WORKSHOP PROGRAM

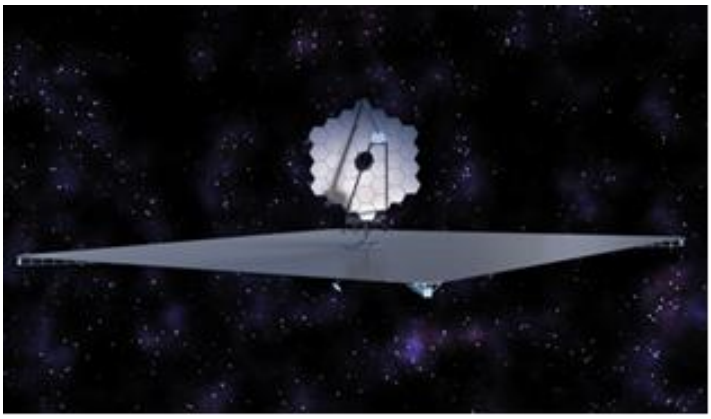
“Ultra-Violet Detectors and Instruments”

28th NOVEMBER 2018

ISAE-Supaéro (Amphi 4)
10 Avenue E. Belin, 31400
Toulouse

& 29th NOVEMBER 2018

ENAC (Amphi Bel.)
7 Avenue E. Belin, 31400 Toulouse



Co-organised by CNES, ESA, CNRS, AIRBUS DEFENCE&SPACE, THALES ALENIA SPACE, ISAE-SUPAERO, TELEDYNE E2V

CNES, ESA, CNRS, AIRBUS DEFENCE&SPACE, THALES ALENIA SPACE, TELEDYNE E2V and **ISAE SUPAERO** are pleased to invite you to the Workshop focused on Ultra-Violet detectors and instruments. This event will be held in Toulouse on November the 28th-29th 2018 within the framework of the **Optics & Optoelectronics (OOE) Community of expert** (COMET).

The Ultra-Violet wavelength range allows to provide new insights in the framework of optical space missions. However, designers are confronted by specific problems to build such high-performance instruments.

The aim of this Workshop is to focus on Ultra-Violet detectors and instruments. The goal is to bring together all the community to discuss the challenges to develop such sensors and instruments, to discuss previous mission lessons and to share about future projects.

Although the workshop is mostly oriented to space applications, this event is fully open to researchers/user working within other applications. Developers working on non-space applications dealing with the same topics (e;g; Astronomy, Medical Imaging, photolithography…) are equally welcome to participate to this Workshop.

This Workshop is coupled with “Radiation effects on optoelectronic detectors” workshop which will be held the 27th of November. The two workshops will share the poster session and the cocktail.

TUESDAY 27th ISAE SUPAERO

7:00 PM **SOCIAL EVENT and COCKTAIL RECEPTION at chapiteau**

WEDNESDAY 28th ISAE SUPAERO

9:00 AM **WELCOME INTRODUCTION**
Cédric Virmontois, CNES

9:15 AM **Tutorial: High Performance Silicon-Based Ultraviolet Image Sensors using 2D Doping for Space Exploration**
S. Nikzad, Jet Propulsion Laboratory NASA

10:15 AM **BREAK**

SESSION A **ULTRA-VIOLET DETECTORS**

10:50 AM Session Introduction
Chair: Olivier Saint-Pé, AIRBUS DS and Etienne LE COARER, UGA IPAG

A1 10:50 AM **UV Detector Development at Teledyne-e2v**
P. Jerram, Teledyne-E2V

A2 11:10 AM **Space-grade 3Kx3K Backside Illuminated CMOS Image Sensor for EUV Observation of the Sun**
S.Gissot, B. Giordanengo, A. BenMoussa, Royal Observatory of Belgium; G. Meynants, M. Koch, AMS CMOSIS; U. Schühle, Max Planck Institut; A. Gottwald, C. Laubis, U. Kroth, F. Scholze, Physikalisch-Technische Bundesansalt

A3 11:30 AM **Classical Frontside Illuminated CMOS and CCD Image Sensors are Suitable for Visible Light Imaging**
D.Van Aken, and B. Dierickx, Caeleste

A4 11:50 AM **Photonis Ultraviolet Detectors**
E. Kernen, Photonis

A5 12:10 AM **The FUV Detector for the WSO-UV Field Camera Unit**
L. Diez, SENER; A. I. Gómez de Castro, UCM

12:30 AM **LUNCH**

A6 2:30 PM **Compact and Lightweight MCP Detector Development for UV Space Missions**
L. Conti, J. Barnstedt, L. Hanke, C. Kalkuhl, N. Kappelmann, T. Rauch, B. Stelzer, K. Werner, IAAT Universität Tübingen; H.-R. Elsener, Empa, Swiss Federal Laboratories for Materials Science and Technology; K. Meyer, D. M. Schaadt, Institute of Energy Research and Physical Technologies, Clausthal University of Technology

A7 2:50 PM **The New Oxide Paradigm for Solid State Ultraviolet Photodetectors**
D. J. Rogers, P. Bove, V.E. Sandana, F.H. Teherani, Nanovation; L. Dame, M. Meftah, J.F. Mariscal, CNRS LATMOS; M. Razeghi, R. McClintock, Centre for Quantum Devices ECE department; E. Frisch, S. Harel, Ofil Systems

A8	3:10 PM	**What is New about Nitrides for UV Detection one Decade Years after the Last Studies in Europe ?** *J.-L. Reverchon, III-V Lab; J.-Y. Duboz, CNRS-CRHEA*
A9	3:30 PM	**AlGaN Photodetectors for the Ultraviolet Regime** *R. Rehm, R. Driad , L. Hahn, S. Leone, T. Passow, F. Rutz, Fraunhofer Institute for Applied Solid State Physics IAF*
A10	3:50 PM	**4H-SiC-based UV Photodiodes for Space Applications** *L. Ottaviani, O. Palais, IM2P3; M. Lazar, AMPERE; A. Lyoussi, CEA/DEN/CAD/DER/SPEx; E. Kalinina, A. Lebedev, IOFFE Institute*
	4:10 PM	**BREAK**
SESSION B		**ULTRA-VIOLET INSTRUMENTS**
	5:00 PM	Session Introduction *Chair: Kiki MINOGLOU, ESA and Thierry Viard, TAS*
B1	5:00 PM	**The POLLUX UV spectropolarimeter for the LUVOIR mission project** *C. Neiner, LESIA; J.-C. Bouret; E. Muslimov, LAM; H. Ouslimani, TAS*
B2	5:20 PM	**Ultra-violet polarimetry for Pollux** *M. Le Gal, C. Neiner, LESIA; A. López Ariste, CNRS IRAP; M. Pertenaisa DLR*
B3	5:40 PM	**UV Space Instrumentation at CSL: from the IMAGE FUV Spectrographic Imager to POLLUX** *R. Desselle, S. Habraken, J. Loicq, Centre Spatial de Liège*
B4	6:00 PM	**The Cosmic Evolution Through Ultraviolet Spectroscopy (CETUS) NASA Probe Mission Concept** *W. Danchi, L Purves, NASA GSFC; S. Heap, NASA GSFC Emerita R. Woodruff, Woodruff Consulting; A. Hull,* Kendrick Aerospace Consulting LLC and Univ. New Mexico; *S. Kendrick, Kendrick Aerospace Consulting LLC*
B5	6:20 PM	**SUAVE: a disruptive far UV telescope for long lasting performances in Space** *L. Damé, M. Meftah, N. Rouanet, P. Gilbert, CNRS LATMOS; P. Etcheto, J. Berthon, CNES*
	6:40 PM	**END OF THE FIRST DAY**

THURSDAY 29TH ENAC

9:00 AM Session continue
Chair: Jean-François MARISCAL, CNRS LATMOS and Vincent Goiffon, ISAE SUPAERO

B6 9:00 AM **Space UV Lidars for Earth Observation: from Design to Flight Demonstration**
G. de Villèle, B. Corselle, J. Lochard, O. Saint-Pé, AIRBUS DS

B7 9:20 AM **Sentinel-4 and -5: Monitoring Earth's Environment in the UV from Low-Earth and from Geostationary Space Orbits**
H. Candeias, A. Haerter, S. Riedl, C. Keim, S. Weiss; R. Maurer, R. Greinacher, AIRBUS DS

B8 9:40 AM **UV Instrument Development Activities for Space Weather Monitoring**
I. Biswas, Rhea System GmbH, ESA/ESOC

B9 10:00 AM **CUTE CubeSat Mission**
S. A. Gopinathan, L. Fossati, Space Research Institute, Austrian Academy of Sciences; K. France, B. Fleming, Arika Egan, Univ. of Colorado; J.-M. Desert, Univ. of Amsterdam; T. Koskinen, Univ. of Arizona; P. Petit, OMP; A. Vidotto, Trinity College Dublin

10:20 AM **BREAK**

B10 11:00 AM **High-Resolution FUV Spectroscopy in a Cubesat package**
M. Beasley, Southwest Research Institute; R. McEntaffer, Pennsylvania State University

B11 11:20 AM **The Venus Spectrometry in UltraViolet (VeSUV) Instrument on-Board the ESA/M5 EnVision mission**
G. Guignan, N. Rouanet, E. Marcq, CNRS LATMOS

B12 11:40 AM **ULTRASAT – a wide-angle UV space telescope to capture transients**
J. Topaz, E. Waxman, M. Soumagniac, E. Ofek, O. Lapid, O. Aharonson, A. Gal-Yann, N. Ganot, Weizmann Institute of Science, S. Ben-Ami, Harvard- Smithsonian Centre for Astrophysics

12:00 AM **LUNCH**

SESSION C	**CALIBRATION AND IN-FLIGHT EXPERIENCE**
1:40 PM	Session Introduction *Chair: Coralie Neiner, CNRS LESIA; Mustapha Meftah, CNRS LATMOS*
C1 1:40 PM	**SOLAR/SOLSPEC UV spectrometer. Lessons learned from the 9-year SOLAR mission** *D. Bolsée, N. Pereira, G. Cessateur, IASB-BIRA; M. Meftah, L. Damé, S. Bekki, A. Irbah, A. Hauchecorne, LATMOS; D. Sluse, ULG*
C2 2:00 PM	**Design and properties of the gratings of POLLUX, the UV high-resolution spectropolarimeter for LUVOIR** *E. Muslimov, J.-C. Bouret, LAM; C. Neiner, LESIA; H. Ouslimani, TAS*
C3 2:20 PM	**Instrument model for POLLUX** *S. Lombardo LAM; the POLLUX consortium*
C4 2:40 PM	**The computer-based simulator of the far UV detector implemented in the field Camera Unit on board the WSO-UV space telescope** P. Marcos-Arenal, A. I Gómez de Castro, UCM
3:00 PM	**END OF WORKSHOP**

Registration
On line registration: http://ultra-violet-detectors-and-instruments.evenium.net

Schedule
November 20th: Deadline for registration
November 28th: Workshop

Organization committee

Cédric VIRMONTOIS	CNES
Kiki MINOGLOU	ESA
Olivier SAINT-PE	Airbus Defence and Space
Thierry VIARD Stéphane DEMIGUEL	Thalès Alenia Space
Vincent GOIFFON	ISAE-SUPAERO
Etienne LE COARER	UGA IPAG
Coralie NEINER	CNRS LESIA
Jean-François MARISCAL Mustapha MEFTAH	CNRS LATMOS
Frédéric DEVRIERE	TELEDYNE E2V

Contact : comet-ooe@cnes.fr **Workshop location : ISAE Toulouse**

ISAE SUPAERO: 28th November

ENAC: 29th November