



# The 2019 Defence, Security and Space Forum

Wednesday 2nd October, Room N01, 10:50 to 17:50

**EuMA**  
European Microwave Association

**Microwave Journal**

The Defence, Security and Space (DSS) Forum is jointly organized by the European Microwave Association (EuMA) and Microwave Journal to complement European Microwave Week's activity in the Defence, Security and Space sector.

Each year the DSS Forum focuses on a hot topic that is engaging industry, academia and organizations/agencies to develop, test and implement leading edge technology. In 2019 the topic is: New Radio Architectures: The Evolution for Satellite Constellations.

With the development of the commercial space market being driven by companies like SpaceX, Blue Origin and Virgin Galactic, the market has become more competitive and demanding for communications technology to evolve and innovate. New radio architectures are needed that use less power and have lower latency while still being low cost. Small and nano-satellites are also driving the same factors but to an extreme level for miniature systems.

The development of Satellite Constellations is growing due to increase demand in data rates and data traffic for wireless communications. 6G is expected to achieve Tb/s data rates while the traffic will reach ZetaBytes in 2030 time frame. Proposals are based on the deployment of thousands low-cost micro-satellites in Low-Earth-Orbits for instance (LEO). This pushes the performance towards higher frequencies and much more powerful communication systems.

The RF and Microwave community in this forum will discuss how organizations are responding with new radio architectures to achieve these goals.

Keynote speakers will consider the state of the art of leading technologies and systems for satellite constellations, the estimated evolution of technologies and trends and consider expected capabilities and functionalities to address future challenges. The efforts made by the main players in the sector will be analysed and their views on new trends and technological developments will be offered.

The industry session will reflect the effort and investment that is being made to develop and test new radio architectures with improved size, weight and cost. Specific areas of activity include phased arrays, various types of beamforming, different RF partitioning, high efficiency solid state amplifiers, improved heat sinking materials, miniaturized radios and antennas, to name a few. Link and alternatives with respect to optical technologies will also be addressed as a complement to the communication technologies. From an industry perspective, the emphasis will be on development at component and sub-system level, with particular focus on sub-system integration, not forgetting the significant role that test and measurement has to play in moving the sector forward.

The Executive Forum will present the points of view of the different established and regulatory bodies that allow coexistence between the different aerial platforms and describe the activity of the different players already established and emerging in the field.

## Programme

**08:30 - 10:10 EuRAD Opening Session**

**10:10 - 10:40 Coffee Break**

**10:40 - 13:00 'Challenges in Satellite Constellations and impact on the communications technologies'**

Moderators: **Dr. Patrice GAMAND, ALPHA-RLH Cluster, France** and **Dr. Erwan FOURN, IETR, France**

- The revival of Constellations in the 21st century: Roadmaps and Technology requirements. **Emiliano RE, RF systems, payloads and technology division, ESA, ESTEC, The Netherlands**
- How optical innovation and Radio-Frequency team-up for higher satellite communication throughput? **Dr. David ALLOUX, - CAILABS, France.**
- The "Space Data Highway" from **Babacar SECK, CEO, Leads-Aerospace, France**
- Conference from **Isabelle BURET, Telecom Business Line Technical Authority & Iridium Program Design Authority, Thales Alenia Space, France**

**13:00 - 14:00 Strategy Analytics Lunch & Learn Session – Global Satellite Market Outlook**

Asif Anwar will discuss the global market outlook for both military and commercial satellites underpinned by a discussion on how the emergence of small satellite buses and LEO constellations will change the make-up of satellite communication systems. He will cover specifics such as new architectures such as phased arrays and solid-state technology. **Asif Anwar, Strategy Analytics, UK**

**14:10 - 15:50 Microwave Journal Industry Session**

This session offers a perspective on how industry is aiming to design, develop and test radio architectures and the challenges that need to be addressed to implement them. Various trade-offs in radio architectures will be covered along with solid state technologies, phased arrays and packaging concerns.

**15:50 - 16:20 Coffee Break**

**16:20 - 18:00 Round table: Concepts, technologies and systems addressing ultra-high capacity and data traffic for future wireless communications.**

Moderator: **Dr. Patrice GAMAND, ALPHA-RLH Cluster, France** and **Dr. Erwan FOURN, IETR, France**

Speakers:

- **Jan THOEMEL, GomSpace, Luxemburg, Head of Satellite operation**
- **Babacar SECK, Leads-Aerospace, CEO**
- **Emiliano RE, ESA, Radio Frequency Systems Division**
- **Jean-François BOUTILLON, Thales Alenia Space, Constellation Solutions Line Manager**
- **Guy KOUEMOU, HENSOLDT, Technology Manager**
- **David ALLOUX, CAILABS, Engineering Manager**

**18:00 - 18:30 Cocktail Reception**

The opportunity to network and discuss informally the issues raised throughout the Forum.

## Registration and Programme Updates

Registration fee is €20 for those who registered for a conference and €60 for those not registered for a conference. The Conference Special Events section of the EuMW website will give further details and updates.

## The 2019 Automotive Forum

**When:** Monday 30th September, 08:30 to 17:50

**Location:** Room 741A + dinner

**Chair:** Thomas Zwick, Karlsruhe Institute of Technology, Germany

**Co-Chair:** Frank Gruson, Continental AG, Germany

**Local Arrangement Chair:** Stéphane Méric, INSA de Rennes, IETR, France

Following applications like keyless entry and tyre pressure monitoring systems, mobile communications and recently automotive radar made microwave technologies be a strong pillar inside the automotive world. The first 77 GHz automotive radar sensors entered the European market in 1999. In 2019 – 20 years later – the European Microwave Association (EuMA) for the first time organises the Automotive Forum to provide an open platform for industrial experts to discuss technical aspects and market issues in the area of microwaves in automotive industry. The forum consists of a good mix of technical presentations, plenary and panel discussions as well as networking time. The forum mainly addresses technical experts from automotive industry throughout the whole supply chain. Keynote speakers will present their views on special technical solutions as well as regulatory or strategic issues. The event will close with a networking dinner.

### Programme

- 8:30-8:50 Automated Driving: Market Perspective for Radar**  
Cédric Malaquin, Yole, France
- 8:50-9:10 The Role of Automotive Radars in Future Automated Driving Functions**  
Martin Kunert, Robert Bosch GmbH, Germany
- 9:10-9:30 Safety First – Critical Performance Requirements for High Frequency Laminates in 76-81 GHz Automotive Radars to Enable Next Generation Advanced Driver Assistance Systems (ADAS)**  
Ingmar van der Linden, Rogers Corporation,
- 9:30-9:50 A Study of Antenna Performance Influence on mm-Scale Dk Variation in PCB Substrate**  
Tatsunari Koyama, Nippon Pillar Packaging CO., Japan
- 9:50-10:10 Labelling of Data for Classification with Automotive Radar Sensors**  
Florian Baumgärtner, Daimler AG, Germany
- 10:10-10:50 Coffee**
- 10:50-11:10 Radar Data Classification and Generation with Deep Learning**  
Robert Prophet, Friedrich-Alexander University Erlangen-Nuremberg, Germany
- 11:10-11:30 Leveraging Artificial Intelligence in Imaging Radars to transform Environment Sensing into Autonomous Decision Making**  
Noam Arkind, Arbe, Israel
- 11:30-11:50 Deep Learning Approaches for Radar Based 3D Object Detection**  
Georg Kuschk, Astyx GmbH, Germany

**11:50-12:10 Artificial Intelligence in Automotive Radar**

**12:10-12:30 Opportunities and Challenges using Deep Machine Learning based Algorithms for Automotive Radar Sensors**  
Jonathan Wache, Continental AG, Germany

**12:30-13:50 Lunch**

**13:50-14:10 Beyond MIMO: 5G Radar = Digital Modulation Radar (DMR)**  
Ralph Reuter, Uhnder Inc., Germany

**14:10-14:30 Performance of Automotive Radar Raw Data Repair Algorithms with Measured Signals**  
Jonathan Moss, Veoneer, Germany

**14:30-14:50 FFT-Peak as Output for High Resolution Radar**  
Andre Roger, Infineon Technologies AG, Germany

**14:50-15:10 A Study of the Accurate Occupancy Grid Mapping Generation by 3D Radar**  
Hidekuni Yomo, Panasonic, Japan

**15:10-15:30 Advanced Methods for Mitigation of Mutual Interference in FMCW Radar Systems**  
Paul Meissner, Infineon Technologies AG, Austria

**15:30-16:10 Coffee**

**16:10-16:30 IMIKO-Radar: Towards Cooperative Radar-Interference Mitigation**  
Werner Sörgel, Robert Bosch GmbH, Germany

**16:30-16:50 Simulation of Polarimetric Radar Cross-Sections of Pedestrians for Automotive Radar**  
Anshu Gupta, ADC Automotive Distance Control Systems GmbH, Germany

**16:50-17:10 Closed Loop Testing of Radar-Sensors with Synthetic Raw Data derived from Real-Time Raytracing**  
Sebastian Graf, dSpace, Germany

**17:10-17:30 The Coded MIMO Radar System Design and the Consideration of the New Technologies Verification and the Estimation Method for the Coexisting Issue with FMCW Radar**  
Seung Chul Shin, Keysight Technologies, USA

**17:30-17:50 Novel CATR-based Target Generation System for Automotive Radar Testing**  
Daniel Markert, Rohde & Schwarz GmbH & Co. KG, Germany

**19:30 Networking dinner**

Location will be provided during the workshop.

### Registration and Programme Updates

Advanced Registration fee (up to & incl. 30th August) is €260 for those who registered for a conference and €360 for those not registered for a conference. Standard Registration fee (from 31st August & Onsite) is €320 for those who registered for a conference and €420 for those not registered for a conference. The networking dinner as well as a lunch snack and beverages are included in the fee. The Conference Special Events section of the EuMW website will give further details and updates. Due to limited room size early registration is recommended.

# EuMW 2019 Student Design Competitions

**When: Tuesday 1st October and Wednesday 2nd October, 2019**

**Location: Dedicated Booth next to Registration Desk**

**Dr Benjamin Potelon (Lab-STICC - Université de Bretagne Occidentale, Brest, France) & Prof. Pierre Blondy (XLIM - Université de Limoges, Limoges, France)**

The Student Design Competitions involve master and doctoral students designing and measuring a microwave device developed prior to the conference. This competition is open to all students. Measurements will be open to all EuMW participants. A representative of the design team must be present at the competition day.

The Student Design competitions are centred on three topics and please refer to the student's activities web site for detailed design rules and specifications.

This year, three competitions will be offered:

### **Thrust 1: PA Design, organised and sponsored by AMCAD Engineering (Booth 320D)**

**When: Tuesday 1st October – 08:30 to 12:30**

The aim of the Thrust 1 is to design a power amplifier at the frequency 3.5 GHz, with a video bandwidth target of 100MHz. The amplifier should deliver a minimal output power of 35dBm at 1 dB of Gain compression, with the highest PAE. This thrust is supervised by Tony Gasseling (gasseling@amcad-engineering.fr).

How to participate

1. Request the entry form (gasseling@amcad-engineering.fr)
2. Submit the entry form to Tony Gasseling before 15th of September 2019
3. Submit a brief report including simulations, layout, and measurements before the competition. (The selected projects will receive an acceptance letter to attend the competition.)

### **Thrust 2: Wideband Amplifier Biasing Network, organised and sponsored by Ampleon Netherlands BV**

**When: Tuesday 1st October – 13:50 to 17:50**

Thrust 2 will introduce the students to the RF high power amplifier (HPA) biasing for wideband applications. This thrust is supervised by Osman Ceylan (osman.ceylan@ampleon.com).

Biasing networks has a key role on the video bandwidth (VBW) and RF performance of HPAs. The main target of the contest is design and realization of a biasing network considering low insertion loss at the operation bandwidth and low impedance at the low frequency region. The competitors will design and fabricate a biasing network having the resonance-free low impedance response at the low frequency region. Although students are free to use any topology and material, they need to meet a given set of specifications.

The winner will be the network that demonstrates the widest bandwidth regarding the lowest input impedance at the low frequency region. If there is a tie, wider accepted operation BW will be the winner. Questions can be sent to Dr. Osman Ceylan. Winners will be awarded € 1000 (1st place) and € 500 (2nd place). Promising designs will be also awarded € 250.

How to participate

1. Request the entry form (osman.ceylan@ampleon.com)
2. Submit the entry form to Osman Ceylan before 15th of September 2019
3. Submit a brief report including simulations, layout, and measurements before the competition. (The selected projects will receive an acceptance letter to attend the competition.)

### **Thrust 3: Filter Design (sponsored by Elliptika – booth A050)**

**When: Wednesday 2nd October – 08:30 to 12:30**

Thrust 3 is meant to develop a dual-band filter design prior to the conference. This thrust is supervised by Dr Benjamin Potelon (benjamin.potelon@univ-brest.fr) & Prof. Pierre Blondy (pierre.blondy@xlim.fr).

The winner team will be awarded € 1000 and will be offered the opportunity to propose an invited paper in the International Journal of Microwave and Wireless Technologies to detail the design of their filter. The second team will be awarded € 500 .

Please refer to the student activities section on the website for design rules and specifications. Questions can be sent to Dr. Benjamin Potelon & Prof. Pierre Blondy.

Please refer to the student's activities web site for design rules and specifications.

How to participate:

1. Request the entry form (benjamin.potelon@univ-brest.fr and pierre.blondy@xlim.fr).
2. Submit the entry form to Benjamin Potelon and Pierre Blondy before 15th of September 2019
3. Submit a brief report including simulations, layout, and measurements before the competition. (The selected projects will receive an acceptance letter to attend the competition.)

For further information please visit: [www.eumweek.com](http://www.eumweek.com).

# 4th European Microwave Student School 'Software Defined Radio: Basic blocks and Hands-on Practice'

**When:** Tuesday 1st October and Wednesday 2nd October 2019

**Location:** Room 746 on Tuesday and Specific booth next to Registration Desk on Wednesday

**Organisers:** Florence Podevin and Estelle Lauga-Larroze (Univ. Grenoble Alpes, Grenoble, France)

### About the European Microwave Student School

This year's European Microwave Week features the 4th European Microwave Student School for bachelor and master students. The program features academic lecturers from all over the world. This year's topic is dedicated to Software Defined Radio (SDR) with a focus on basic blocks design and the opportunity to practice hands-on activities on SDR. Precisely, the course will be formed by a full day of high level lectures on transmission lines, planar RF components, power amplifiers and mixers on Tuesday. Hands-on design experience will be proposed on Wednesday: in collaboration with PhD students registered at the Doctoral School, students will build a modern digital transceiver.

### Earning Credit Points

The European Microwave Student School will offer certificates to all attendees for earning credit points within the European Credit Transfer System (ECTS). If you need to have a written or oral exam, please contact your professor well in advance for arranging the details of the examination process. By request of your professor via email to [eumw2019studentevent@unilim.fr](mailto:eumw2019studentevent@unilim.fr) we will provide an exam sheet for oral or written examination by the beginning of October 2019.

### Registration

The registration fee for this event is €40. For the registration, bachelor and master students will need a valid student ID of an accredited university. Students are prompted to bring their own laptops. For registration, please go to the registration site and select EuMW Student School. For further information please visit: [www.eumweek.com](http://www.eumweek.com).

Registration closes 10th September 2019. Space is limited, so purchase your ticket well in advance.

### Programme

#### Tuesday 1st October

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|-------------|---|
| 8:30-8:45   | Student School presentation   |
| 8:45-10:10  | General overview on transmission lines<br>Philippe Ferrari, Univ. Grenoble Alpes, Grenoble, France                      |
| 10:10-11:00 | Long time break to visit the Exhibition Hall: Career Platform and Industrial Booth                                      |
| 11:00-12:30 | Planar passive devices, hybrid coupler and power dividers<br>Roberto Gomez-Garcia, Universidad de Alcala, Madrid, Spain |
| 12:30-13:50 | Lunch and break to visit the Exhibition Hall: Career Platform and Industrial Booth                                      |
| 13:50-15:30 | Power amplifiers<br>Antonio Lisboa Da Souza, Universidade Federal da Paraiba, João Pessoa, Brazil                       |
| 15:30-16:10 | Long time break to visit the Exhibition Hall: Career Platform and Industrial Booth                                      |
| 16:10-17:50 | General overview on mixers and applications<br>Justin King, Trinity College Dublin, Dublin, Ireland                     |

#### Wednesday 2nd October

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|-------------|--|
| 9:00-12:30  | Hands on activity - Building a modern digital transceiver in one day<br>David S. Ricketts, North Carolina State University, Raleigh, USA |
| 12:30-13:50 | Lunch  |
| 13:50-17:50 | Hands on activity - Building a modern digital transceiver in one day<br>David S. Ricketts, North Carolina State University, Raleigh, USA |

For updates to the programme, visit [www.eumweek.com/students/Studentschool.html](http://www.eumweek.com/students/Studentschool.html)

# 4th European Microwave Doctoral School 'Emerging Technologies for Reconfigurable Radio and Hands-on Practice'

**When:** Tuesday 1st October until Wednesday 2nd October,

**Location:** Room 741BC on Tuesday afternoon and Specific booth next to Registration Desk on Wednesday

**Organisers:** Florence Podevin and Estelle Lauga-Larroze (Univ. Grenoble Alpes, Grenoble, France)

### About the European Microwave Doctoral School

Following the success of the previous editions, this year's European Microwave Week features the 4th European Microwave Doctoral School. The aim of the Doctoral School is to offer to PhD students, beyond the normal conference programme, an overview of various emerging technologies. This year thematic is devoted to reconfigurable radio. The School gathers several speakers that develop their research in different topics linked to this field. The talks of the Doctoral School are longer (50 min) than typical conference presentations. Additionally, the School includes a Hands-on Design Experience on Wednesday: in collaboration with master students registered at the Student School, PhD students will build a modern digital transceiver. Attention has to be paid on the free Tuesday morning enabling preferential access to the Career Platform.

### Registration

The registration fee for this event is €80. For the registration, PhD students will need a valid student ID of an accredited university. Students are prompted to bring their own laptops. For registration, please go to the registration site and select EuMW Doctoral School. Registration is open until 10th September 2019. Space is limited, so secure your ticket well in advance.

For updates to the programme, visit [www.eumweek.com/students/doctoralschool.html](http://www.eumweek.com/students/doctoralschool.html)

### Programme

#### Tuesday 1st October

- 13:50-14:00 Doctoral School presentation
- 14:00-14:45 RF Circuit Design with the Inversion Coefficient: Application to LNA Implementations  
Thierry Taris, Univ. of Bordeaux, Bordeaux, France
- 14:45-15:30 Innovative switches for reconfigurability with PCM / SOI / MEMS  
Bruno Reig, CEA-Léti, Grenoble, France
- 15:30-16:10 Break
- 16:10-17:00 Microwave Filtering through Signal Interference  
Roberto Gomez-Garcia, Universidad de Alcala, Madrid, Spain
- 17:00-17:50 Beam-Forming and Antennas  
Luigi Boccia, Universita' della Calabria, Cosenza, Italy

#### Wednesday 2nd October

- 9:00-12:30 Hands on activity - Building a modern digital transceiver in one day  
David S. Ricketts, North Carolina State University, Raleigh, USA
- 12:30-13:50 Lunch
- 13:50-17:50 Hands on activity - Building a modern digital transceiver in one day  
David S. Ricketts, North Carolina State University, Raleigh, USA

## EuMW 2019 Student Challenge

**When:** Tuesday 1st October until Thursday 3rd October

**Location:** Room 741BC on Tuesday and Interactive session Area (e-Poster exhibition hall) on Thursday

Eligible students are invited to take part in the Student Challenge during EuMW 2019. The Student Challenge is an opportunity for undergraduate and graduate students (Bachelor, Master, and Doctoral students) from all over the world with a variety of academic backgrounds, to work together on a specific topic in the wide and exciting field of microwaves. The aim is to promote innovative thinking, teamwork and pro-active behavior; skills future employers will highly value. Kick-off will take place on Tuesday 1st October morning.

### Teams

Each team is composed of a maximum of four members, preferably from different institutions and with a variety of backgrounds. All teams will present, explain, and defend a fresh, visionary, application-oriented concept by a short presentation (ePoster). The presentation must be based on at least two papers presented at the EuMW 2019, of which only one paper may be authored by a member of the team. Eventually, each team will give an elevator pitch of the innovative concepts they have devised.

Contestant are invited to register prior the 15th of September 2019 to secure their participation. Late registration till Tuesday 1st October

is possible but will be subject to the limited participant number. Contestant are invited to bring their own laptop if possible, to ease their creative work.

### Evaluation Criteria

- Novelty of the idea
- Relevance of the solution/vision proposed
- Feasibility of the idea
- Clarity of the poster
- Clarity of the oral presentation and discussion

### Registration

To register, please send an e-mail to [eumw2019studentevent@unilim.fr](mailto:eumw2019studentevent@unilim.fr) and attach a copy of your student identity card or a confirmation, signed by your responsible professor. The deadline for registration is 10th September 2019. Updated information can be found at the EUMW 2019 web site.

### Programme

#### Tuesday 1st October

**Location:** Room 741 BC

- 08:30-10:10 Kick-off meeting: Theme disclosure, instructions, team formation (room 741 BC)

#### Thursday 3rd October

**Location:** (exhibition hall)

- 10:50 Poster presentation to jury and audience in Interactive session Area (e-Poster exhibition hall)

### **EuMW 2019 Career Platform**

The Career Platform is a two-day event (October 1st and 2nd) within the European Microwave Week 2019 and it is part of the student activities organized by the EuMW 2019 team with the additional support of EuMA and the IEEE MTT-S / Region 8 Young Professionals. The Career Platform is an opportunity for young European graduates to get in touch with those companies making an impact in today's high-frequency business and to know their main activities, application fields, and market indicators, and for the companies to recruit young talent in the areas of microwave / millimetre-wave, radar, wireless and integrated circuits engineering.

The main aim of the EuMW 2019 Career Platform initiative is to foster relationships between the young engineers and the job market. To this end, a special session will be held on "The European Microwave Industry market and Professional Opportunities" on Tuesday, October 1st. The Career Platform will also include a speed-recruiting lounge where companies and institutions will show their current job/internship offers. All this will be complemented by an active presence in the social networks (Facebook, LinkedIn, Xing) during the conference and the maintenance of the European RF and Microwave job portal <http://www.rf-and-microwave-jobs-in-europe.eu> which is the virtual marketplace for students and companies to meet at and in-between European Microwave Weeks. Further information can be found at: [www.eumweek.com/docs/Career\\_platform.html](http://www.eumweek.com/docs/Career_platform.html).

Please feel free to contact the Career Platform Chair at [jean-luc.polleux@esiee.fr](mailto:jean-luc.polleux@esiee.fr) with any questions you may have or to obtain additional details.

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#### **Career Platform Special Session**

The European Microwave Industry Market and Professional Opportunities

**Date: Tuesday 1st October 2019**

**09:00 -10:40**

**Location: Special space organised at the boundary of the conference spaces and of the exhibition.**

**No registration – free access (including visitors)**

The special session will describe the main market of the European Microwave Industry with a focus on Professional Opportunities in each of the main sectors. Top industry leading speakers will give their vision and insights.

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#### **Women-In-Microwaves Get-Together on the Career Platform**

**Date: Wednesday 2nd October 18:00-18:30**

**Registration through the WIM event**

**Location: Career Lounge**

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#### **Young Professionals Evening Meet-up**

**Date: Thursday 3rd October, 19:00-23:00**

**Location: down-town location, to be confirmed / Registration through [www.eumweek.com/docs/Career\\_platform.html](http://www.eumweek.com/docs/Career_platform.html)**

**Brought to you by IEEE MTT-S and IEEE Region 8 Young Professionals**

**No registration – free access (including visitors)**

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### **Special Session on "From Instrumentation to Metrology" - Women in Microwave Engineering Event**

**Date: Tuesday 1st October 2019**

**Duration: 13:00-17:50**

**Location: WiM stand, Room E07**

**Organiser:**

**WIM Chair: Audrey MARTIN, University of Limoges, France**

**WIM Co-chair: Anne Laure FRANC, University of Toulouse, France**

We continue the tradition of holding the Women in Microwave Engineering (WiM) event, co-sponsored by the IEEE MTT-Society. This year's event, focusing on Instrumentation and Metrology, will take you on a visit to "Musée des Arts et Métiers – CNAM" (<https://www.arts-et-metiers.net>). This is your chance to follow in the footsteps of inventors and pioneers of progress and explore a one-of-a-kind repository of scientific and technical knowledge. Both women and men are welcome.

Before visiting the museum, presentations will be done by scientists:

- 'Over-the-Air Test: From AM Radio to mmWaves'  
Dr. Kate A. REMLEY from NIST (USA)
- 'See the World Outside of the Design Lab'  
Dr. Amele SALAH from Keysight (France)
- 'Oscilloscope-Based Setups for the Nonlinear Characterization of Microwave Transistors'  
Dr. Valerie VADALA from University of Ferrara (Italy).

Attendees will have the opportunity to interact with high school students who are invited to participate in this event, Bus transportation to the museum will be provided.

Please register for the event by sending an e-mail to: [audrey.martin@xlim.fr](mailto:audrey.martin@xlim.fr)

Note that places are limited and assigned on a first-come first-served basis. For more information and registration details, please visit: [https://www.eumweek.com/docs/women\\_microwave.html](https://www.eumweek.com/docs/women_microwave.html)