G. RITT (1), M. KOERBER (1), B. SCHWARZ (1), S. TIPPER (2), C. WESTGATE (2), W. KINERK (2), O. STEINVALL (3), J. ÖHGREN (3), M. VANDEWAL (4), C. SANTOS (4) (1) Fraunhofer IOSB, DE, (2) DSTL, UK, (3) FOI, SE, (4) RMA, BE
15:00			
15:20			
16:00	**END OF OPTRO2020**		