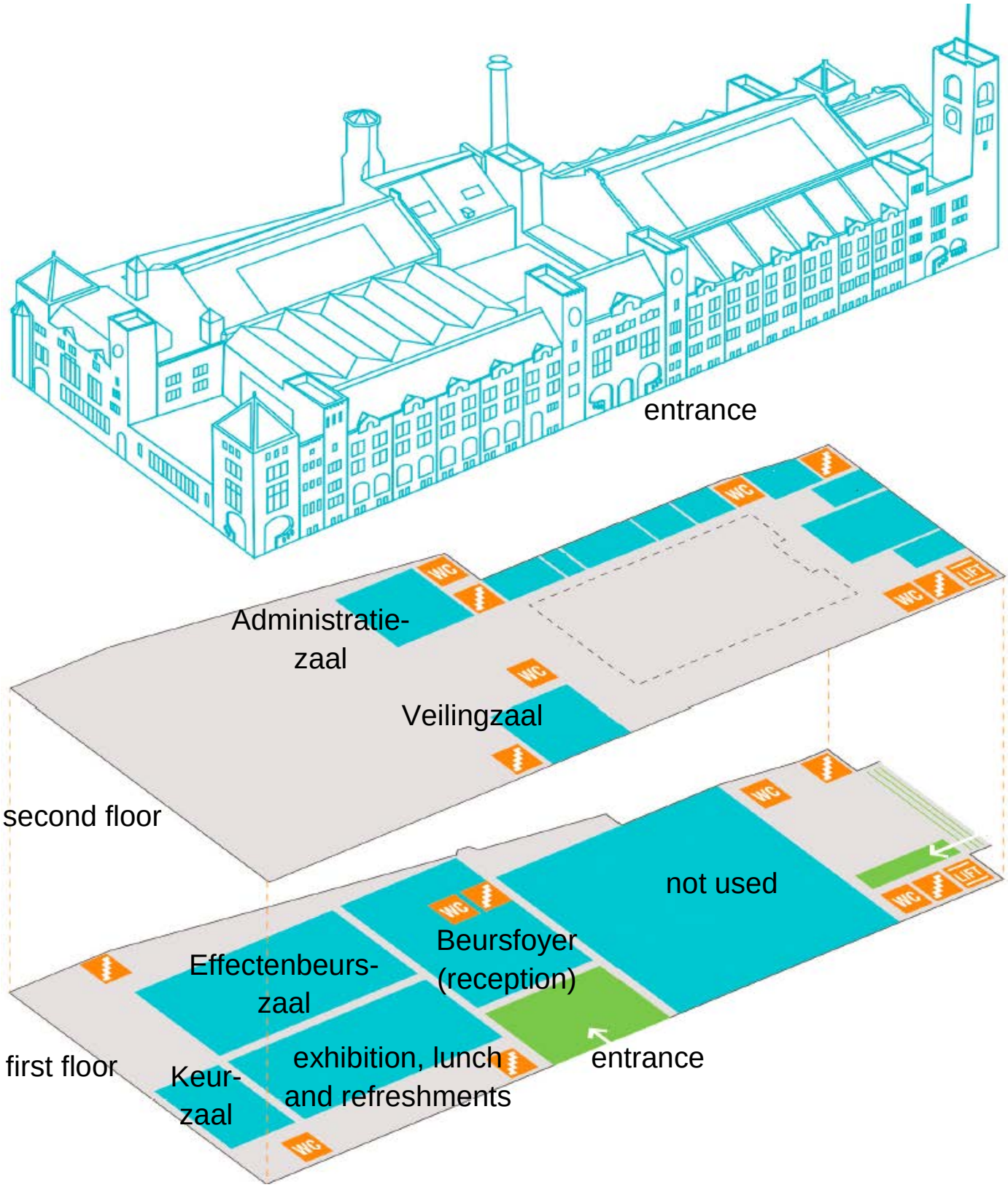
EMC EUROPE 2018

AMSTERDAM

Symposium Programme

Amsterdam, The Netherlands

27 – 30 August 2018


entrance
Administratie-
zaal
Veilingzaal
second floor
not used
Beursfoyer
(reception)
Effectenbeurs-
zaal
exhibition, lunch
and refreshments
entrance
first floor
Keur-
zaal
WC
LIFT

Welcome from Frank Leferink, Conference Chairman

Dear Attendees,

On behalf of the International Steering Committee and the Local Organizing Committee, I am delighted and privileged to welcome you and your families to the major European conference on EMC, from 27 to 30 August in Amsterdam, the Netherlands. After Rotterdam (1979) and Eindhoven (2004) the EMC family is back in the Netherlands.
Amsterdam is a city where you talk freely, think creatively and dream big. We hope you will enjoy the conference and the city.

With over 230 submitted regular papers coming from 50 countries, 195 papers have been accepted and arranged into 40 oral sessions, including 9 special sessions, and 2 poster sessions. Moreover, we will have 11 great tutorials and workshops taking place on Monday 27th. Do not forget to visit our exhibitors to get insight into industry trends, and to have access to the newest products and services from Tuesday until Thursday.

The keynote speech will be given after the opening ceremony on Tuesday. This keynote will be completely different from usual keynote speeches. We hope you will enjoy it!

As the General Chair of this conference, I would like to thank the members of the Local Organizing Committee (LOC) and all those who have worked tirelessly on this conference. I would like to thank all authors, chairmen, reviewers, conference partners, exhibitors and attendees.

Please enjoy the conference and the city of Amsterdam. My colleagues and I will be all over the conference throughout the week and we would like to personally meet and warmly welcome each and every one of you.

Sincerely

Frank Leferink

EMC Europe 2018 General Chair

Table of Contents

Conference information

Venue

The EMC Europe 2018 symposium will take place at the Conference Center 'Beurs van Berlage' on the Damrak in the centre of Amsterdam, The Netherlands.

Amsterdam is the Netherlands' capital, known for its artistic heritage, elaborate canal system and narrow houses with gabled facades, legacies of the city's 17th-century Golden Age. Its Museum District houses the Van Gogh Museum, works by Rembrandt and Vermeer at the Rijksmuseum, and modern art at the Stedelijk Museaum. Cycling is key to the city's character, and there are numerous bike paths.

The conference center, the Beurs van Berlage, is a building on the Damrak, in the center of the city. This former commodity exchange is one of the defining monuments of the Dutch capital.

The Amsterdam Central Station is only a 5 minutes walk away.
A direct link railway line connects Schiphol International Airport with Amsterdam Central Station. A map of the city centre is printed on the inner back side of the program.

Oral sessions, poster sessions, workshops and tutorials, exhibition will be held in the Effectenbeurszaal, Keurzaal, Administratiezaal or Veilingzaal, all located in the building of the Conference Center Beurs van Berlage.

Registration desk

All attendees, also exhibitors, have to register at the reception in the Beursfoyer. Registration is possible on Sunday 26 August between 16:00 and 18:00. From Monday 27 August until Thursday 30 August the registration desk is open between 8:30 and 17:00.

Badges

When registering at the reception desk, all delegates will receive a badge, conference material and, if included in their package, invitations for social events. Please wear your badge all the time throughout the conference. This will make it easier for you to enter the conference rooms. No badge: no access.

Lunches and coffee breaks

Lunches and coffee breaks are located in the exhibition area. Please show your badge which serves as your admission ticket.

Internet Access

Participants with WiFi computers and other mobile equipment will be able to take advantage of the wireless network facility installed in the Beurs van Berlage.

Transport in Amsterdam

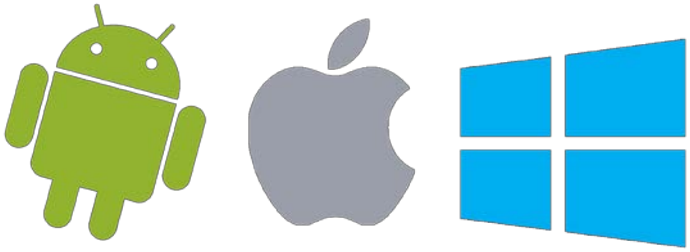
For public transport in Amsterdam, GVB is the main public transportation company. It provides integrated metro, tram and bus services throughout Amsterdam and its surrounding areas. It is recommended that short-term visitors in Amsterdam purchase one of the many paper tickets available. There are 20- upto 168- hour tickets, and they provide an economical way for visitors to explore the city.

Please remember to always check-in when boarding and check-out when departing each bus, tram and metro, otherwise your card may not work the next time you check in.

Trams provide the best way to get around Amsterdam and run regularly until 00:15. Buses are primarily used to reach outlying suburbs during the day. Night buses are available after the trams have stopped running and are available from 00:30 until 7:00, with routes connecting to Central Station, Rembrandtplein and Leidseplein. The Amsterdam Metro system currently has five lines in service that can quickly take you to distant suburban areas of the city. Three of the Amsterdam metro lines begin their journeys from Central Station. Some of the metro stations (e.g. Amstel Station and Sloterdijk) share their platforms with regular trains, which make them convenient points for travelling out of Amsterdam.

Mobile Conference Assistants - Conference4me

The Conference4me smartphone application provides you with the most comfortable tool for browsing the complete EMC Europe 2018 programme and planning your participation to this conference. The Conference4me application allows you to create your very own agenda on the fly directly from your phone or tablet. The Conference4me application is available for free for Android, iOS and Windows Phone devices. To download the mobile app, please visit http://conference4me.eu/download or search for “conference4me” in Google Play Store, iTunes App Store or Windows Phone Store, respectively, or scan the QR-codes below.



Type "Conference4me" in
Google Play store / Itunes app store / Windows Phone store
or scan the code below

Consultancy corner

Attendees who would like to discuss with an EMC consultant one on one can do this on Monday. Several Dutch EMC consultant are available for advice, discussion and to gain fresh insight. We have 15 time slots of 30 minutes available. The time slots are awarded on a first-come first-serve basis and registration is possible via the website https://www.emceurope2018.org/consultancy_corner/

Poster Presentations

Each presenter is provided with a A0 (1.2 meter high by 0.8 meter wide) poster board. Place the title of your paper and your paper number prominently at the top of the poster to allow viewers to identify your paper easily. Poster sessions will be held in the Effectenbeurszaal. The Effectenbeurszaal is also used for regular sessions. YOU ARE NOT allowed to put your poster before 12:30. Posters should be posted from 12:30 to 14:00 for the respective poster date. Presenters are required to be at their posters during their scheduled Poster session. Posters must be removed after the respective Poster session within half an hour. Posters remaining after these times will be removed. The organizer will not be responsible for posters and materials left on poster boards after the stated hours.

Oral Sessions

The presenting authors should be ready in the session room before the session starts, since the session chair will check all presenters at the beginning of each session. Each oral presentation is limited to 22 minutes including questions and answers. This usually means a maximum of 15 minutes for presentation, five minutes for questions and answers, and two minutes to get to and leave the podium. Session Chairs are being asked to be very strict in keeping to the time schedule. Please bring your presentation material, using Power Point or Adobe Acrobat, on a USB memory stick and load it onto the presentation computer at least 10 minutes prior to the start of the session. Also bring your printed short bio and give it to the session chair. LCD projector, Windows-based PC, Screen and Laser Pointer are available for presentation in each room. The computers in the meeting rooms are being provided to Windows-based PC users. The PC will be configured with Microsoft Windows operating system as well as with Microsoft Office. We do NOT provide a speakers ready room.

Welcome Reception: Tuesday 28 August, 18:00

The Local Organising Committee has the pleasure to invite you to the Welcome Reception, which will take place on Tuesday August 28th on the roof of the fantastic NEMO Science Museum. NEMO Science Museum is an amazing attraction in the center of Amsterdam which aims to educate visitors about the wonders of science in the most fun way possible. The NEMO Science Museum is housed in a gigantic boat-shaped copper building near Central Station which is impossible to miss.

To go there, you can walk from the Beurs van Berlage in less than 18 minutes to NEMO. Or walk from Beurs van Berlage to busstation *Prins Hendrikkade* (7 minutes, the busstation is on the bridge right, when in front of the Centran Station) and take a 1 minutes busride with line 394 to busstation *IJtunnel* and continue to walk to NEMO (4 minutes). See the map on the inner back page.

Please do not forget to take your personal invitation(s) with you.

Symposium Gala Dinner: Wednesday 29 august, 19:00

The Local Organising Committee warmly invites you to the Symposium Gala Dinner on Wednesday August 29th in the National Maritime Museum housed in 's Lands Zeemagazijn (the Arsenal). This historic building dates from 1656 and was designed as a storehouse for the Admiralty of Amsterdam. The arsenal was built in the Golden Age, when Amsterdam was the largest port and market place in the world. Goods from all over the world could be bought right here. Today, over 350 years later, the Arsenal remains an imposing and impressive building with a great deal of character. It exudes history, making it the perfect location for The National Maritime Museum, which has been housed here since 1973.

During the dinner, the Best Paper and the Best Student Paper will be awarded. To go there, you can walk from the Beurs van Berlage in approximately 20 minutes. See the map on the inner back page.

Please do not forget to take your personal invitation(s) with you.

Welcome to EMC Europe 2019 in Barcelona

EMC week in Barcelona

EMC Europe is the leading EMC Symposium in Europe and the 2019 edition will be held in Barcelona, from 2-6 September, 2019.

We wish to invite and encourage all those working in the field of electromagnetic compatibility to participate in this prestigious event.

Accepted papers will appear in IEEE Xplore.

The Call for paper can be found on the website: https://emceurope2019.eu/

Important Dates

- Special Sessions : 1 January, 2019
- Paper submission : 15 February, 2019
- Proposal for Workshops, Tutorials, Short Courses : 15 March, 2019
- Notification of acceptance : 15 April, 2019
- Final Paper Submissions: 15 May, 2019

Contact and Information : info.emceurope@upc.edu

Upcoming EMC Symposia

7-9 November 2018, Global EMC Conference (IEEE), Stellenbosch, South-Africa

20-22 May 2019, ESA Workshop on Aerospace EMC, Budapest, Hungary

3-7 June 2019, EMC Sapporo & APEMC 2019, Sapporo, Japan

19-26 July 2019, IEEE International Symposium on EMC, New Orleans, USA

2-6 September 2019, EMC Europe, Barcelona, Catalunya, Spain

27-31 July 2020, IEEE International Symposium on EMC, Reno, Nevada, USA

7-11 September 2020, EMC Europe, Rome, Italy

Committees

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Chairman: A. C. Marvin (United Kingdom)

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Regular members:

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M. Feliziani(Italy)
H. Garbe (Germany)
J.L. ter Haseborg (Germany)
Z. Joskiewicz (Poland)
M. Klingler (France)
F. Leferink (The Netherlands)
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V. Mariani Primiani (Italy)
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F. Rachidi (Switzerland)
M. Ramdani (France)
F. Sabath (Germany)
M.S. Sarto (Italy)
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D. Thomas (UK)
K. Wiklundh (Sweden)
T.W. Wieckowski (Poland)

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J. Catrysse (Belgium)
P. Degauque (France)
C. Christopoulos (United Kingdom)
A.P.J. van Deursen (The Netherlands)

Local Organizing Committee (LOC)

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Secretary & Logistics: Lilian Hannink, University of Twente, Enschede
Technical program Co-Chair: Anne Roc'h, Univ. of Technology, Eindhoven
Technical program Co-Chair: Ramiro Serra, Univ. of Technology, Eindhoven
Workshop/Tutorials: Marcel van der Horst, Univ. Appl. Sciences, Amsterdam
Sponsoring: Jan-Kees van der Ven, RH Marine, Schiedam
Exhibition: Bas de Groot, Comtest Engineering, Zoeterwoude
Social Media: Merlijn van Rij, Ricardo Rail, Utrecht
Logistics: Dwi Mandaris, University of Twente, Enschede

International Reviewers' Board

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Wiesław Sabat, Poland
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Jaroslaw Sadowski, Poland
Maria Sabrina Sarto, Italy
Christian Schuster, Germany
Robert Scully, United States
Ramiro Serra, Netherlands
Etienne Sicard, France
Ferran Silva, Spain
Andrzej Edward Sowa, Poland
Jan Luiken ter Haseborg, Germany
David Thomas, United Kingdom
Vincenzo Tucci, Italy
Alexander van Deursen, Netherlands
Gyorgy Varju, Hungary
Ralf Vick, Germany
Dariusz Więcek, Poland
Kia Wiklundh, Sweden
Perry Wilson, United States
Ryszard J. Zielinski, Poland

Paper publication

All papers are available via the conference proceedings on the USB memory stick. All papers presented will be uploaded in IEEE Xplore.

Review process

EMC Europe is using the Conftool conference management system. All reviewers were invited 3 months before the start of the review process to enter the technical areas in which they feel most competent. Reviewers could also select the maximum number of papers they were able to review within the 3 weeks of reviewing time. The authors could select one or more technical areas they feel their paper fits. After the submission deadline, papers were assigned to at least three reviewers. This was done using the Conftool reviewer selection algorithm: first of all the algorithm matches paper topics with reviewer topics. It also prevents having reviewers and authors from the same country. Furthermore reviewers are mixed. For instance, if an author (or group) submitted more papers on a similar topic, then still different reviewers would be selected to decrease any bias. Finally the algorithm balances the number of papers as preferred by the reviewers.

The reviewer could give a number ranging 0 – 10 for '**Familiarity of the reviewer with the topic**' but this had no impact on the final grading of the paper. The criteria considered to obtain a final grade between 0 and 10 were as follows, with weighting:
40% Quality of technical content
30% Significance for theory or practice
15% Originality and level of innovativeness
15% Quality of presentation
After the review process (and after sending a few reminders ☺), all papers with less than 3 reviews, or papers with a large variance in grading, were looked at by the ISC members attending the April meeting, and a final decision was made. The LOC and ISC are not changing the grades, as it assumed that the grades given by the reviewers are ''correct''. Misconduct of reviewers (giving a straight 0 for people they do not like, for instance) can thus be easily filtered out. These reviewers would be blacklisted for future conferences. The LOC and ISC looked at

many grey area papers (just below the threshold) and did not find any paper which deserved higher grades than those given by the reviewers. Papers with a grade 57 and above were accepted. Below that, the variance between the reviewers, and the self-declared familiarity of the reviewer, was taken into account in taking a decision. The decision of poster or oral was based on the preference of the authors and the recommendation of the reviewer.

All papers have been checked for plagiarism using the CrossCheck (iThenticate) tool provided by the IEEE. Although this is only mandatory for all conferences after 2019, the LOC decided to use it already.

Best Paper selection process

The selection of best papers is based solely on recommendations of reviewers. The best 8 papers (i.e. highest grades) were selected with the additional requirement that no single review had less than 70 points. Average grades were above 85 points. For student papers the requirement for single review was 69 points. This resulted in 11 best student papers. The target number of best papers is 10, but because of papers with the same grades the numbers are in practice deviating. Nominated best papers are listed in this program. Final versions of the best papers were anonymized and sent to the ISC. The ISC members could not vote for papers of their own group and considered the following criteria:

Technical Quality (weight 2)**:** This (student) paper is of superior technical quality and merits the "Best (Student) Paper" designation.

Potential Impact (weight 1)**:** This (student) paper has significant potential impact. The paper is addressing topics that are relatively new and current or addresses a topic that has been well explored in the past, but addresses the topic in a way that has not been seen before, comes across with new results, or is a significant extension to previous results.

Interest(weight 1)**:** This (student) paper will be of interest to the symposium attendees. The paper discusses material that would be of use to EMC engineers or for research. It may help symposium attendees understand new areas of EMC activity or that better clarifies EMC concepts that are “known”, but maybe not appreciated in their subtleties.

The Best (Student) Paper is the paper which received the highest score averaged over all scores given by the ISC members.

Technical areas

1. EMC Sources (incl. Transient, Surge, Intentional)
2. Transmission Lines
3. Shielding and Grounding
4. Measurements
5. Materials & Sensors
6. EMC Theory, Analysis and Simulation
7. EMC of Components and Integrated Circuits
8. EMC in Power Electronics
9. EMC in Communications
10. System-Level EMC
11. Human Exposure and Health Protection
12. EMC in Medical Devices
13. EMC Standards, Management & Regulations
14. EMC & Safety & Security
15. EMC in Industrial Environments
16. EMC in Military Applications
17. EMC in the Internet of Things
18. EMC Validation of Large Systems
19. Power Integrity, Signal Integrity
20. Any other relevant topics related to EMC

Special sessions

Special sessions have been proposed before January 2018 and the proposals have been reviewed by the Local Organising Committee. When approved, these sessions were added to the Conftool conference management systems and authors have been invited by the organizers to submit papers.

- Special Session (SS) on Aerospace EMC
- Special Session (SS) on Railway EMC
- Special Session (SS) on Risk-based EMC for Complex Systems
- Special Session (SS) on EMC Diagnostics of Complex Systems
- Special Session (SS) on EMC and Education
- Special Session (SS) on Power Quality and EMC
- Special Session (SS) on Low Frequency/Conducted EMI
- Special Session (SS) on Electromagnetic Eavesdropping (TEMPEST)
- Special Session (SS) on Automotive EMC

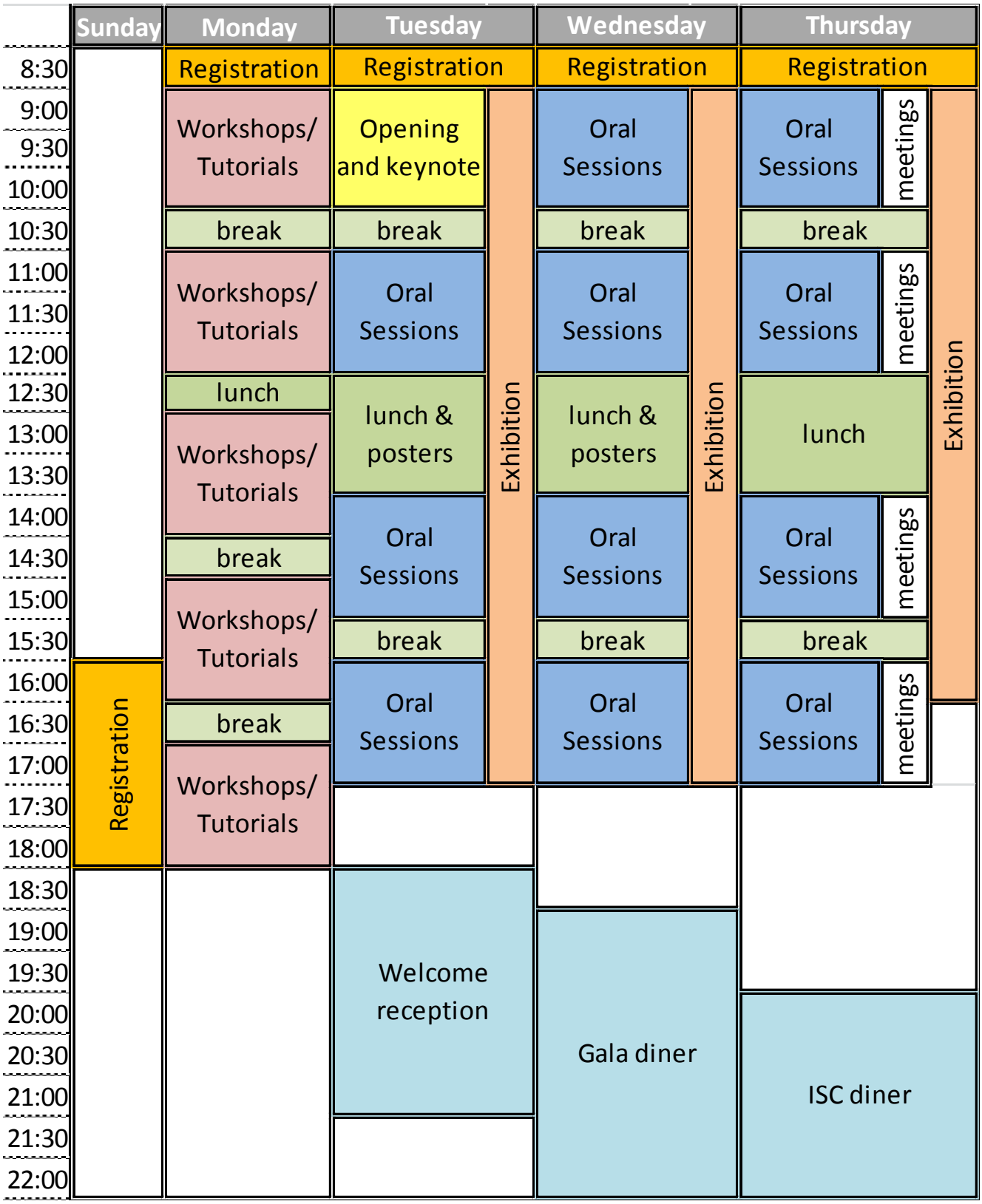
Best Paper Award Nominees

ID	Title, authors and affiliation
159	**Measurement of Radio-Frequency Radiation Pressure: The Quest for a NEW SI Traceable Power Measurement** Christopher L. Holloway, Alexandra Artusio-Glimpse, Matthew T. Simons, Ivan Ryger, Marc Kautz, Kyle A. Rogers, Abdulaziz H. Haddab, Paul A. Williams, Sae Woo Nam, and John H. Lehman *National Institute of Standards and Technology (NIST), Boulder Co, USA*
161	**Development and Applications of a Fiber-Coupled Atom-Based Electric Field Probe** Christopher L. Holloway, Matt T. Simons, Marc Kautz, Perry F. Wilson, and Joshua A. Gordon *National Institute of Standards and Technology (NIST), Boulder Co, USA*
178	**When d.c traction systems meet HF disturbances: The best of both worlds?** Erwin Smulders, Guus van der Hoeven *Movares Energy, Utrecht, The Netherlands*
200	**Currents and magnetic fields in hollow tubes: an in-class experiment and lab demonstrator for EMC education** Ramiro Serra, Lex van Deursen *Eindhoven University of Technology, Eindhoven, The Netherlands*
214	**Full Time Domain EMI measurement system applied to Railway emissions according to IEC 62236-3-1/EN 50121-3-1 standards** Marc Pous, Marco A. Azpúrua, José A. Oliva, Marc Aragón, Iván González and Ferran Silva *Universitat Politècnica de Catalunya, Barcelona, Spain*
230	**EMC Protection of Instrument Signal Lines in Industrial Installations - A demonstration model for EMC education** Cornelis F. Post *Lambda Engineering B.V., Hilversum, The Netherlands*
303	**Uncertainties in Rydberg Atom-based RF E-field Measurements** Matthew T. Simons, Marcus D. Kautz, Joshua A. Gordon, Christopher L. Holloway *National Institute of Standards and Technology (NIST), Boulder Co, USA*
311	**Characterization of the Cyclostationary Emissions in the Near-Field of Electronic Device** Y. Kuznetsov, A. Baev, M. Konovalyuk, A. Gorbunova, *Moscow Aviation Institute, Moscow, Russian Federation* and M. Haider, J. A. Russer, and P. Russer, *Technical University of Munich, Germany*

Best Student Paper Award Nominees

ID	Title, authors and affiliation
117	**Chasing the Wave in a Reverberation Chamber** L.A. Bronckers, A. Roc'h and A.B. Smolders *Eindhoven University of Technology, Eindhoven, The Netherlands*
170	**Reducing EMC Problems Caused by Power Semiconductors Using an Electrically Non-Conducting Heat Sink** Stephan Chromy, Sebastian Fahlbusch, Klaus F. Hoffmann, Stefan Dickmann *Helmut-Schmidt-University Hamburg, Germany*
179	**Estimation of Radiation Efficiency of GaN Half-bridge Based Submodule System for Radiated EMI Prediction** Chris van Diemen, Niek Moonen, Frank Leferink *University of Twente, Enschede, and Thales Nederland B.V., Hengelo, Netherlands*
180	**Designing multi-layer polymeric nanocomposites for EM shielding in the X-band** Debarshi Saha, Ruth Cardinaels, Anne Roc'h, Tom A.P. Engels, Patrick D. Anderson *Eindhoven University of Technology, Eindhoven, The Netherlands*
216	**Development of an Adaptive EMI Cancellation Strategy for Stationary Clocked Systems** A. Bendicks, T. Dörlemann, S. Frei, *TU Dortmund University, Dortmund, Germany,* and N. Hees, M. Wiegand, *Leopold Kostal GmbH & Co. KG, Lüdenscheid, Germany*
235	**Uncertainty of Phase Center Calculations Using Defective Field Data** Dominic Harke, Niklas Briest and Heyno Garbe, *Leibniz Universitat Hannover*
246	**Analysis of Nonstationary Emissions for Efficient Characterization of Stochastic EM Fields** M.H. Baharuddin, C. Smartt, M.I. Maricar, D.W.P. Thomas, G. Gradoni, S.C. Creagh, G. Tanner, *All: University of Nottingham, United Kingdom,* M.H. Baharuddin also from *Universiti Kebangsaan Malaysia*
251	**An Equivalent Radiation Source based on Artificial Neural Network for EMI Prediction** S. Yao, Y. F. Shu, L. Tong and X. C. Wei, *Zhejiang University, Hangzhou, China* Y. B. Yang, *Zhejiang University, Zigong, Sichuan, China* E. X. Liu, *Institute of High Performance Computing, Singapore*
261	**Reconstruction of Current Distribution and Termination Impedances of PCB-Traces by Magnetic Near-Field Data and Transmission-Line Theory** Robert Nowak, Stephan Frei, *TU Dortmund University, Germany*
319	**Toward Investigation of the Multi-Gig Data Transmission up to 5 Gbps in Vehicle and Corresponding EMC Interferences** Sanaz Mortazavi, Detlef Schleicher, Frank Schade *Volkswagen AG, Wolfsburg, Germany* Carsten Gremzow, *HTW Berlin University of Applied Sciences, Germany* Friedel Gerfers, *Technische Universität Berlin, Germany*
340	***Effectiveness of Time Diversity to Obtain EMI-Diverse Redundant Systems*** Jonas Lannoo, Jonas Van Waes, Andy Degraeve, Dries Vanoost, Jeroen Boydens, Davy Pissoort, *KU Leuven, Bruges Campus, Bruges, Belgium*

Schedule at a Glance



Monday 27 August 2018

	Effectenbeurszaal	Keurzaal	Administratiezaal	Veilingzaal
9:00 - 10:30	Automotive EMC tutorial	Experiments for Education in EMC-engineering workshop	COST: Characterization of stochastic emissions	Shipboard EMC, EMP, and Lightning Protection tutorial
10:30 - 10:45	morning break (coffee/tea/refreshments)			
10:45 - 12:15	Automotive EMC tutorial	Experiments for Education in EMC-engineering workshop	COST Action IC 1407 Tutorial; part 2	Shipboard EMC, EMP, and Lightning Protection tutorial
12:15 - 13:00	lunch break			
13:00 - 14:30	Automotive EMC tutorial	Do-It-Yourself EMI testlab workshop	Conducted EMC / Low-Frequency EMC tutorial	Protection of Civil Infrastructures against Intentional EMI tutorial
14:30 - 14:45	afternoon break (coffee/tea/refreshments)			
14:45 - 16:15	Understanding EMC/Radio/Automotive standards &	Do-It-Yourself EMI testlab workshop	Conducted EMC / Low-Frequency EMC tutorial	Protection of Civil Infrastructures against Intentional EMI tutorial
16:15 - 16:30	afternoon break (coffee/tea/refreshments)			
16:30 - 18:00	Understanding …. & EM-Field related testing, ctd. tutorial	How to Publish a Paper in the EMC Transactions workshop	EMC/EM safety aspects in electric vehicles equipped with WPT	Combined Effects of Ionizing Radiation and EMI on ICs tutorial

Workshops and tutorials Monday 27 August 2018

Date: Monday, 27 Aug 2018 Time: 9:00 - 10:30

TUT/WS-01: **Automotive EMC – 1**

Location: Effectenbeurszaal

Chair: Dr. Marco Klingler, Peugeot Citroen Automobiles, France

This workshop intends to present an overview of the most recent industrial advances in the field of automotive EMC design, modelling and simulation as well as in the field of automotive standards, testing and measurements.

Date: Monday, 27 Aug 2018 Time: 9:00 - 10:30

TUT/WS-16: **Understanding for Education in EMC Engineering - 1**

Location: Keurzaal

Chair: Frits Buesink, University of Twente, the Netherlands

Basic awareness of EMC is often best achieved by “Education by example”. After a brief introduction to each topic, the theory, an experiment will be performed to show the explained effect.

Date: Monday, 27 Aug 2018 Time: 9:00 - 10:30

TUT/WS-06: **COST Action IC1407 ACCREDIT - Characterization of stochastic emissions: a new challenge for standardization - 1**

Location: Administratiezaal

Chair: Prof. David Thomas, The University of Nottingham, United Kingdom

COST Action IC 1407 ACCREDIT is being funded by the European Union. It is focused on the characterization of stochastic emissions, using simulations and various measuring techniques, such as near-field scanning.

Date: Monday, 27 Aug 2018 Time: 9:00 - 10:30

TUT/WS-11: **Bad and good EMC installations and EMI Troubleshooting**

Location: Veilingzaal

Chair: Moshe Zecharia Netzer, EMC Engineering and Safety Ltd., Israel

As introduction to this session a series of slides of bad and good EMC installations of: bonding, grounding, shielding, gaskets, antennas, etc, will depict good and bad EMC conditions aboard Naval ships. Examples of historical EMI problems will follow ("war stories") along with techniques and methods for radiated and conducted EMI troubleshooting.

Date: Monday, 27 Aug 2018 Time: 10:45 - 12:15

TUT/WS-02: **Automotive EMC – 2**

Location: Effectenbeurszaal

Chair: Dr. Marco Klingler, Peugeot Citroen Automobiles, France

This workshop intends to present an overview of the most recent industrial advances in the field of automotive EMC design, modelling and simulation as well as in the field of automotive standards, testing and measurements.

Date: Monday, 27 Aug 2018 Time: 10:45 - 12:15

TUT/WS-17: **Understanding for Education in EMC Engineering - 2**

Location: Keurzaal

Chair: Frits Buesink, University of Twente, the Netherlands

Basic awareness of EMC is often best achieved by “Education by example”. After a brief introduction to each topic, the theory, an experiment will be performed to show the explained effect.

Date: Monday, 27 Aug 2018 Time: 10:45 - 12:15

TUT/WS-07: **COST Action IC1407 ACCREDIT - Characterization of stochastic emissions: a new challenge for standardization - 2**

Location: Administratiezaal

Chair: Prof. David Thomas, The University of Nottingham, United Kingdom

COST Action IC 1407 ACCREDIT is being funded by the European Union. It is focused on the characterization of stochastic emissions, using simulations and various measuring techniques, such as near-field scanning.

Date: Monday, 27 Aug 2018 Time: 10:45 - 12:15

TUT/WS-12: **Shipboard Electromagnetic Compatibility (EMC), EMP, and Lightning Protection**

Location: Veilingzaal

Chair: Moshe Zecharia Netzer, EMC Engineering and Safety Ltd., Israel

For the adequate control of shipboard electromagnetic interference (EMI), strict military standards and regulations have been developed and adopted worldwide. These standards require the suppression of electromagnetic emissions from circuits and systems, and their increased immunity to externally induced interference. This tutorial will discuss measures to comply with the standards and regulations.

Date: Monday, 27 Aug 2018 Time: 13:00 – 14:30

TUT/WS-03: **Automotive EMC – 3**

Location: Effectenbeurszaal

Chair: Dr. Marco Klingler, Peugeot Citroen Automobiles, France

This workshop intends to present an overview of the most recent industrial advances in the field of automotive EMC design, modeling and simulation as well as in the field of automotive standards, testing and measurements.

Date: Monday, 27 Aug 2018 Time: 13:00 – 14:30

TUT/WS-19: **Do-It-Yourself (DIY) EMC test lab - 1**

Location: Keurzaal

Chair: Andre Canrinus, Canrinus Consultancy, the Netherlands

Date: Monday, 27 Aug 2018 Time: 13:00 – 14:30

TUT/WS-08: **Conducted EMC / Low Frequency EMI - 1**

Location: Administratiezaal

Chair: Prof. Petre-Marian Nicolae, University of Craiova, Romania

Chair: Prof. Flavia Grassi, Politecnico di Milano, Italy

This tutorial is focusing on conducted and/or low frequency Electromagnetic (EM) Interference issues with emphasis on interference between equipment for power and transportation systems.

This Tutorial is sponsored by IEEE EMC-S TC7

Date: Monday, 27 Aug 2018 Time: 13:00 – 14:30

TUT/WS-13: **Protection of Civil Infrastructures against Intentional-EMI - 1**

Location: Veilingzaal

Chair: Dr. Frank Sabath, WIS, Germany

Chair: Prof. Wenyan Yin, Zhejiang University, China, People's Republic of

Intentional EMI is becoming more and more a threat to modern society because the availability of I-EMI is increasing, while modern electronic systems are becoming more vulnerable. Our civil infrastructures depend on the use of modern communication systems, and several research projects have been recently been carried out. In this tutorial whe will give an overview of high-power and low-power I-EMI threats, the risks to civil infrastuctures and preventive actions.

This Tutorial is sponsored by IEEE EMC-S TC5

Date: Monday, 27 Aug 2018 Time: 14:45 – 16:15

TUT/WS-04: **Basic Understanding of EMC/Radio/Automotive standards EM-Field related testing - 1**

Location: Effectenbeurszaal

Chair: Dr. Diethard E.A. Hansen, EURO EMC SERVICE (EES) Dr. Hansen Consulting, Switzerland

This tutorial provides or refreshes basic EMC/ Radio/Wireless/Automotive lab testing background/ knowledge.

Date: Monday, 27 Aug 2018 Time: 14:45 – 16:15

TUT/WS-19: **Do-It-Yourself (DIY) EMC test lab - 2**

Location: Keurzaal

Chair: Andre Canrinus, Canrinus Consultancy, the Netherlands

Date: Monday, 27 Aug 2018 Time: 14:45 – 16:15

TUT/WS-09: **Conducted EMC / Low Frequency EMI - 2**

Location: Administratiezaal

Chair: Prof. Petre-Marian Nicolae, University of Craiova, Romania

Chair: Prof. Flavia Grassi, Politecnico di Milano, Italy

This tutorial is focusing on conducted and/or low frequency Electromagnetic (EM) Interference issues with emphasis on interference between equipment for power and transportation systems.

This Tutorial is sponsored by IEEE EMC-S TC7

Date: Monday, 27 Aug 2018 Time: 14:45 – 16:15

TUT/WS-14: **Protection of Civil Infrastructures against Intentional-EMI - 2**

Location: Veilingzaal

Chair: Dr. Frank Sabath, WIS, Germany

Chair: Prof. Wenyan Yin, Zhejiang University, China, People's Republic of

Intentional EMI is becoming more and more a threat to modern society because the availability of I-EMI is increasing, while modern electronic systems are becoming more vulnerable. Our civil infrastructures depend on the use of modern communication systems, and several research projects have been recently been carried out. In this tutorial whe will give an overview of high-power and low-power I-EMI threats, the risks to civil infrastuctures and preventive actions.

This Tutorial is sponsored by IEEE EMC-S TC5

Date: Monday, 27 Aug 2018 Time: 16:30 – 18:00
TUT/WS-05: **Basic Understanding of EMC/Radio/Automotive standards EM-Field related testing - 2**
Location: Effectenbeurszaal
Chair: Dr. Diethard E.A. Hansen, EURO EMC SERVICE (EES) Dr. Hansen Consulting, Switzerland
This tutorial provides or refreshes basic EMC/ Radio/Wireless/Automotive lab testing background/ knowledge.

Date: Monday, 27 Aug 2018 Time: 16:30 – 18:00
TUT/WS-20: **How to Publish a Paper in IEEE Transactions on EMC**
Location: Keurzaal
Chair: Prof. John Norgard, NASA/JSC, United States of America
Chair: Dr. Perry Wilson, National Institute of Standards and Technology, United States of America
This tutorial is intended for anyone and everyone interested in publishing a paper in the IEEE Transactions on EMC (EMCT), especially for the first time. Presentations on EMCT include: 1) How to publish a paper in the EMCT; and 2) How to prepare and write a good technical paper for the EMCT.

Date: Monday, 27 Aug 2018 Time: 16:30 – 18:00
TUT/WS-10: **Low Frequency EMC in Next Generation Electrical Vehicles**
Location: Administratiezaal
Chairs: Dr. Tommaso Campi, University of L'Aquila, Prof. Francesca Maradei, La Sapienza University of Rome, Prof. Mauro Feliziani, University of L'Aquila, Italy
In this workshop EMC and EMF safety aspects on next generation electric vehicles (EVs) are discussed. The adoption of wireless power transfer (WPT) systems based on inductive coupling will be considered. Advanced models for numerical simulations of shielding of composite structures, radiation, and human exposure will be presented.

Date: Monday, 27 Aug 2018 Time: 16:30 – 18:00
TUT/WS-15: **Combined Effects of Ionizing Radiation and Electromagnetic Interference on ICs: The need of combined tests to achieve reliable systems**
Location: Veilingzaal
Chair: FABIAN VARGAS, Catholic University - PUCRS, Brazil
This tutorial addresses the background mechanisms impacting reliability of very deep submicron (VDSM) integrated circuits (ICs). Issues like total-ionizing dose (TID), single-event effects (SEEs) and electromagnetic interference (EMI) are presented and their combined effects on the reliability of modern ICs is discussed. Reliability failure mechanisms for radiation, the way they are modeled and how they are impacting IC lifetime will be covered. Design solutions as well as the development of on-chip sensors for leveraging robustness of embedded systems for critical applications are introduced.

Tuesday 28 August 2018

		Effectenbeurszaal	Keurzaal	Administratiezaal	Veilingzaal
9:00 - 10: 15	Exhibition, Graanbeurszaal	Opening ceremony and plenary session			
10:15 - 10:45		morning break (coffee/tea/refreshments)			
10:45 - 12:00		Special Session (SS) Railway EMC	EMC standards and ILC	Near field and Time domain	E-field sensing
12:30 - 14:00		**Poster session 1** and lunch break (exhibition area)			
14:00 - 15:30		SS Automotive EMC	SS Education for EMC	SS Diagnostics of complex systems	Transients
15:30 - 16:00		afternoon break (coffee/tea/refreshments)			
16:00 - 17:30		SS Automotive EMC	SS Education for EMC	SS Diagnostics of complex systems	SS Electromagnetic eavesdropping
18:00 - 21:00		Welcome reception in the NEMO Science Museum			

Opening ceremony, Tuesday 29 August 2018

Date: Tuesday 28 August Time: 9:00 – 9:30

Location: Effectenbeurszaal

Welcome addresses :

Prof. **Frank Leferink**,

General Chair EMC Europe 2018

THALES, Hengelo, & University of Twente, Enschede, the Netherlands

Dr. **Frank Sabath**,

Immediate Past President of the IEEE EMC Society

WIS-Munster, Germany

Prof. **Andrew Marvin**,

Chairman of the International Steering Committee (ISC) of EMC Europe

University of York / York EMC Services Ltd, United Kingdom

Prof. **Ferran Silva**,

EMC Europe 2019 Barcelona Symposium Chair

Universitat Politècnica de Catalunya, Spain

Keynote Kevin Weijers

Date: Tuesday 28 August Time: 9:30 – 10:15

Location: Effectenbeurszaal

This year we start with a keynote that's different from what you are used to. Kevin is the Chief Exploration Officer (CEO) of 80experiments: An adventure for which he helps launch new ideas at companies around the the world. Not for money, but in exchange for food and shelter. He follows his curiosity, challenges assumptions, and simplifies complexity, where ever he goes. One of his statements is: think less, experiment more. And with that, we hope you will enjoy this keynote about thinking, and mostly acting, differently.

Tuesday 28 August, Effectenbeurszaal Time: 10:45 – 12:30
SS-08: Special Session on Railway EMC
Session Chair: Erwin (H.W.M.) Smulders, Movares Nederland, the Netherlands
Session Chair: Cornelis Jan Jacobus van der Ven, RH Marine, the Netherlands

About electromagnetic compatibility of track circuits with the traction supply system of railway
Tetiana Mykolaivna Serdiuk[1], Mauro Feliziani[2], Kseniia Mykolaivna Serdiuk[1]
[1]Dnipropetrovsk National University of Railway Transport named after Academician V. Lazaryan; [2]University of L'Aquila

Increasing EMC on international conventional railways
Remco Marcel Paulussen[1], René Koopal[2]
[1]Railwaysafe, the Netherlands; [2]ProRail, the Netherlands

Modelling of the Return Traction Current Harmonics Distribution in Rails for AC Electric Railway System
Volodymyr Havryliuk, *Dnipro National University of Railway Transport, Ukraine*

When d.c traction systems meet HF disturbances: The best of both worlds?
Erwin {H.W.M.} Smulders, Guus {G.C.} van der Hoeven, *Movares Nederland, the Netherlands*

Full Time Domain EMI Measurement system applied to Railway emissions according to IEC 62236-3-1/EN 50121-3-1 standards
Marc Pous, Marco A. Azpúrua, José A. Oliva, Marc Aragón, Iván González, Ferran Silva, *Universitat Politècnica de Catalunya, Spain*

Tuesday 28 August, Keurzaal Time: 10:45 – 12:30
Std: EMC Standards and Interlaboratory Comparison (ILC)
Session Chair: Cees Keyer, Twente University/ Amsterdam University of Applied Sciences, the Netherlands

Inconsistency in CISPR 16-1-1 performance tests for disturbance analysers
Mario Monti, Elena Puri, Massimo Monti, *Elettronica Monti, Italy*

Design of a Reference Device for Surge Immunity Inter-laboratory Comparison
Emrah Tas, Frederic Pythoud, Beat Muehlemann, *Swiss Federal Institute of Metrology METAS, Switzerland*

Improved Just-Before-Test Verification Methods with VNA for Conducted EMC Tests
Osman Sen, Soydan Cakir, *TUBITAK UME (National Metrology Institute), Turkey*

Influence of Disturbance Current Mode on Correlation between Radiation Test Sites Using VHF-LISN and CMAD
Shinichi Okuyama[1], Nobuo Kuwabara[2], Kunihiro Osabe[3], Hidenori Muramatsu[4]
[1]VCCI Council / NEC Platforms, Ltd., Japan; [2]Kyushu Institute of Technology; [3]VCCI Council; 4VCCI Council

Tuesday 28 August, Administratiezaal Time: 10:45 – 12:30
NFTD: Near Field and Time Domain Techniques
Session Chair: Prof. David Thomas, The University of Nottingham, UK

Dynamic Performance Evaluation of Full Time Domain EMI Measurement Systems
Marco Azpurua, Marc Pous, Mireya Fernandez, Ferran Silva;
Universitat Politecnica de Catalunya, Spain

Exploratory Data Analysis on Stochastic Emissions Near-Field Scanning Measurements
José A. Oliva[1], Marco A. Azpúrua[1], Marc Pous[1], M H Baharuddin[2], C Smartt[2], David W. P. Thomas[2], Ferran Silva[1];
[1]Universitat Politècnica de Catalunya, Spain; [2]University of Nottingham, UK

Characterization of the Cyclostationary Emissions in the Near-Field of Electronic Device
Yury Kuznetsov[1], Andrey Baev[1], Maxim Konovalyuk[1], Anastasia Gorbunova[1], Michael Haider[2], Johannes A. Russer[2], Peter Russer[2];
[1]Moscow Aviation Institute, Russian Federation; [2]Technical University of Munich, Germany

Reconstruction of Current Distribution and Termination Impedances of PCB-Traces by Magnetic Near-Field Data and Transmission-Line Theory
Robert Jan Nowak, Stephan Frei;
T*U Dortmund University, Germany*

Optimizing a Decoupling Capacitor on a PCB: A Fully Time-Domain Approach Based on PSO and TD-CIM
Petr Kadlec, Vladimír Šeděnka, Martin Marek, Martin Štumpf;
Brno University of Technology, Czech Republic

Tuesday 28 August, Veilingzaal Time: 10:45 – 12:30
ES: E-field Sensing;
Session Chair: Dr. Frank Sabath, WIS, Germany

Development and Applications of a Fiber-Coupled Atom-Based Electric Field Probe
Christopher Holloway, Matt Simons, Marc Kautz, Perry Wilson, Joshua Gordon
National Institute of Standards and Technology (NIST), United States of America

Uncertainties in Rydberg Atom-based RF E-field Measurements
Matt Simons, Marc Kautz, Joshua Gordon, Christopher Holloway
NIST, United States of America

Measurement of Radio-Frequency Radiation Pressure: The Quest for a NEW SI Traceable Power Measurement
Christopher Holloway, Alexandra Artusio-Glimpse, Matt Simons, Ivan Ryger, Marc Kautz, Kyle rogers, Abdulaziz Haddab, Paul Williams, Sae Woo Nam, John Lehman
NIST, United States of America

High-resolution near-field imaging and far-field antenna measurements with atomic sensors
David Anderson[1], Georg Raithel[1,3], Eric Paradis[1,2], Rachel Saprio[1], Matthew Simons[4], Christopher Holloway[4];
[1]Rydberg Technologies, United States of America; [2]Eastern Michigan University, United States of America; [3]University of Michigan, United States of America; [4]NIST - Boulder, United States of America

Resonator Substrate-Integrated Waveguide (SIW) Sensor for Measurement of AC Electric Fields
Amirmasoud Amirkabiri, Greg E. Bridges, Behzad Kordi; *University of Manitoba, Canada*

Tuesday 28 August, Effectenbeurszaal Time: 12:30 – 14:00
Poster1: Poster Session

Common mode modelling of a current injection source for susceptibility study
Guillaume Mejecaze[1], Frédéric Puybaret[1], Tristan Dubois[2], Jean-Michel Vinassa[2]
[1]CEA, DAM, CEA-Gramat; [2]Laboratoire IMS, Bordeaux University

Evaluation of Multichannel Synchronous Conducted TDEMI Measurements for High Voltage Power Electronics
Tom Hartman[1], Niek Moonen[1], Frank Leferink[1,2]
[1]University of Twente, the Netherlands, [2]Thales Netherlands B.V.

Fast Simulation of Large-Scale Cable Systems by Hybridization of MTL, MNA and FDTD Methods
Alexander Demurov[1,2], Iskander Badzagua[1,2], Anna Gheonjian[1,2], Diana Eremyan[1,2], Anna Bzhalava[1], Badri Khvitia[1,2], Zviad Kutchadze[1,2], Roman Jobava[1,2]
[1]EMCoS Ltd, Georgia; [2]Tbilisi State University, Georgia

Retrofitting a Shielded Camera Enclosure with an Internet Protocol Camera and Testing for Radiated Immunity and Emission in a Reverberation Chamber
Jagadeesh Immidisetti, Mathias Magdowski, Ralf Vick
Chair of EMC, Otto von Guericke University, Germany

Development of Human Body Impedance Equivalent Circuit for Contact Current Measurement
Yoshitsugu Kamimura[1,2], Soma Inagaki[1], Kanako Wake[2]
[1]Utsunomiya University, Japan; [2]NICT, Japan

Simplification Strategies for Simulating Low Frequency Magnetic Fields around Battery Modules Formed from Cylindrical 18650 Cells
Jiaqi Chen, Alastair Ruddle, Yu Xian Teo
MIRA Limited, United Kingdom

Study of Electromagnetic Noise Radiated from LED Shadowless Lighting and Its Effect on Surgical Navigation System
Kai Ishida[1], Tomoe Yoshida[2], Sazu Arie[1], Masaki Matsuzuki[3], Eisuke Hanada[4], Minoru Hirose[1] ; *[1]National Institute of Information and Communications Technology, Japan; [2]Department of Medical Safety Engineering, Kitasato University, Japan; [3]Department of Clinical Engineering, Mie University Hospital, Japan; [4]Department of Information Science, Saga University, Japan*

Investigation on Nuclear Electromagnetic Pulse (NEMP) Coupling to Instrumented EIDs
Rakesh Kichouliya, Pawan Kumar; *Research Centre Imarat, India*

Mode-Stirring Impact in Radar Cross Section Evaluation in Reverberation Chamber
Ariston Reis[1], François Sarrazin[1], Elodie Richalot[1], Philippe Pouliguen[2]
[1]Université Paris-Est, ESYCOM (EA2552), UPEMLV, ESIEE-Paris, CNAM F-77454 Marne-la-Vallée, France; [2]Strategy Directorate Direction Generale de l'Armement (DGA) Paris 75509, France

Height Scan Methods for Determining the Radiated Power at Microwaves Frequencies
Georgij Jefimovic Leontjev
Communications Regulatory Authority of the Republic of Lithuania, Lithuania

An Investigation into Alternatives to the CISPR 12 Full Vehicle Measurement Method
Max Paterson[1], John Frederick Dawson[2]
[1]HORIBA MIRA; [2]University of York. York, United Kingdom

A Study of Installation Location and Mechanism to Suppress Power-bus Resonance Efficiently Using Lossy Resonator Filters
Sho Kanao, Kengo Iokibe, Yoshitaka Toyota
Ok*ayama University, Japan*

Electromagnetic Interference on Secondary Systems of UHVDC Substation Caused by Ground Potential Rise
Zhaohua Zhang[1], Weidong Shi[1], Peng Kang[1], Lei Shi[2], Hailong Song[2], Lei Yan[3], Weidong Zhang[3], Bo An[3] ; *[1]High Voltage Dep., China Electric Power Research Institute, China; [2]State Grid Ningxia Electric Power Company Limited, China; [3]North China Electric Power University, China*

Monitoring of Power Measured by Static Energy Meters for Observing EMI Issues
Bas ten Have[1], Cees Keyer[1,2], Frank Leferink[1,3]
[1]University of Twente, Enschede, the Netherlands; [2]Amsterdam University of Applied Sciences,the Netherlands; [3]Thales Netherlands, Hengelo, the Netherlands

Offshore wind towers interaction through their grounding systems
Erika Stracqualursi, Rodolfo Araneo, Paolo Burghignoli, Salvatore Celozzi, Giampiero Lovat; *University of Rome La Sapienza, Italy*

Characterization of Terminating Impedances using Contactless Vector Network Analysis
Lukas Oppermann, Martin Harm; *TU Braunschweig, Germany*

Observation of Abnormal Behavior of Cows Exposed to Electromagnetic Fields
Frits Buesink, Robert Vogt-Ardatjew, Frank Leferink
University of Twente, the Netherlands

Active EMI Noise Cancellation
Mart Coenen, Jayanta Deb
EMCMCC, the Netherlands

Alternative EMI Test Methods of Heavy EUTs
Monika Ewelina Szafranska
Wroclaw University of Science and Technology, Poland

Radiated Fields in Close Proximity
Bruno Audone[1], Roberto Colombo[2]
[1]Idrotek Torino, Italy; [2]IMQ S.p.A., Italy

Tuesday 28 August, Effectenbeurszaal Time: 14:00 – 15:30
SS-09a: Special Session on Automotive EMC - 1
Session Chair: Dr. Marco Klingler, Peugeot Citroen Automobiles, France
Session Chair: Dr. Rajeev Roy, NXP, the Netherlands

Verification of EMI Limit by means of a receiver sensitivity through interference in case of occurring from vehicle electric parts in the ITS frequency band (5.86-5.93 GHz)
Young Seob Kim[1], Hyok Lee[2], Houn Soo Lee[1], Beom Jin Choi[2]; *[1]Hyundai-motors, South Korea; [2]Korea Automotive Technology Institute, South Korea*

Toward Investigation of the Multi-Gig Data Transmission up to 5 Gbps in Vehicle and Corresponding EMC Interferences
Sanaz Mortazavi[1], Detlef Schleicher[1], Frank Schade[1], Carsten Gremzow[2], Friedel Gerfers[3]; *[1]Volkswagen AG, Germany; [2]HTW Berlin University of Applied Sciences, , Germany; [3]Chair of Mixed-Signal Circuit Design, Technische Universität Berlin, Germany*

Simulating RF Impedance and High-Voltage to Low-Voltage Coupling in Automotive Traction Batteries
Yu Xian Teo, Jiaqi Chen, Alastair Ruddle; *MIRA Limited, United Kingdom*

In-car emission prediction for a real communication system based on a component level test
Emanuel Panholzer; *Daimler AG, Germany*

Tuesday 28 August, Keurzaal Time: 14:00 – 15:30
SS-04a: Special Session on Education for EMC - 1
Session Chair: Dr. Alexander van Deursen, Eindhoven University of Technology, the Netherlands

An EMC Education Program for Non-Electric/Electronics Background Engineers
Yoshio Kami, Takashi Nakamura, Yoshitaka Hashimoto, Keishi Fukuzawa, Yoshiki Kayano; *University of Electro-Communications, Japan*

An Insightful Derivation of Transmission Line Equations including Electromagnetic Field-Coupling
Frank Gronwald; *University of Siegen, Germany*

Currents and magnetic fields in hollow tubes: an in-class experiment and lab demonstrator for EMC education
Ramiro Serra, Lex van Deursen; *Eindhoven University of Technology, the Netherlands*

EMC experiment to educate the art of "creating loosely coupled coherent modules"
Frits Buesink, Robert Vogt-Ardatjew, Frank Leferink; *University of Twente, the Netherlands*

Tuesday 28 August, Administratiezaal Time: 14:00 – 15:30
SS-02a: Special Session on EMC Diagnostics of Complex Systems - 1
Session Chair: Dr. Vladimir Mordachev, Belarusian State University

Worst-Case Model for Considering Gaskets in Calculation of Shielding Effectiveness of Metallic Enclosures
Dzmitry Tsyanenka[1], Yauheni Arlou[1,2], Eugene Sinkevich[1]; *[1]Belarusian State University of Informatics and Radioelectronics, Belarus; [2]Belarusian State University, Minsk, Belarus*

Estimation of Electromagnetic Background Created by Equipment of Cellular Radio Networks in Urban Areas with High Spatial Density of Subscribers
Aliaksandr Svistunou; *Belarusian State University of Informatics and Radioelectronics*

Multi-Variant Discrete Analysis of EMC of On-Board Radio Equipment with Use of Worst-Case Models
Vladimir Mordachev[1], Eugene Sinkevich[1], Dzmitry Tsyanenka[1], Andrei Krachko[1], Yury Yatskevich[1], Alexey Shuldov[2], Andry Vodchits[2], Yingsong Li[3], Tao Jiang[3], Wei Xue[3] ;
[1]Belarusian State University of Informatics and Radioelectronics, Belarus; [2]Agat-System AG, Belarus; [3]Harbin Engineering University, China

Worst-case model for calculation of lightning electromagnetic field
Yauheni Arlou[1,2], Dzmitry Tsyanenka[1], Eugene Sinkevich[1], Ma Xie[3]
[1]Belarusian State University of Informatics and Radioelectronics, Belarus; [2]Belarusian State University, Belarus; [3]China Electronics Technology Cyber Security Co., Ltd

Tuesday 28 August, Veilingzaal Time: 14:00 – 15:30
Trans: Transients
Session Chair: Prof. Jan Luiken ter Haseborg, Techn. Univ. Hamburg, Germany

Automatic method for monitoring the lower ionosphere and lightning location by tweek-atmospherics
Alexander Shvets[1], Tetiana Serdiuk[2], Alexey Krivonos[1], Masashi Hayakawa[3]
[1]O. Ya. Usikov Institute for Radiophysics and Electronics of the National Academy of Sciences of Ukraine, Ukraine; [2]Dnipropetrovsk National University of Railway Transport named after academician V. Lazaryan; [3]Hayakawa Institute of Seismo Electromagnetics Co. Ltd., The University of Electro-Communications Incubation Center-508

The Difference of Statistical Characterization from Two Angle of Views in HEMP Field-Line Coupling
Zheng Liu, Dongwei Hei, Congguang Mao; *Northwest Institute of Nuclear Technology, People's Republic of China*

HPEM Vulnerability of Smart Grid Substation Secondary Systems
Marian Lanzrath[1], Michael Suhrke[1], Holger Hirsch[2];
[1]Fraunhofer INT, Germany; [2]University Duisburg Essen, Germany

Circuit Modeling of Contact Arc and Contact Bounce in a Transient Electromagnetic Compatibility Test
Jia Li, Ahalya Srikanth, Tianye Ma, Praveen Gurrala; *Hitachi America, USA*

Tuesday 28 August, Effectenbeurszaal Time: 16:00 – 17:30
SS-09b: Special on Session Automotive EMC - 2
Session Chair: Sebastian Koj, IAV GmbH, Germany

Development of an Adaptive EMI Cancellation Strategy for Stationary Clocked Systems
Andreas Bendicks[1], Tobias Dörlemann[1], Stephan Frei[1], Norbert Hees[2], Marc Wiegand[2]
[1]TU Dortmund University, Germany; [2]Leopold Kostal GmbH & Co. KG, Germany

Automated Filter Optimization for High-Voltage Cable Harness based on Circuit Simulations for Conducted Emissions Prediciton
Denis Mueller, Michael Beltle, Stefan Tenbohlen
University of Stuttgart, Germany

Analytic Calculation of Shielding Effect of Vehicular Body on Low Frequency Magnetic Fields Induced by High Voltage Cables
Anika Henke, Robert Jan Nowak, Stephan Frei
TU Dortmund University, Germany

***C*omparison of Unshielded Twisted Pair and Flexible Printed Circuit Interconnects for Data Networks**
Yu Xian Teo, Alastair R. Ruddle, Jiaqi Chen
Future Transport Technologies Department, HORIBA MIRA Ltd, United Kingdom

Tuesday 28 August, Keurzaal Time: 16:00 – 17:30
SS-04b: Special Session on Education for EMC - 2
Session Chair: Dr. Ramiro Serra, Eindhoven University of Technology, the Netherlands

EMC Protection of Instrument Signal Lines in Industrial Installations, A demonstration model for EMC education
Cornelis Frederik Post
Lambda Engineering B.V., the Netherlands

Lecture demonstrations on transfer impedance
Alexander van Deursen
Eindhoven University of Technology, the Netherlands

University Engineering Course on EMF Safety
Mauro Feliziani, Tommaso Campi, Silvano Cruciani, Valerio De Santis
University of L'Aquila, Italy

Tuesday 28 August, Administratiezaal Time: 16:00 – 17:30
SS-02b: Special Session on EMC Diagnostics of Complex Systems - 2
Session Chair: Dr. Vladimir Mordachev, Belarusian State University of Informatics and Radioelectronics, Belarus

Restrictions on Wideband Systems of Mobile Communications of New Generations at Declared Expansion of Data Transfer Rates
Vladimir Mordachev
Belarusian State University of Informatics and Radioelectronics, Belarus

Analysis of Nonstationary Emission for Efficient Characterization of Stochastic EM Fields
Mohd Hafiz Baharuddin[1,2], Christopher Smartt[1], Mohamed Ismaeel Maricar[1], Dave Thomas[1], Gabriele Gradoni[1,3], Stephen Creagh[3], Gregor Tanner[3]
[1]The George Green Institute for Electromagnetics Research, University of Nottingham, Nottingham NG7 2RD, UK; [2]Centre of Advanced Electronic and Communication Engineering, Universiti Kebangsaan Malaysia, 43600 Bangi, Malaysia; [3]School of Mathematical Sciences, University of Nottingham, Nottingham NG7 2RD, UK

Tuesday 28 August, Veilingzaal Time: 16:00 – 17:30
SS-05: Special Session on Electromagnetic Eavesdropping
Session Chair: Dr. Ireneusz Kubiak, Military Comunication Institute, Poland

Level of electromagnetic safety of graphic digital interface
Ireneusz Kubiak
Military Comunication Institute, Poland

Second Order Soft-TEMPEST in RF Front-Ends: Design and Detection of Polyglot Modulations
Emmanuel Cottais[1], José Lopes Esteves[1], Chaouki Kasmi[2]
[1]French Network and Information Security agency, Paris, France; [2]Dark Matter LLC, Abu Dhabi, UAE

Optical TEMPEST
Joe Loughry
University of Denver, United States of America

Wednesday 29 August 2018

		Effectenbeurszaal	Keurzaal	Administratiezaal	Veilingzaal
9:00 - 10: 30	Exhibition, Graanbeurszaal	SS Aerospace EMC	Reverberation chambers	EMC in ICs	Exposure to EMF
10:30 - 11:00		morning break (coffee/tea/refreshments)			
11:00 - 12:30		SS Aerospace EMC	Reverberation chambers	EMC in ICs	Transmission lines
12:30 - 14:00		**Poster session 2** and lunch break (exhibition area)			
14:00 - 15:30		SS Aerospace EMC	Reverberation chambers	SS Risk-based EMC complex systems	Modelling and simulation
15:30 - 16:00		afternoon break (coffee/tea/refreshments)			
16:00 - 17:30		EMC in PCB	Chambers and cells	SS Risk-based EMC complex systems	Modelling and simulation
19:00 - 23:00		Gala dinner in the National Maritime Museum (Scheepvaart museum)			

Wednesday 29 August, Effectenbeurszaal Time: 9:00 – 10:30
SS-01a: Special Session on Aerospace EMC - 1
Session Chair: Dr. Johannes Wolf, ESA ESTEC, the Netherlands

Radiated Susceptibility Tests in Thermal Vacuum Chambers Working as Reverberation Chambers
Guillaume Andrieu[1], Nicolas Ticaud[2], Frédéric Lescoat[3], Laurent Trougnou[4]
[1]XLIM Laboratory, University of Limoges, France; [2]CISTEME company, Limoges, France; [3]Airbus Defence and Space, Toulouse, France; [4]ESA-ESTEC, Noordwijk, The Netherlands

Experimental Proof of Concept for the Correlation of Bulk Current Injection and Radiated Susceptibility Tests for Aerospace Equipment up to 1 GHz
Giordano Spadacini[1], Flavia Grassi[1], Sergio A. Pignari[1], Patrick Bisognin[2], Alexandre Piche[2], Sergio Marra[3] ;*[1]Politecnico di Milano, Italy; [2]Airbus Defence and Space, Toulouse, France; [3]ESA, ESTEC, Noordwijk, the Netherlands*

A crosstalk sensitivity analysis on bundles of twisted wire pairs
Jesper Lansink Rotgerink[1,2], Frank Leferink[2,3]
[1]Netherlands Aerospace Centre, The Netherlands; [2]University of Twente, The Netherlands; [3]Thales, The Netherlands

RFI Estimation from Non-GSO Satellites Based on Two Line Element Assisted Equivalent Power Flux Density Calculations
Tom Hartman[1], Niek Moonen[1], Frank Leferink[1,2]
[1]University of Twente, The Netherlands; [2]Thales Nederland B.V., Hengelo, Netherlands

Wednesday 29 August, Keurzaal Time: 9:00 – 10:30
RCa: Reverberation Chambers - 1
Session Chair: Dr. Ramiro Serra, Eindhoven Univ. of Technology, the Netherlands

Electromagnetic Field Coupling to Transmission Line Networks of Double-Wire Lines in a Reverberation Chamber
Mathias Magdowski[1], Johanna Kasper[1], Ralf Vick[1], Ildar Zalaliev[2], Roman Chevtaev[2], Evgenii Fedorov[2], Andrey Ferenets[2]
[1]Otto von Guericke University, Germany; [2]Kazan National Research Technical University named after A. N. Tupolev - KAI, Kazan, Tatarstan, Russia

Design and Evaluation of a Broadband Source Stirring Antenna for use in a Reverberation Chamber
Andy Marvin, Liam Franks, Ian Flintoft, John Dawson, Martin Robinson
University of York, United Kingdom

Estimate of the Measurement Uncertainty in Loaded and Unloaded Continuous Stirred Reverberating Chambers Including Frequency Stirring
Angelo Gifuni, Antonio Sorrentino, Sergio Cappa, Giuseppe Grassini, Maurizio Migliaccio ; *Università degli Studi di Napoli Parthenope, Italy*

Experimental Comparison between Source Stirring and Mechanical Stirring in a Reverberation Chamber by Analyzing the Antenna Transmission Coefficient
Alfredo De Leo, Graziano Cerri, Paola Russo, Valter Mariani Primiani
Universita Politecnica Marche, Italy

Wednesday 29 August, Administratiezaal — Time: 9:00 – 10:30

ICa: EMC in Integrated Circuits (ICs) - 1

Session Chair: Dr. Marcel van der Horst, Amsterdam University of Applied Sciences, The Netherlands

Stability Analysis of Black-Box Models of Integrated Circuits for DPI Simulations

Marko Magerl[1], Christian Stockreiter[1], Adrijan Baric[2]

[1]ams AG, Austria; [2]University of Zagreb Faculty of Electrical Engineering and Computing, Croatia

Design of a Self-Cascoded Miller Amplifier with Superior EMI Immunity in UMC 180nm CMOS

Carmelo Zuccarotto[1], Anna Richelli[1], Simon Kennedy[2], Jean Michel Redoute[2]

[1]University of Brescia, Italy; [2]Monash University, Melbourne, Australia

A Common-Mode Filter with Three Alterable and Designable Transmission Zeroes

Chi-Hsuan Cheng, Tzong-Lin Wu ; *National Taiwan University, Taiwan*

Time-Domain Analysis and Modeling of Large-Signal RFI Rectification in MOS Transistors

François Torrès[1], Clovis Pouant[1,2], Alain Reineix[1], Patrick Hoffmann[2], Jérémy Raoult[3], Laurent Chusseau[3]

[1]Xlim, Université de Limoges, UMR CNRS 7252, Limoges, France; [2]CEA Gramat, France; [3]IES, Université de Montpellier, UMR CNRS 5214, Montpellier, France

Wednesday 29 August, Veilingzaal — Time: 9:00 – 10:30

Exp: Exposure to Electromagnetic Fields (EMF)

Session Chair: Dr. Dick Harberts, Philips, The Netherlands

Measuring, Logging, and Visualizing Pulsed Electromagnetic Fields Combined with GPS Location Information

Shiwam Isrie[1], Niek Moonen[1], Hans Schipper[2], Hans Bergsma[2], Frank Leferink[1,2]

[1]University of Twente, the Netherlands; [2]Thales Netherlands

Visualization of Electromagnetic Field Distribution with Augmented Reality

Ken Sato[1], Tomoya Tsukahara[2], Yoshitsugu Kamimura[2]

[1]National Institute of Technology Hachinohe College, Japan; [2]Graduate School of Engineering Utsunomiya University

Body Shadow Effect Avoidance through Effective Analysis of Exposure with Personal Exposimeters in Indoor Enclosures

SIlvia Miguel-Bilbao[1], Juan Blas[2], Francisco Falcone[3], Victoria Ramos[1]

[1]Instituto de Salud Carlos III, Spain; [2]University of Valladolid, Spain; [3]Universidad Pública de Navarra, Spain

Relationship between In-situ Electric Field and External Magnetic Field Strength in Human Models – Rational of IEEE C95.6 Standard Revisited

Katsuaki Aga[1], Akimasa Hirata[1], Ilkka Laakso[2]

[1]Nagoya Institute of Technology, Japan; [2]Aalto University, Finland

Wednesday 29 August, Effectenbeurszaal Time: 11:00 – 12:30
SS-01b: Special Session on Aerospace EMC - 2
Session Chair: Dr. Dongsheng Zhao, RHEA System B.V. for ESA, The Netherlands

Prediction of Electronic Board Radiated Emissions from Near Field Characterization
Samuel LEMAN[1], Rachid OMAROUAYACHE[1], Frédéric HOEPPE[1], Alexandre PICHE[2]
[1]NEXIO, France; [2]Airbus Defence and Space, France

Modified FTL approach for high frequency EM coupling on cables installed in complex structures
Isabelle JUNQUA, Solange BERTUOL, Jean-Philippe PARMANTIER
ONERA, France

EMC Challenges for ESA Scientific Missions
Alfonso Muñoz[1], María Jiménez[2], Jose Gala[1], Daniel López[2], Alejandro Arnau[1], Manuel Añón[2]
[1]SENER, Spain; [2]INTA, Spain

Wednesday 29 August, Keurzaal Time: 11:00 – 12:30
RCb: Reverberation Chambers - 2
Session Chair: Prof. Andy Marvin, York EMC Services Ltd, United Kingdom

Experimental Analysis of the Field Homogeneity and Isotropy Inside a Reverberation Chamber with Two Hemispherical Diffractors
Mathias Magdowski, Jagadeesh Immidisetti, Ralf Vick
Otto von Guericke University, Germany

Time Efficient Reverberation Chamber Performance Analysis using Simultaneous Multiprobe Measurement Technique
Dwi Mandaris[1,2], Robert Vogt-Ardatjew[1], MHD Zaher Mahfouz[1], Eike Suthau[3], Frank Leferink[1,4]
[1]University of Twente, The Netherlands; [2]Research Center for Quality System and Testing Technology, LIPI, Indonesia; [3]Lumiloop, Germany; [4]Thales Hengelo, The Netherlands

Statistical Analysis for Reverberation Chamber with Flexible Shaking Walls with Various Amplitudes
Makoto Hara[1], Yasuo Takahashi[1], Robert Vogt-Ardatjew[2], Frank Leferink[2]
[1]Kawasaki Heavy Industries, Ltd., Japan; [2]University of Twente, Netherlands

A Novel Hybrid Source-Tuner Stirring Allows for an Extended Working Volume in RCs
Ramiro Serra, Dimitrios Barakos
Eindhoven University of Technology, The Netherlands

Wednesday 29 August, Administratiezaal Time: 11:00 – 12:30
ICb: EMC in Integrated Circuits (ICs) - 2
Session Chair: Prof. Flavio Canavero, Politecnico di Torino, Italy

Identification of Dominant ICs for Electromagnetic Emission by Using Noise Source Amplitude Modulation and Correlation Analysis
Shimpei Yoshino, Chiaki Ishida, Kengo Iokibe, Yoshitaka Toyota, Yasuyuki Nogami
Okayama University, Japan

Interaction of RF DPI with ESD protection Devices in EMS Testing of IC Chips
Akihiro Tsukioka[1], Makoto Nagata[1], Daisuke Fujimoto[1], Noriyuki Miura[1], Takao Egami[2], Rieko Akimoto[2], Kenji Niinomi[2], Takeshi Yuhara[2], Sachio Hayashi[2], Ying-Shiun Li[3], Norman Chang[3], Karthik Srinivasan[3]
[1]Kobe University, Japan; [2]Toshiba Electronic Device & Storage Corporation, Japan; [3]ANSYS Inc, USA

Full-Chip ESD Simulations in Bipolar Technology
Vlatko Galić[1], Aarnout Wieers[2], Renaud Gillon[2], Adrijan Barić[1]
[1]University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia; [2]ON Semiconductor, Oudenaarde, Belgium

Wednesday 29 August, Veilingzaal Time: 11:00 – 12:30
TL: Transmission Lines
Session Chair: Prof. Klaus-Dieter Kruse, University of Applied Sciences Flensburg, Germany

Improved Per-Unit-Length Parameter Definition for Non-Uniform and Lossy Multiconductor Transmission Lines
Sebastian Südekum, Marco Leone; *Otto von Guericke University Magdeburg, Germany*

A Simulink implementation of the Delay-Rational Green's-Function-based Method for Multiconductor Transmission Lines
Maria De Lauretis[1], Giulio Antonini[2], Jonas Ekman[1]
[1]Luleå Tekniska Universitetet, Sweden; [2]Universitá degli Studi dell'Aquila

Efficient Characterization of Field-to-Wire Coupling in Twisted-Wire Pair with a Reference Wire
Oussama Gassab[1], Wen-Yan Yin[1,2]; *[1]Key Lab of Ministry of Education for the Design and EMC of High-Speed Electronic Systems, Shanghai Jiao Tong University, Shanghai 200240, People's Republic of China; [2]Information Science and Electronic Engineering, Zhejiang University, Hangzhou 310058, China*

Improved Transmission-Line Model for a Cable with an Attached Suppression Ferrite
Steffen Schulze[1], Moawia Al-Hamid[2], Marco Leone[2] ; *[1]Würth Elektronik eiSos GmbH & Co. KG, Germany; [2]Otto-von-Guericke-University Magdeburg, Germany*

Wednesday 29 August, Effectenbeurszaal Time: 12:30 – 14:00
Poster2: Poster Session

Analysis and Mitigation of EMC Effects of Electric Resonances in Circuits
Alessandro Sona, Matteo Bertocco
University of Padova, Italy

Analysis of Transmission Characteristics of Three-Layer Flexible Printed Circuit Board
Du-i KANG[1], Hosang Lee[2], Jawad Yousaf[2], Wansoo Nah[2]
[1]Department of DMC Engineering, Sungkyunkwan University, Korea, Republic of South Korea; [2]Department of Electrical and Computer Engineering, Sungkyunkwan University, Korea, Republic of South Korea

An Novel Non-Parametric Algorithm for Spectrum Map Construction
Song Zha[1], Jijun Huang[1], Yujian Qin[1], Zhi Zhang[2]
[1]College of Electronic Science, National University of Defense Technology, China; [2]Sub unit 4, Unit 61716, PLA, China

Realistic Modeling Of Electromagnetic Coupling In Air Insulation Substation
Bachir Nekhoul[1], Bochra Khelifi[2]
[1]Jijel university, Algeria; [2]Jijel university, Algeria

Analysis of Antenna Performance Degradation due to VCO Source Using Active S-Parameters
Hosang Lee[1], Jawad Yousaf[1], Jeongeun Kim[1], Jinsung Youn[2], Daehee Lee[2], Chanseok Hwang[2], Wansoo Nah[1]
[1]Department of Electrical and Computer Engineering, Sungkyunkwan University, Korea, Republic of South Korea; [2]Design Technology Team, Memory Division, Samsung Electronics Co., Ltd., Korea, Republic of South Korea

Fast Characterization of System Level ESD Noise Coupling to Real Motherboard in Notebook
Jawad Yousaf[1], Junhee Han[1], Hosang Lee[1], Wansoo Nah[1], Jinsung Youn[2], Seong-Jin Mun[2], Daehee Lee[2], Chanseok Hwang[2]
[1]Department of Electrical and Computer Engineering, Sungkyunkwan University, Korea, Republic of South Korea; [2]Design Technology Team, Memory Division Samsung Electronics Co, Ltd, Hwaseong, Korea, Republic of South Korea

One-Port Measurements of non-coaxial DUTs with Vector Network Analyzer
Jan Sroka
Warsaw University of Technology, Poland

Challenges in EMC Testing of EV and EVSE Equipment for Inductive Charging
Sebastian Jeschke[1], Marc Maarleveld[1], Jörg Bärenfänger[1], Benedikt Schmuelling[2], Amelie Burkert[2]
[1]EMC Test NRW GmbH, Germany; [2]University of Wuppertal, Department of Electric Mobility

Comparative Study of Radiofrequency Electromagnetic Exposure in the Public Shopping Centers
Jolanta Karpowicz[1], Silvia Miguel-Bilbao[2], Patryk Zradzinski[1], Krzysztof Gryz[1], Francisco Falcone[3], Victoria Ramos[2]
[1]Central Institute for Labour Protection, Poland; [2]Instituto de Salud Carlos III, Spain; [3]Public University of Navarra, Pamplona, Navarra, Spain

Time and Frequncy Domain Analysis of an 8-port Adaper for Multiconductor Cable Screening Measurements
Miroslav Kotzev[1], Thomas Schmid[1], Maximilian Schwaiger[2]
[1]Rosenberger Hochfrequenztechnik GmbH & Co. KG, Germany; [2]Dätwyler Cables GmbH

Measurement and investigation of electromagnetic shielding properties of 3,4 ethylenedioxythiophene – maghnite – sodium
Sidi Mohamed Benhamou[1], Antonio José Lozano-Guerrero[2], Yemouna Madaoui[3], Alejandro Díaz-Morcillo[2], Mohammed Hamouni[4]
[1]Ecole supérieure en sciences appliquées, Algeria; [2]Departamento de Tecnologías de la Información y las Comunicaciones Universidad Politécnica de Cartagena Cartagena, Spain; [3]Département de Chimie Laboratoire de Chimie des Polymères Université d‟Oran Es-Senia Oran, Algerie; [4]Département de Physique Laboratoire de Recherché sur les Macromolecules Université de Tlemcen Tlemcen, Algerie

Relation between Radiated Immunity Test Results in Reverberation Chamber and in Semi-Anechoic Chamber
Xiang Zhou[1], Zeqing Peng[2], Gaoqiang Qin[1]
[1]Southeast University, People's Republic of China; [2]China National Aeronautical Radio, Electronics Research Institute, People's Republic of China

A Photoconductive Metasurface Design in X-band with Variable Amplitude Control
Cheng Yang, Qian Ma, Guodong Bai, Lei Bao, Tiejun Cui
Southeast University, People's Republic of China

Interlaboratory Comparison of Radiated Emissions in Automotive EMC
Relu-Adrian Aipu[1], Andrei-Marius Silaghi[2], Petru-Adrian Buta[2], Petre-Marian Nicolae[1], Aldo De Sabata[2]
[1]University of Craiova; [2]Politehnica” University Timisoara, Timisoara

Using a 2-step electromagnetic and electric simulation approach for vehicle susceptibility analysis
Thomas Picon[1,2], Marco Klingler[1], Tristan Dubois[2], Geneviève Duchamp[2]
[1]PSA groupe, France; 2IMS laboratory, University of Bordeaux, France

An Estimation Method for the Capacitance Matrix of Bundle of Wires Based on Machine Learning
Tadatoshi Sekine; *Shizuoka University, Japan*

Lightning Induced Voltages on Overhead Lines for Different Return Stroke Engineering Models
Massimo Brignone[1], Daniele Mestriner[1], Renato Procopio[1], Dario Javor[2], Vesna Javor[2]; *[1]Naval, ICT and Electrical Engineering Department, University of Genoa, Italy; [2]Faculty of Electronic Engineering, Department of Power Engineering, University of Nis, Republic of Serbia*

An Efficient Method based on Polynomial Chaos and Method of Moment to Statistical Modeling of Transient Response for Monopole Antenna
Chuanbao DU
Northwest Institute of Nuclear Technology, People's Republic of China

Implementation of IEC 61000-4-2 standard testing under tropical humidity for recommendation to Amendment of International Standards
Hardiles Hardiles[1,3], Wisnu Ananda[2], Seto Ayom Cahyadi[2], Tri Desmana Rachmildha[3], Deny Hamdani[3]
[1]National Standardization Agency of Indonesia, Indonesia; [2]Center for Material and Technical Product (B4T) Ministry of Industry Bandung, Indonesia; [3]School of Electrical Engineering and Informatics, Bandung Institute of Technology, Indonesia

Emission measurement of a solar park in the frequency range of 2 to 150 kHz
András Mohos, József Ladányi
Budapest University of Technology and Economics, Hungary

Wednesday 29 August, Effectenbeurszaal Time: 14:00 – 15:30
SS-01c: Special Session on Aerospace EMC - 3
Session Chair: Jaco Verpoorte, Netherlands Aerospace Centre NLR, The Netherlands

Study of UWB Electromagnetic Pulse Impact on Commercial Unmanned Aerial Vehicle
Konstantin Sakharov, Alexander Sukhov, Vladimir Ugolev, Yuri Gurevich
VNIIOFI, Russian Federation

Measuring Signal Environment in the Aircraft Surveillance Frequency by Flight Experiments
Takuya Otsuyama, Junichi Naganawa, Junichi Honda, Hiromi Miyazaki
Electronic Navigation Research Institute, Japan

Unlocking the Access to the Effects induced by IEMI on a Civilian UAV
José Lopes Esteves[1], Emmanuel Cottais[1], Chaouki Kasmi[2]
[1]ANSSI, France; [2]Dark Matter LLC

Design of Passive Equalizer for SpaceWire Links via Support Vector Machine
Riccardo Trinchero, Flavio Canavero; *Politecnico di Torino, Italy*

Wednesday 29 August, Keurzaal Time: 14:00 – 15:30
RCc: Reverberation Chambers - 3
Session Chair: Prof. Valter Mariani Primiani, Università Politecnica delle Marche, Italy

Pulsed Excitation of a Reverberation Chamber
Konstantin Pasche, Ralf T. Jacobs
Technische Universität Dresden, Germany

Chasing the Wave in a Reverberation Chamber
Laurens Alexander Bronckers, Anne Roc'h, Adrianus Bernardus Smolders
Eindhoven University of Technology, The Netherlands

Comparison of the Field-to-Wire Coupling to Bent and Curved Transmission Lines in Reverberation Chambers
Johanna Kasper, Mathias Magdowski, Ralf Vick
Otto von Guericke University Magdeburg, Germany

Refining the Experimental Extraction of the Number of Independent Samples in a Mode-Stirred Reverberation Chamber
Khalid Oubaha, Martin Richter, Ulrich Kuhl, Fabrice Mortessagne, Olivier Legrand
Institute of Physics of Nice, France

Wednesday 29 August, Administratiezaal Time: 14:00 – 15:30
SS-03a: Special Session on Risk-Based EMC for Complex Systems - 1
Session Chair: Prof. Davy Pissoort, KU Leuven, Belgium

Effectiveness of Data Triplication in Harsh Electromagnetic Environments
Jonas Van Waes, Jens Vankeirsbilck, Jonas Lannoo, Davy Pissoort, Jeroen Boydens
KU Leuven, Belgium

Effectiveness of Hamming Single Error Correction Codes under Harsh Electromagnetic Disturbances
Jonas Van Waes, Jonas Lannoo, Jens Vankeirsbilck, Andy Degraeve, Joan Peuteman, Dries Vanoost, Davy Pissoort, Jeroen Boydens
KU Leuven, Belgium

Remarks on direct deterministic integration to compute probability distributions in EMC
Marcus Stiemer
Helmut Schmidt University, Germany

Simplifying Risk Analysis to Determine the Influence of Wind Turbines to the Electric Field of a DVOR Antenna Using Artificial Neural Networks
Felix Burghardt, Sergei Sandmann, Heyno Garbe
Leibniz Universität Hannover, Germany

Wednesday 29 August, Veilingzaal Time: 14:00 – 15:30
M&Sa: Modelling and Simulation - 1
Session Chair: Dr. Zbigniew Jóskiewicz, Wroclaw University of Science and Technology, Poland

Fastening Assemblies Modelling in Finite Difference Time Domain
Paul Monferran[1], Christophe Guiffaut[1], Alain Reineix[1], Fabian Fustin[2], Fabrice Tristant[2]
[1]XLIM, France; [2]Dassault Aviation Company, France

Inferring the probability distribution of the electromagnetic susceptibility of equipment from a limited set of data
Thomas HOURET[1,2], Philippe BESNIER[1], Stéphane VAUCHAMP[2]
[1]INSA Rennes, CNRS, IETR, France; [2]CEA, DAM, Gramat, France

Volume-Filament-PEEC-Based Modal Network Representation for Skin and Proximity Effect in Conductors with Variable Geometry
Christian Bednarz, Marco Leone
Otto von Guericke University Magdeburg, Germany

Wednesday 29 August, Effectenbeurszaal Time: 16:00 – 17:30
PCB: EMC in Printed Circuit Boards
Session Chair: Prof. Mauro Feliziani, University of L'Aquila, Italy

Kron-Branin Model of PCB Trace with Ambient Temperature Effect
Zhifei xu, Yang liu, Blaise ravelo
Normandy University UNIROUEN, ESIGELEC, IRSEEM, Technopole du Madrillet, Avenue Galilée, BP 10024, F-76801 Saint Etienne du Rouvray, France

Investigation on Degradation of Common Mode Noise Suppression with Electrostatic Discharge Protection Array
Chin-Yi Lin, Tzong-Lin Wu
Graduate Institute of Communication Engineering, National Taiwan University, Taiwan

Fast Simulation of PCB/IC/Flex Circuit Assembly Using Partial Element Equivalent Circuit Method
Giga Gabriadze[1,2], Giorgi Chiqovani[2], Alexander Demurov[1,2], Zviad Kutchadze[1,2], David Karkashadze[1,2], Roman Jobava[1,2]
[1]EMCoS, Georgia; [2]Tbilisi State University, Tbilisi, Georgia

Investigation of Radiated EMI from Printed Circuit Board Edges up to 100 GHz by using an Effective Two-Dimensional Approach
Lei Wang, Christian Schuster
Hamburg University of Technology, Germany

Wednesday 29 August, Keurzaal Time: 16:00 – 17:30
CCs: Chambers and Cells
Session Chair: Prof. Heyno Garbe, Leibniz Universitaet Hannover, Germany

Monostatic Radar Cross-Section Estimation of Canonical Targets in Reverberating Room Using Time-Gating Technique
Ayoub SOLTANE, Guillaume Andrieu, Alain Reineix
XLIM Laboratory(University of Limoges-France), France

Approaches to Determine the Transfer Function of TEM Waveguides
Niklas Briest[1], Heyno Garbe[1], Martin Schaarschmidt[2]
[1]Leibniz Universität of Hannover, Germany; [2]Bundeswehr Research Institute for Protective Technologies and NBC-Protection, Germany

Simulation Methodology of Radiated Emission for IC-Stripline Measurements
Wilmar Heuvelman[1], Rick Janssen[1], Sergei Kapora[1], Stefan Kwaaitaal[1], Erick Rodriguez[1], Jeroen Kuenen[1], Gunnar Schulz-Mewes[2], Philip Axer[2]
[1]NXP semiconductors BV, The Netherlands; [2]NXP semiconductors Gemany GmbH

A study of electric-field measurement disturbances brought by probe supports
Ludivine Le Bars[1], Jean-François Rosnarho[1], Jérôme Sol[2], Philippe Besnier[2], François Sarrazin[3], Elodie Richalot[3]
[1]SIEPEL, France; [2]IETR, France; [3]Université Paris-Est, France

Wednesday 29 August, Administratiezaal Time: 16:00 – 17:30
SS-03b: Special Session on Risk-Based EMC for Complex Systems - 2
Session Chair: Prof. Davy Pissoort, KU Leuven, Belgium

Effectiveness of Time Diversity to Obtain EMI-Diverse Redundant Systems
Jonas Lannoo, Jonas Van Waes, Andy Degraeve, Dries Vanoost, Jeroen Boydens, Davy Pissoort
KU Leuven, Belgium

The Need for a Risk-Based Systems Engineering Approach in Automotive EMC Engineering
Alastair Ruddle, Anthony Martin
MIRA Limited, United Kingdom

Wednesday 29 August, Veilingzaal Time: 16:00 – 17:30
M&Sb: Modelling and Simulation - 2
Session Chair: Prof. Maria Sabrina Sarto, Sapienza University of Rome, Italy

Fast and accurate modeling methodology using passive macromodeling techniques
Mohamed Touré[1,3,4], Stefano Grivet-Talocia[2], Flavio G. Canavero[2], Florent Robert[3], Françoise Paladian[1], Mohamed Bensetti[4], Laurent Dufour[3]
[1]Clermont Auvergne University, Institut Pascal, CNRS UMR 6602; [2]EMC Group, Department of Electronics and Telecommunications, Politecnico di Torino; [3]Research Department, EFi Automotive; [4]Group of Electrical Engineering of Paris (GeePs), CNRS UMR 8507

Investigation of Thin Wire Structures including Losses and Coatings employing Perturbation Theory
Fabian Ossevorth, Ralf T. Jacobs, Hans Georg Krauthäuser
TU Dresden, Germany

Comparison between simulation and measurement of EMI inside a computer chassis mock-up
Valentin Houchouas[1,2], Muriel Darces[2], Nicolas Bourey[2], Emmanuel Cottais[1], Yves Chatelon[2], Marc Hélier[2]
[1]Wireless Security Lab, French Network and Information Security Agency - ANSSI, France; [2]Sorbonne Université, Laboratoire d'Électronique et Électromagnétisme, France

An Equivalent Radiation Source based on Artificial Neural Network for EMI Prediction
Shi Yao[1], Yufei Shu[1], Li Tong[1], Enxiao Liu[2], Yanbin Yang[3], Xingchang Wei[1]
[1]Zhejiang University, People's Republic of China; [2]Institute of High Performance Computing, Agency for Science Technology and Research (A∗STAR), Singapore; [3]Zigong innovation center, Zhejiang University, Zigong, Sichuan, China

Thursday 30 August 2018					
		Effectenbeurszaal	**Keurzaal**	**Administratiezaal**	**Veilingzaal**
9:00 - 10: 30	Exhibition, Graanbeurszaal	SS Conducted / Low frequency EMI	EMC in communication systems	Shielding effectiveness	COST ACCREDIT meeting
10:30 - 11:00		morning break (coffee/tea/refreshments)			
11:00 - 12:30		SS Power Quality and EMC	Cosite EMI	Shielding effectiveness	COST ACCREDIT meeting
12:30 - 14:00		lunch break (and IEEE P2715/P2716 lunch meeting in Administratiezaal (grab lunch first))			
14:00 - 15:30		Power electronics	Antennas and cosite EMI	Shielding and new materials	JTF/W 61000-4-21 meeting
15:30 - 16:00		afternoon break (coffee/tea/refreshments)			
16:00 - 17:30		Power electronics	Antennas	New materials	ISC meeting

Thursday 30 August, Effectenbeurszaal Time: 9:00 – 10:30
SS-06: Special Session on Conducted EMI / Low Frequency EMI
Organised by IEEE EMC Society TC7
Session Chair: Prof. Flavia Grassi, Politecnico di Milano, Italy

Estimation of Radiation Efficiency of GaN Half-bridge Based Submodule System for Radiated EMI Prediction
Chris van Diemen[1], Niek Moonen[1], Frank Leferink[1,2]
[1]University of Twente, The Netherlands; [2]Thales Netherlands

Waveform Modeling of Conducted Disturbances below 150 kHz from Power Conversion Equipment
Farhan Mahmood, Yuichiro Okugawa, Ken Okamoto, Naomichi Nakamura, Jun Kato; *NTT Corporation, Japan*

Predictive Model for Extreme Electromagnetic Compatibility on CMOS Inverters
Troy Powell, Nishchay Sule, Sameer Hemmady, Payman Zarkesh-Ha
University of New Mexico, United States of America

Evaluation of Numerical Methods for the Simulation of Real Test Facilities for Low-Frequency Magnetic Fields Measurements
Maik Rogowski, Sven Fisahn, Heyno Garbe
Leibniz Universität Hannover, Germany

Thursday 30 August, Keurzaal Time: 9:00 – 10:30
Comm: EMC in Communication Systems
Session Chair: Prof. Jan Carlsson, Provinn AB, Sweden

Statistical Considerations for Total Isotropic Sensitivity of Wireless Devices Measured in Reverberation Chambers
Robert D. Horansky, Thomas B. Meurs, Matthew V. North, Chih-Ming Wang, Maria G. Becker, Kate A. Remley
National Institute of Standards and Technology, United States of America

Electromagnetic Immunity of Mobile Devices - Statistical Analysis
Grzegorz Lubkowski, Michael Suhrke; *Fraunhofer INT, Germany*

Statistical Characteristics of Radiation Noise from LED Lamps and Its Effect on Wireless Medical Telemeters
Sazu Arie[1], Kai Ishida[1], Ifong Wu[1], Kaoru Gotoh[1], Yasushi Matsumoto[1], Minoru Hirose[2] ; *[1]National Institute of Information and Communications Technology, Japan; [2]Kitasato University, Japan*

Experimental Validation of Localization Method for Finding Magnetic Sources on IoT Devices
Frank Thompson Werner[1], Antonije Djordjevic[2], Dragan Olcan[2], Milos Prvulovic[3], Alenka Zajic[1]; *[1]Georgia Institute of Technology School of Electrical and Computer Engineering, USA; [2]University of Belgrade School of Electrical Engineering, Belgrade; [3]Georgia Institute of Technology School of Computer Science, USA*

Thursday 30 August, Administratiezaal Time: 9:00 – 10:30
SEa: Shielding Effectiveness - 1
Session Chair: Dr. Anne Roc'h, Techn. University of Eindhoven, the Netherlands

Stripline Set-Up for Characterizing the Effect of Corrosion and Ageing on the Shielding Effectiveness of EMI Gaskets with Improved Repeatability
Tim Claeys[1], Johan Catrysse[1], Davy Pissoort[1], Yoeri Arien[2]
[1]KU Leuven, Belgium; [2]SEM Belgium

Correlation of impedance and shielding effectiveness measurements on enclosure level
Michael Kühn[1], Marcel Messer[1], Robert Weigel[2]
[1]AUDI AG, Germany; [2]Universität Erlangen-Nürnberg

Novel Analytical Formulation for Shielding Effectiveness Calculation of Lossy Enclosures Containing Elliptical Apertures
Amélie RABAT, Pierre Bonnet, Khalil El Khamlichi Drissi, Sébastien Girard
Institut Pascal, France

The MoM-based Empirical Aperture Approach for Estimating the Shielding Effectiveness of Metallic Enclosures with Joints Through Narrow Slots
Faik Bogdanov[1,2], Irina Chochia[1], Lily Svanidze[1,3], Roman Jobava[1,3]
[1]EMCoS Ltd., Georgia; [2]Georgian Technical University, Georgia; [3]I. Javakhishvili Tbilisi State University, Georgia

Thursday 30 August, Effectenbeurszaal Time: 11:00 – 12:30
SS-07: Special Session on Power Quality and EMC
Organised by IEEE EMC Society TC7
Session Chair: Prof. Petre-Marian Nicolae, University of Craiova, Romania

Conducted Emissions on DC power Grids
Luca Ensini[2], Leonardo Sandrolini[2], David Thomas[1], Mark Sumner[1], Chirstopher Rose[1]
[1]The University of Nottingham, United Kingdom; [2]The University of Bologna, Italy

Implementation of Current Based Three-Phase CM/DM Noise Separation on the Drive Side
Julian Dobusch[1], Daniel Kuebrich[1], Thomas Duerbaum[1], Fabian Diepold[2]
[1]University of Erlangen-Nüremberg, Germany; [2]Siemens AG, Germany

Calibrated Contactless Impedance Measurements with DC Bias Currents
Martin Harm, Oliver Kerfin, Lukas Oppermann, Achim Enders
TU Braunschweig, Institute for Electromagnetic Compatibility, Germany

Parasitic Magnetic Coupling in Voltage Measurement Setups for Impulse Current Tests
Oliver Kerfin[1], Tobias Hartmut Kopp[2], Michael Kurrat[2]
[1]TU Braunschweig, Institute for Electromagnetic Compatibility, Germany; [2]TU Braunschweig, Institute for High Voltage Technology and Electrical Power Systems, Germany

Modal S-Parameter Estimation of EUT Connection of Conducted Disturbance Measurement System
Ifong Wu[1], Shinobu Ishigami[2], Kaoru Gotoh[1], Yasushi Matsumoto[1]
[1]National Institute of Information and Communications Technology (NICT), Japan; [2]Tohoku Gakuin University

Thursday 30 August, Keurzaal Time: 11:00 – 12:30
Anta: Antennas and Co-site interference - 1
Session Chair: Dr. Kia Wiklundh, Swedish Defence Research Agency, FOI, Sweden

Identification Method of PC hardware interfaces (SEIM) in co-locating systems
Rafal Przesmycki, Marek Bugaj, Marian Wnuk
Military University of Technology, Poland

EMC perfomances of a Land Army vehicle to respect integrated radios reception sensitivity
Alain Alcaras
Thales Communication and security, France

Interference Impact on Two of LTE's Control Channels
Karina Fors, Kia Wiklundh, Sara Linder
Swedish Defence Research Agency, FOI, Sweden

Direct Modelling of Wiring Junction Within Very Large Scale Simulations
Zhewen Zhang, Ana Vukovic, Trevor Benson, Phillip Sewell
University of Nottingham, United Kingdom

Thursday 30 August, Administratiezaal Time: 11:00 – 12:30
SEb: Shielding Effectiveness - 2
Session Chair: Prof. Marcello D Amore, Sapienza University of Rome, Italy

On the Meaning of Enclosure Shielding Effectiveness
John Dawson[1], Andy Marvin[1], Martin Robinson[1], Ian Flintoft[2]
[1]University of York, United Kingdom; [2]Atkins, York, United Kingdom

Shielding effectiveness of randomly distributed conductive elements: experimental analysis and simplified model
Luca Bastianelli, Franco Moglie, Valter Mariani Primiani
Università Politecnica delle Marche, Italy

Progress in the Application of the Transmission Line (TL) Theory to Near-Field Shielding
Silvano Cruciani[1], Tommaso Campi[1], Valerio De Santis[1], Francesca Maradei[2], Mauro Feliziani[1]
[1]University of L'Aquila, Italy; [2]Sapienza University of Rome

Frequency-dependent shielding of electronics in an MRI System
Mark van Helvoort, Dick Harberts
Philips, The Netherlands

Thursday 30 August, Effectenbeurszaal Time: 14:00 – 15:30
PEa: Power Electronics - 1
Session Chair: Prof. Christos Christopoulos, University of Nottingham, United Kingdom

Experimental evaluation on noise characteristics in SiC-based synchronous boost converter
Takaaki Ibuchi, Tsuyoshi Funaki; *Osaka University, Japan*

Simulation of Conducted Noise of an AC Drive by Means of Mixed Mode 6-Port Networks
Danil Drozhzhin, Gerd Griepentrog; *Technical University of Darmstadt, Germany*

Reducing EMC Problems Caused by Power Semiconductors Using an Electrically Non-Conducting Heat Sink
Stephan Chromy[1], Sebastian Fahlbusch[2], Klaus F. Hoffmann[2], Stefan Dickmann[1]
[1]Fundamentals of Electrical Engineering, Helmut-Schmidt-University Hamburg, Germany; [2]Power Electronics, Helmut-Schmidt-University Hamburg, Germany

Inductance Analysis for Compact Dual-Mode Choke Considering Magnetic Saturation
Yasuhiro Shiraki, Satoshi Yoneda, Katsuhiko Omae, Takashi Nagao
Mitsubishi Electric Corporation, Japan

Thursday 30 August, Keurzaal Time: 14:00 – 15:30
Antb: Antennas and Co-site interference - 2
Session Chair: Prof. Pierre Degauque, University of Lille, France

Free-Space Factor Calibration of Hybrid Antenna
Masaru Yoshihara[1], Hiroyuki Shimanoe[2], Katsunori Miura[3], Hidenori Muramatsu4
[1]VCCI Council/Riken Environmental System Co., Ltd., Japan; [2]VCCI Council/S-Tech Inc.; [3]VCCI Council/Japan Quality Assurance Organization; [4]VCCI Council

Uncertainty of Phase Center Calculations Using Defective Field Data
Dominic Härke, Niklas Briest, Heyno Garbe
Institute of Electrical Engineering and Measurement Technology, Germany

Influence of the reverberation chamber on antenna characterization performances
Wafa KROUKA, François SARRAZIN, Elodie RICHALOT
Université Paris-Est, ESYCOM (EA 2552), UPEMLV, ESIEE-Paris, CNAM, F-77454 Marne-la-Vallée, France, France

Improvement of folded rhombic antenna for transient electromagnetic-field radiator
Shinobu Ishigami, Masaki Saka, Ryuta Koike, Ken Kawamata
Tohoku Gakuin University, Japan

Thursday 30 August, Administratiezaal Time: 14:00 – 15:30
SEc: Shielding Effectiveness 3 and New Materials
Session Chair: Prof. Ferran Silva, Universitat Politecnica Catalunya, Spain

Development and Characterization of Carbon-Fiber Based Magnetically Loaded Microwave Absorber Material
Thanh Le[1], Ha Tran[1], Branimir Pejcinovic[1], Kent G.R. Thompson[2], Robert Doneker[2], Adithya Ramachandran[2] ; *[1]Portland State University, United States of America; [2]TangiTek, LLC, United States of America*

Terahertz Shielding Prediction of 1D-Periodic Nanolayered Coatings by an Effective Homogeneous Model
Alessandro Giuseppe D'Aloia[1,2], Marcello D'Amore[1,2], Maria Sabrina Sarto[1,2]
[1]Research Center for Nanotechnology applied to Engineering of Sapienza University, Rome, Italy; [2]Dept. of Astronautical, Electrical and Energy Engineering, Sapienza University of Rome, Italy

Transient Analysis of a Conductive Screen Excited by a Pulsed Horizontal Electrical Dipole
Rodolfo Araneo, Giampiero Lovat, Salvatore Celozzi, Paolo Burghignoli
University of Rome La Sapienza, Italy

Designing multi-layer polymeric nanocomposites for EM shielding in the X-band
Debarshi Saha[1], Ruth Cardinaels[1], Anne Roc'h[1], Tom A.P. Engels[1,2], Patrick D. Anderson[1] ; *[1]Eindhoven University of Technology, The Netherlands; [2]DSM Materials Science Center, Geleen, The Netherlands*

Thursday 30 August, Effectenbeurszaal Time: 16:00 – 17:30
PEb: Power Electronics - 2
Session Chair: Cornelis Frederik Post, Lambda Engineering B.V., The Netherlands

Damping of High-Frequency Oscillations in Power Electronics Using Optimized Snubber Circuits
Matthias Hampe, Alexander Stieler, Karl-Dieter Tieste
Ostfalia University of Applied Sciences, Germany

Black box EMC modelling of a three phase inverter
Meriem Amara[1], Christian Vollaire[1], Marwan Ali[2], François Costa[3]
[1]Ecole centrale de lyon_ampère, France; [2]Safran, Paris, France; [3]Université Paris Est Créteil, Satie CNRS, Cachan, France

A New Modeling Approach for Predicting the Static and Dynamic Behavior of SiC Power MOSFETs
Ali ALHOUSSEIN[1], Hadi ALAWIEH[1], Zouheir RIAH[2], Yacine AZZOUZ[2]
[1]VEDECOM, France; [2]IRSEEM, France

Evaluation of Magnetic Field Emissions in Automotive Electrical Drives
Madhavi. S Murthy[1,2], Teresa Bäuerle[3], Guido. A Rasek[1], Harald Schwarz[2]
[1]Robert Bosch GmbH - PS-PE/EHW6, Tamm, Germany; [2]Brandenburgische Technische Universität - Institut für Energieverteilung und Hochspannungstechnik, Cottbus, Germany; [3]Mooser EMC Technik GmbH, Ludwigsburg, Germany

Thursday 30 August, Keurzaal Time: 16:00 – 17:30
Antc: Antennas and Co-site interference - 3
Session Chair: Marcel van Doorn, Philips Innovation Services, The Netherlands

Plane Wave Spectrum Method Applied on Radiated Magnetic Field from RFID Reader Antenna
Kassem Jomaa[1], Fabien Ndagijimana[1], Hussam Ayad[2], Majida Fadlallah[2], Jalal Jomaah[2] ; *[1]Grenoble-Alpes University, Grenoble, France; [2]Lebanese University, Beirut, Lebanon*

PEEC Models of Printed Antennas in Condition Monitoring Applications Covered by Dielectrics with Temperature-Dependent Permittivity
Andreas Jens Hartman[1], Jonas Ekman[1], Defeng Lang[2], Daniele Romano[3], Giulio Antonini[3] ; *[1]Luleå University of Tecnhology, Sweden; [2]SKF; [3]University of L'Aquila*

Issues Concerning Radio Noise Floor Measurements using a Portable Measurement Set-up
Tallienco W.H. Fockens[1,2], Frank Leferink[1,3]
[1]University Twente, Enschede, The Netherlands,; [2]VERON, Arnhem, The Netherlands; [3]Thales Nederland, Hengelo, The Netherlands

Thursday 30 August, Administratiezaal Time: 16:00 – 17:30
NM: New Materials
Session Chair: Dr. Olga Tereshchenko, ASML BV, The Netherlands

High-Frequency Model of a Setup for Time-Domain Inductor Characterization
Josip Bacmaga[1], Raul Blecic[1], Renaud Gillon[2], Adrijan Baric[1]
[1]University of Zagreb Faculty of Electrical Engineering and Computing, Croatia; [2]ON Semiconductor, Belgium

Determing parameters of novel ferrimagnetic materials for the design of electronic adjustable High Power Non Linear Transmission Lines
Michael Camp[1], Jürgen Schmitz[1], Markus Jung[1], Piotr Laskowski[2], Steffen Scherr[2], Thomas Zwick[2]
[1]Rheinmetall Defence, Germany; [2]Karlsruhe Institute of Technology (KIT)

Complex Permittivity Extraction Method of a Thin Coating: EM Properties of a Graphene-Based Film on a Composite Layer
Alessio Tamburrano, Fabrizio Marra, Julian Lecini, Maria Sabrina Sarto
Sapienza University of Rome, Italy

Magnetic Powder Composite Noise Suppressor to Improve Receiver Sensitivity
Masahiro Yamaguchi[1,2], Yasunori Miyazawa[2], Jingyan Ma[1], Mitsuharu Sato[2], Akihiro Takahashi[2], Satoshi Tanaka[2], Ranajit Sai[4], Makoto Nagata[3]
[1]Departmemt of Electrical Engineering, Tohoku University; [2]New Industry Creation Hatchery Center (NICHe), Tohoku University; [3]Graduate School of Science, Technology and Innovation, Kobe University; [4]Centre for Nano Science and Engineering, Indian Institute of Science

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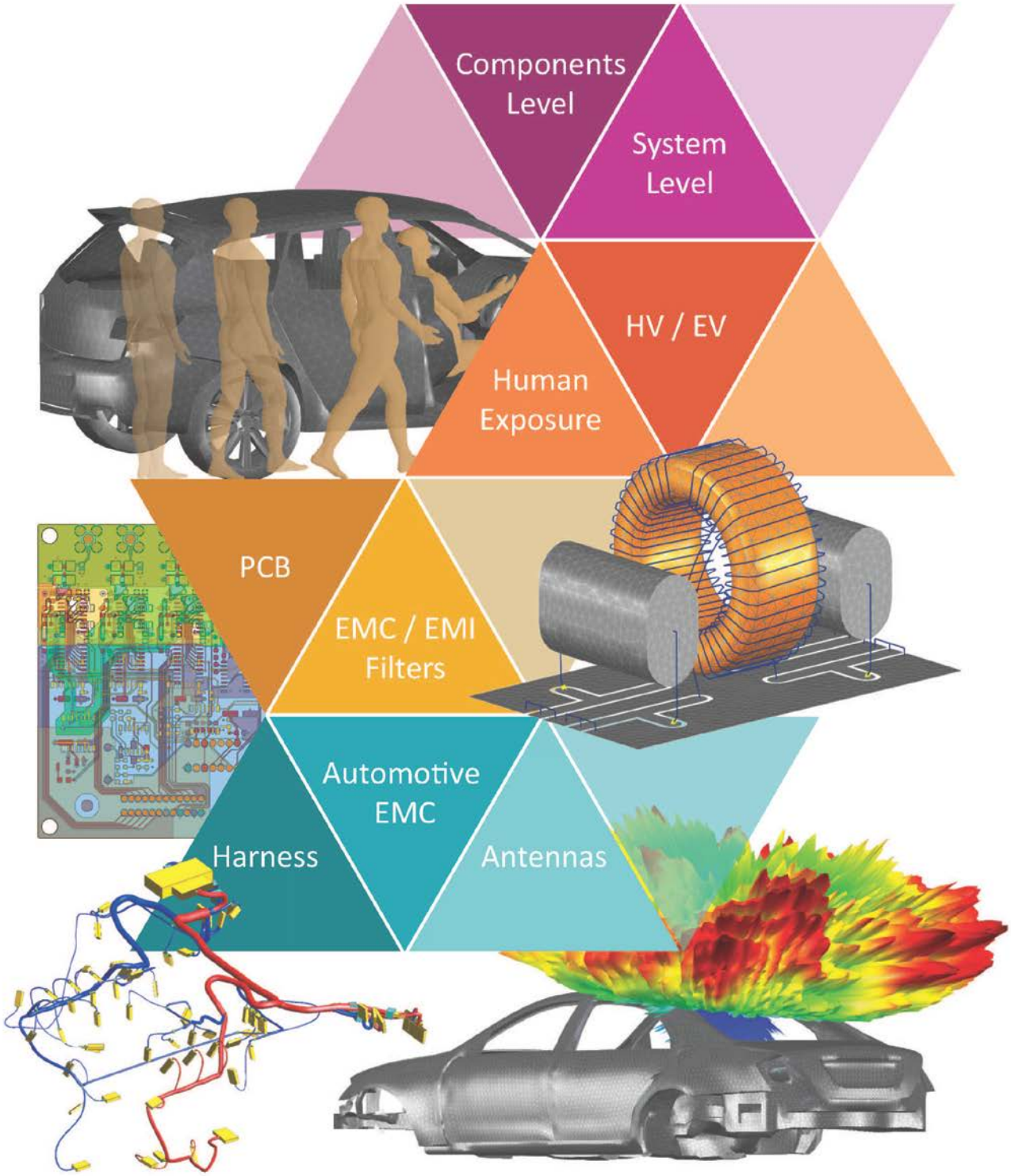

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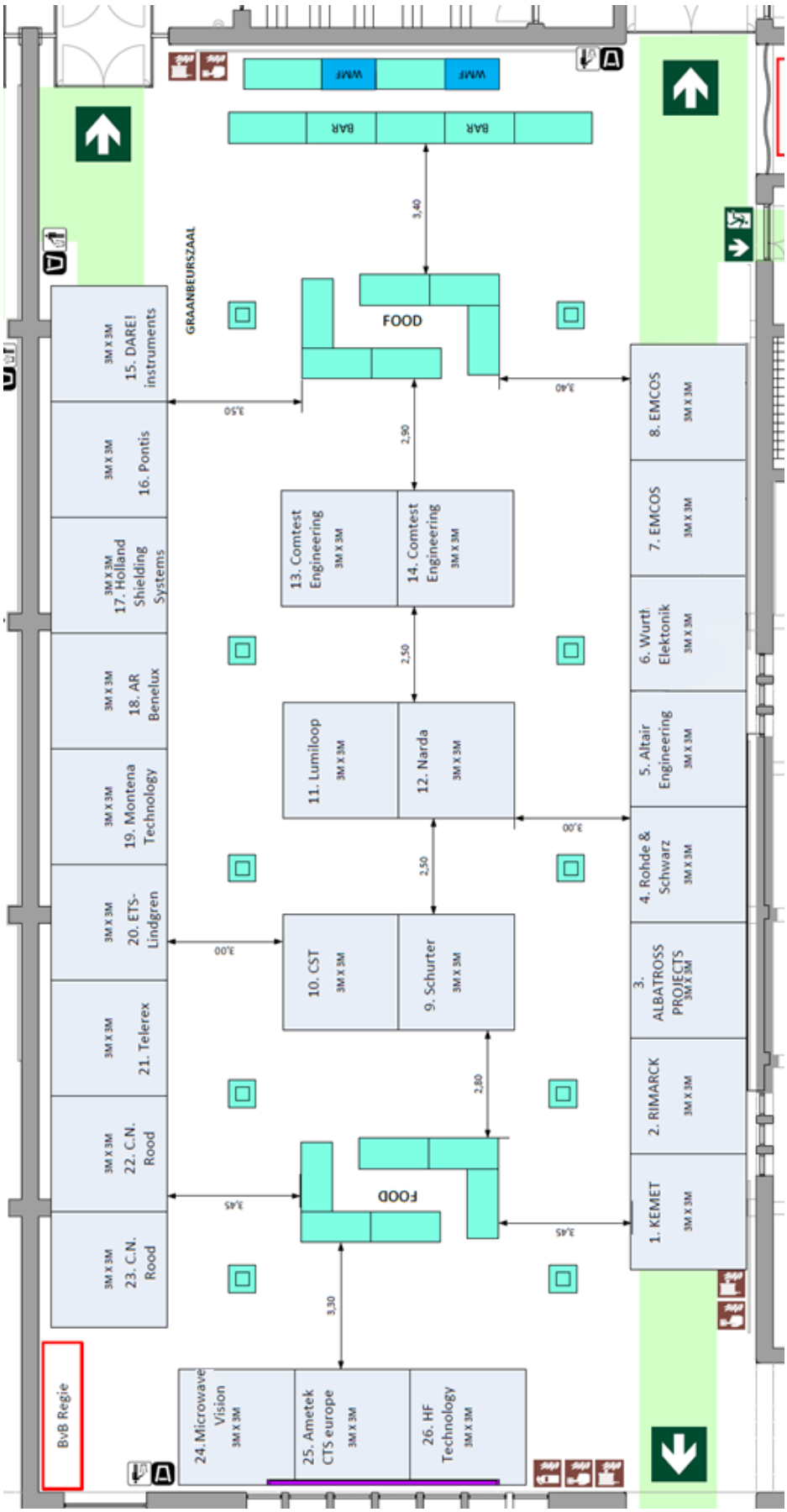
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5. Altair Engineering
4. Rohde & Schwarz
3. ALBATROSS PROJECTS
2. RIMARCK
1. KEMET
24. Microwave Vision
25. Ametek CTS europe
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List of exhibitors

Albatross Projects GmbH (booth 3)

Altair (booth 5)

AMETEK (booth 25)

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Comtest (booth 12 & 13)

CST (booth 21)

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Fair-Rite Products Corp. USA

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Albatross Projects GmbH (booth 3)

Albatross Projects, headquartered in Nattheim, Germany, was founded in 1999 as the result of a management buy-out of the former Siemens Matsushita Components EMC system business. Albatross Projects GmbH is a leading global system provider in RF solutions with around 170 employees at seven locations in Nattheim, Munich, Dallas/USA, Shanghai, Hong Kong, India and Belgium. The company specializes in the development and worldwide installation of test facilities to check the electromagnetic compatibility of equipment and systems. An additional division of APG extends to shielding the test environment from RF interference generated by MRI scanners. Albatross Projects GmbH delivers turnkey solutions for all industries, including automotive, telecommunications, IT, medical, household equipment, military and other governmental agencies.

Altair (booth 5)

Altair is focused on the development and broad application of simulation technology to synthesize and optimize designs, precesses and decisions for improved business performance. With more than 2.000 employees, Altair is headquartered in Troy, Michigan, USA and operates 69 offices throughout 24 countries. Altair serves more than 5.000 customers across broad industry segments. To learn more please visit www.altair.com.

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WinProp is a leading software in the domain of wireless propagation and radio network planning. Besides the network planning, the ICNIRP and EM compliance can be analyzed with WinProp.

AMETEK (booth 24,25)

AMETEK Compliance Test Solutions is a leading provider of test and measurement instrumentation solutions for electromagnetic compatibility (EMC) testing, producing a broad range of conducted and radiated EMC compliance testing systems, RF and microwave amplifiers. AMETEK Compliance Test Solutions offers four strong product brands under one roof - EM Test, IFI, MILMEGA and Teseq. With these four brands united together, AMETEK CTS continues to lead the way in EMC innovation, quality and range of solutions as well ascustomer support. AMETEK CTS serves a wide range of industries including automotive, consumer and industrial electronics, medical equipment, telecommunications, defense and avionics.

AR Europe (Booth 17)

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Audivo (booth 15)

PONTIS EMC offers a broad range of products for surveillance in EMC test facilities. Since 1997 our shielded cameras, audio intercom and fibre optic converters are renown for quality and reliability in EMC test labs all around the world. All our products are designed by German engineers and assembled in Germany.

We have sales partners in all major industrial countries (EU, China, USA, Japan, Korea and many more).

CN Rood (booth 22 & 23)

C.N. Rood, with offices in the Netherlands (Zoetermeer), Belgium (Zellik) and Sweden (Stockholm), offers knowledge and solutions for government, science, education and industrial organizations in the Benelux and Scandinavia. The spectrum of solutions varies from communication test equipment and general test and measurement instruments to equipment for logistic automation, supplemented with consultancy, training and turnkey solutions. On our booth we will show solutions in the EMC field from manufacturers like Haefeley-EMC, Narda, Tektronix, Frankonia-EMV and Detectus. Representatives of these manufacturers will be present at our booth to discuss challenges in the EMC field.

Comtest (booth 12 & 13)

Comtest Engineering supplies best-in-class RF shielded rooms, reverberation chambers and semi or full anechoic chambers used by industry leaders across the globe. We are a privately owned, second generation family business that was

founded in 1985. This, among other factors, allows our singular focus on delivering a quality product. We are a professional organization that's recognized for its dedication to quality, flexibility and reliability. Our high-performance RF shielded doors, mode-stirrer systems and hybrid & microwave absorbers have proven themselves time and again as state of the art products. To make sure it stays that way Comtest invests heavily in research & development and quality control. Good quality products need an experienced and skilled team of experts to gain customer satisfaction. Our tight and lean organization is perfectly suited to facilitate that objective. Comtest team of professionals strives to obtain 100% satisfied customers. In collaboration with our partners and customers we create the best controlled electromagnetic environments to empower tomorrow's technology!

CST (booth 21)

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EMCoS (booth 9 & 10)

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ETS-Lindgren (booth 19)

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HF Technology (booth 26)

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Holland Shielding Systems BV (booth 16)

For over thirty years EMC/EMI engineers within Holland Shielding Systems B.V. provide our customers high quality and low cost solutions for electromagnetic radiation problems. Both the wide range of EMC components and shielded rooms/tents (faraday cages) are manufactured by Holland Shielding Systems in Europe, The Netherlands. Examples of various components are gaskets, finger strips, conductive tapes, honeycomb windows, filters and windows.

We deliver products, conduct measurements and provide advice in many fields were actively working in, like the electronics-, medical-, aeronautic- and defence industries. Because of the high variability of our (custom made) product range, we are able to solve almost all your shielding problems. Our technical engineers will guide the process from the design phase to final production in cooperation with you. We distinguish ourselves with short delivery times, economical solutions and our ability to design and manufacture custom made products within 2-3 days. Our innovative shielding solutions are delivered worldwide to corporations, governments, hospitals, secret services and research laboratories. We transport our products daily all over the world within 24 hours.

Apart from our large production facility our engineers can measure almost any type of electromagnetic radiation with frequencies up to 75 GHz with the use of top class measurement equipment.

KEMET (booth 1)

KEMET Corporation is a leading global manufacturer of electronic components that meets the highest standards for quality, delivery and service. The company offers its customers the broadest selection of capacitor technologies in the industry, along with an expanding range of sensors, actuators, and electromagnetic compatibility solutions. KEMET operates manufacturing facilities, sales and distribution centers around the world. The company's common stock is listed on the NYSE under the symbol 'KEM'. Additional information about KEMET can be found at www.kemet.com.

LUMILOOP gmbH (booth 11)

LUMILOOP GmbH is a manufacturer of optically powered measurement devices. Power-over-fiber meets the challenges for electromagnetically sensitive environments, particularly for long-term, maintenance-free applications. It can deliver uninterrupted power and continuous high-speed data communication for remote sensor applications. The patented technology results in reliable, secure and laser safe systems.

LUMILOOP's laser-powered E-field probes combined with LUMILOOP's power meters offer a significant reduction in measurement time for electromagnetic susceptibility testing. The LSProbe 1.2 combines the applicability of an oscilloscope with an easy-to-handle optically powered E-field probe. For the frequency range of 10 Hz to 8.2 GHz the LSProbe 1.2 delivers best-in-class dynamic range (Min. 80 to Max. 110 dB, typically 95 dB) for electric field strengths from below 0.1 V/m to over 10 kV/m. The miniaturized system enables pulse detection from pulse width of 1 Î¼s on all three axes simultaneously. Continuous streaming of 500,000 samples per second and optional bursts of 2,000,000 samples per second provide precise timing and characteristics of the electric field strength. Extensive frequency and temperature compensation data is supplied for each probe. Especially for IEC 61000-4-3/ISO 11451-2 and IEC 61000-4-21/ ISO 11452-11 for reverberation chambers, a synchronously measuring multi-probe system is available.

Microwave Vision Group (booth 24)

The Microwave Vision Group (MVG) has developed a unique expertise in the visualization of electromagnetic waves. These waves are at the heart of our daily lives: Smartphones, computers, tablets, cars, trains and planes -- all these devices and vehicles would not work without them. MVG offers systems that allow for the visualization of these waves, while evaluating the characteristics of antennas,

performing EMC tests and helping speed up the development of products using microwave frequencies.

NARDA Safety Test Solutions S.r.l (booth 6)

NARDA Safety Test Solutions S.r.l. is the first Italian manufacturer of measuring instruments for electromagnetic fields, known since 1980 also with its PMM brand. The range covers two important sectors NARDA STS is a reference for: EMF Safety: probes, meters, monitoring stations for evaluating the exposure to electromagnetic fields of workers and public; EMC: instruments and systems for electromagnetic compatibility tests destined to Manufacturers, Test Laboratories and Research Centers. NARDA STS products are of easiest use, top performances and attention to convenience. The internal Calibration Laboratory, internationally recognized as Accredited Calibration Center LAT 008, ensure metrological correctness. Membership to the International Group L3 Technologies, a leading supplier in the Aerospace and Defense sectors, guarantees outstanding quality and innovativeness. The International Sales Network is constantly trained for best technical and commercial support. Strict business ethics, compliance to safety and health standards, environmentally friendly design are, together with technology, NARDA STS fundamentals rewarded by thousands of Users around the world. Wherever electromagnetic fields are object of research, assessment, approval, evaluation, NARDA STS is there with state-of-art solutions.

Rimarck (booth 2)

RIMARCK is a specialized distributor for RF/Microwave, EMC Test Equipment and Electronic Components representing World-Leading manufactures such as EMC Partner. EMC Partner offers the largest range of Impulse Test Equipment up to 100kV and 100kA. As a small independent family company RIMARCK is proud to help shape the laboratories with EMC Partner equipment for: DNV GL (KEMA), National Aerospace Laboratory (NLR), Philips, KIWA, TUV Rheinland, Ministry of Defense, Esterline Belgium and more.

Besides a solid reputation on EMC Test Equipment RIMARCK also developed name as a RF / Microwave specialist. With high tech RF Products from Pasternack and RF Lambda RIMARCK now is a supplier for RF components for almost every University in the Netherlands, NATO,Â ESA, Ministries of Defence Netherlands/ Belgium and many more companies.

RIMARCK consists of a dedicated team with the ambition to offer high level service and technical solutions for her customers.

Rohde & Schwarz (booth 4)

Rohde & Schwarz, founded in 1933 is a leading manufacturer of test and measurement equipment for high-frequency electronics, mobile communications and broadcasting. The company's product portfolio includes test and measurement equipment for RF/Microwave, mobile communication and audiovisual applications, transmitters for radio (FM/DAB/DMB) and TV (DVB-T/T2, MediaFlow, ISDB-T), SD/HD/UHD A/V servers and storage, communications-systems for aerospace and defence, radio-monitoring apparatuses and IP cybersecurity products. In recent times, Rohde & Schwarz has expanded its own product range by means of acquisition; now also producing and representing the following brands: Digital Video Systems (GER), GMIT (GER), SwissQual (SWI), Ipoque (GER) and Topex (ROE). Furthermore, Rohde & Schwarz also represents the following brands: Advantest/ADCMT (JPN), DekTec (NL), Bonn Elektronik (D) and Siepel (FRA). Rohde & Schwarz is therefore capable of providing an optimal solution for a large group of applications and price ranges.

Schurter AG (booth 7)

SCHURTER Electronic Components is a leading innovator and producer of electronic components. As a Swiss technology company SCHURTER is operating successfully worldwide. In a dynamic market the SCHURTER Group is showing sustainable growth due to the specialized competence, innovative capacity, proximity to customers and financial independence.

The SCHURTER Group is divided into two divisions. The Component Division encompasses the equipment protection, equipment connections, switches and EMC products business units including the measurement service as well as the Solutionss unit. Solutions offers business partners a total solution package to fulfill the most demanding customer wishes in their entirety through the coordination and networking of all SCHURTER core competences. The Input Systems Division develops and produces customized solutions based on touchscreens, capacitive technology and membrane switches.

22 companies in 17 countries belong to the SCHURTER Group, 11 companies of which have their own production sites. This ensures that all major markets can be served by their own companies. They are coordinated from three hubs: SCHURTER AG in Lucerne for Europe, SCHURTER Inc. in Santa Rosa for America as well as SCHURTER (S) Pte. Ltd. in Singapore for Asia. In addition, SCHURTER has representatives in about 60 countries and works together with over 200 distributors. This close-knit network guarantees that SCHURTER products are securely and quickly available internationally.

Telerex (booth 20)

Telerex, located in the Netherlands and Belgium, has a wide range of shielding aids, such as gaskets, finger strips and contacts, integrated EMI sealants, wire mesh solutions, fabrics, and tapes because a good design takes into account factors such as the temperature and electromagnetic radiation. Therefore sometimes the use of extra tools is inevitable. Specifically for cases in which an application, device or machine needs to be equipped with additional EMI shielding. With our production partner in Taiwan, Mechatronix, we can even offer customised mechanical parts or housings with integrated shielding.

Telerex's shielding products are used in a wide variety of areas, including in medical and military applications, in the automotive industry, for telecom products, for displays and much more. We have many standard shielding products for your application, but can also provide client-specific adaptations, configurations or complete customisations.

Würth (booth 8)

Würth Elektronik eiSoS GmbH & Co. KG (Focus: standard components), Würth Elektronik iBE GmbH (Focus: customized passive components for the automotive industry), Wurth Electronics Midcom Inc. (Focus: transformers and custom magnetics), Würth Elektronik Stelvio Kontek S.p.A. (Focus: customized plug connectors) and AMBER wireless GmbH (Focus: wireless data transmission solutions) from the Würth Elektronik eiSoS Group. The group of companies with 6,750 employees generated sales of approx. € 555 million in 2016. The Würth Elektronik eiSoS Group is one of the biggest European manufacturers of passive components and operates in 50 countries.

Through its technology partnership with the Auddi Sport ABT Schaeffler Formula E Team and its support for the Formula E racing series, the Group demonstrates its innovative strength in eMobility (www.we-speed-up-the-future.com). Other global growth markets, such as Energy Harvesting, Internet of Things and Wireless Communication, are addressed with innovative products.

The Würth Elektronik eiSoS Group is part of the Würth Group, the world market leader for assembly and fastening technology. Würth Elektronic: more than you expect!

EMC Europe 2019 BARCELONA

WWW.EMCEUROPE2019.EU

BARCELONA, 2-6 SEPTEMBER 2019

Call for papers

SUBMISSION DEADLINES

Special sessions proposals: **1 January 2019**

Regular papers: **15 February 2019**

Workshops, tutorials and short courses: **15 March 2019**

contact: info.emceurope2019@upc.edu

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EMC Europe 2019 | BARCELONA, 2-6 September 2019

On behalf of the EMC Europe International Steering Committee, we welcome you to the major European conference on Electromagnetic Compatibility in Barcelona, an enchanting seaside city with boundless culture, extraordinary architecture and a world-class gastronomic scene.

EMC Europe 2019 focuses on the high quality of scientific and technical contributions providing a forum for the exchange of ideas and latest research results from academia, research laboratories and industry from all over the world.

The symposium gives the unique opportunity to present the progress and results of your work in any EMC topic, including emerging trends. Special sessions, workshops, tutorials and an exhibition will be organized along with regular sessions.

Barcelona, the capital of Catalonia, is a Mediterranean and cosmopolitan city with Roman remains, medieval quarters and the most beautiful examples of Modernism and avant-garde. Pedestrian streets in the old quarter, green areas, and a splendid seafront with a range of modern facilities are a reflection of its multi-faceted character.

We do hope you will enjoy both, the conference and your stay in Barcelona.

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EMC Europe 2019 BARCELONA

EMC Sapporo & APEMC 2019

2019 Joint International Symposium on Electromagnetic Compatibility and Asia-Pacific International Symposium on Electromagnetic Compatibility, Sapporo

Sapporo Convention Center, Sapporo, Japan
June 3 -7, 2019

- After five years of EMC'14/Tokyo -

Organized Session Proposal Deadline: October 26, 2018

Paper Submission Deadline: December 24, 2018

http://www.ieice.org/~emc2019/

CALL FOR PAPERS

2019 EMC+SIPI
NEW ORLEANS, LOUISIANA
JULY 22-26

New Orleans is already famous for its unique culture, music, food and art, but did you know the city has developed into one of the most exciting technology markets in the United States? With the support of city and statewide initiatives to encourage business growth, New Orleans has been leading the USA in startups-per-capita, attracting college graduates and those seeking career opportunities in the tech world. With accolades such as "America's #1 Brainpower City" from Forbes Magazine and "Coolest Start-up City in America" from Inc. Magazine, New Orleans is the perfect site to inspire our minds and re-energize our spirits.

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FOR MORE INFORMATION. SEE THE SYMPOSIUM WEBSITE:
WWW.EMC2019.EMCSS.ORG

GET YOUR WORK PUBLISHED!

EMC+SIPI 2019 is a Technical Symposium with Technical Papers at its heart. Original, unpublished papers on all aspects of EMC & SIPI are invited.

- Preliminary Full Paper Manuscript Submission Period: October 1, 2018 - January 6, 2019
- Notification of Acceptance: February 16, 2019
- Final Paper Due: April 19, 2019

CALL FOR EXPERIMENTS & DEMONSTRATIONS

Experiments and demonstrations utilize hardware and software to demonstrate a principle or phenomenon of EMI/EMC. The presentations are informal and non-commercial and will be conducted in a specific area at the symposium.

For more information, contact:
Bob Scully - bob.scully@ieee.org
Sam Connor - sconnor@ieee.org

CALL FOR ABSTRACT REVIEWED PAPERS

Abstract Reviewed Papers provide opportunities to exchange experiences and ideas. Only an abstract is required for initial submission, papers are included in the conference proceedings. However, these papers are not published in the IEEEXplore (although there will be an opportunity to submit an extended version after the symposium for a Special Issue of the new Journal of EMC Practical Applications).

- Proposals Accepted: October 1, 2018 - February 16, 2019
- Acceptance Notification: March 23, 2019
- Final Paper Due: April 19, 2019

For more information, contact:
Alistair Duffy – apd@dmu.ac.uk

CALL FOR SPECIAL SESSIONS

Special Sessions focus on targeted areas of interest. Acceptance criteria are the same as for Technical Papers, and Special Session papers are published in IEEEXplore.

- Proposals Accepted: October 1, 2018 - December 12, 2018
- Notification of Acceptance: January 6, 2019
- Preliminary Papers Due: February 16, 2019
- Final Papers Due: April 19, 2019

For more information, contact:
Colin Brench - colin.brench@ieee.org

CALL FOR WORKSHOPS & TUTORIALS

Workshops and Tutorials are informal, interactive educational presentations, typically addressing the practical side of understanding and solving EMC issues. These sessions typically are held on Monday and Friday.

- Proposals Accepted: October 1, 2018 - January 6, 2019
- Notification of Acceptance: February 16, 2019
- Final Presentations Due: April 19, 2019

For more information, contact:
Francesca Maradei - francesca.maradei@uniroma1.it
Flavia Grassi - flavia.grassi@polimi.it

STANDARDS WEEK

For a number of years, Working Groups for EMC Society sponsored standards projects have met in parallel with the Technical symposium. This year, many standards related activities will take place as part of the Technical program. Proposals for standards related sessions are invited focusing on all aspects of standards contributions, including tutorial material, workshops on existing standards, novel contributions to standards projects or appraising the need for new standards.

- Proposals Accepted: October 1, 2018 - December 12, 2018
- Notification of Acceptance: January 6, 2019
- Preliminary Papers Due: February 16, 2019
- Final Papers Due: April 19, 2019

For more information, contact: Alistair Duffy – apd@dmu.ac.uk

IEEE | EMC SOCIETY

GEMCCON

SOUTH AFRICA 2018

7 to 9 November, Stellenbosch, RSA

The 4th edition of the IEEE Global Electromagnetic Compatibility Conference (GEMCCON), is coming to Stellenbosch in the Cape Winelands of South Africa.

The conference will cover many topics in EMC, including special sessions on

- Radio frequency interference.
- Time domain metrology.
- EMC in large installations.

Invited speakers

Keith Armstrong, Cherry Clough Consultants, United Kingdom - Techniques and Measures to Manage Functional Safety and Other Risks with Regard to Electromagnetic Disturbances.

Sarel van der Merwe, ITC Services, SA - A Brief History of EMC in South Africa.

Frank Leferink, University of Twete, Netherlands - Risk Based vs Rule Based EMC in Large Installations.

Ferran Silva, Universitat Politècnica de Catalunya, Spain - Time Domain Measurement Methods in EMC.

Paul van der Merwe, MESA Solutions, SA - EMI Measurements on Renewable Energy Plants.

7 to 9 November 2018

www.gemccon2018.emcss.org


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ON AEROSPACE EMC
20-22 May 2019 Budapest, Hungary
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https://atpi.eventsair.com/QuickEventWebsitePortal/2019-esa-workshop-on-aerospace-emc/emc2019

EMC COMPO 2019
21-23, October,
Hangzhou

The 12th IEEE International Workshop on the Electromagnetic Compatibility of Integrated Circuits

EMC COMPO 2019 IN HANGZHOU, CHINA

www.emccompo.org

October 21-23, 2019,Hangzhou,China

Call for Papers

The achievement in terms of operating frequency and integration of semiconductor technology are constantly creating new challenges in EMC, which must necessarily be addressed at both integrated circuits and system level. Keeping up-to-date is of paramount importance to be successful in this field. The International IC EMC Workshop was created in Toulouse, France, in 1999. Following the EMC COMPO events held in Angers of France, Munich, Torino , Toulouse, Dubrovnik, Nara of Japan, Edinburgh, St Petersburg, EMC Compo 2019 is intended to be a place for addressed to researchers and engineers from industry and from academia. EMC Compo 2019 in Hangzhou, China will be the first workshop to be held in China. The workshop focus on emission and susceptibility issues in digital, analogue and mixed-signal integrated circuits. The most recent advances in simulation and measurement techniques, models, standards, tools and design methodologies will be discussed. A Technical Exhibition will provide tool and equipment manufacturers and suppliers an opportunity to display their products and services to potential clients.

Symposium Topics

- Artificial Intelligence in IC EMC
- Design of 2D and 3D system-on-chip (SoC) for EMC
- Hardware-software co-design and integration for IC EMC
- Emission and immunity-aware IC design
- ESD immunity techniques at IC level
- Signal and power integrities at IC level
- Combined effects of radiation and aging on IC EM sensitivity
- Harsh environment effects on IC EM sensitivity
- IC EMC for avionics and automotive applications
- EMC-aware analog and mixed signal circuits
- RF ICs EMC
- IC-level measurement techniques for EMC
- IC-level modeling techniques for EMC
- EMC simulation of ICs
- EMC in microwave ICs
- EMC-aware software solutions
- FPGA-based embedded systems and EMC

Important Dates

❑ Preliminary Paper Submission *(3 pages in PDF)* ❑ Abstract Submission *(500 words to 1-page)* ❑ Tutorial /workshop proposal	12 July 2019
❑ Notification of review feedback	16 Aug. 2019
❑ Final Paper Due	05 Sept. 2019

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Facts:	Highlights:
118 exhibitors	product presentation area
2,775 qualified visitors	over 40 workshops
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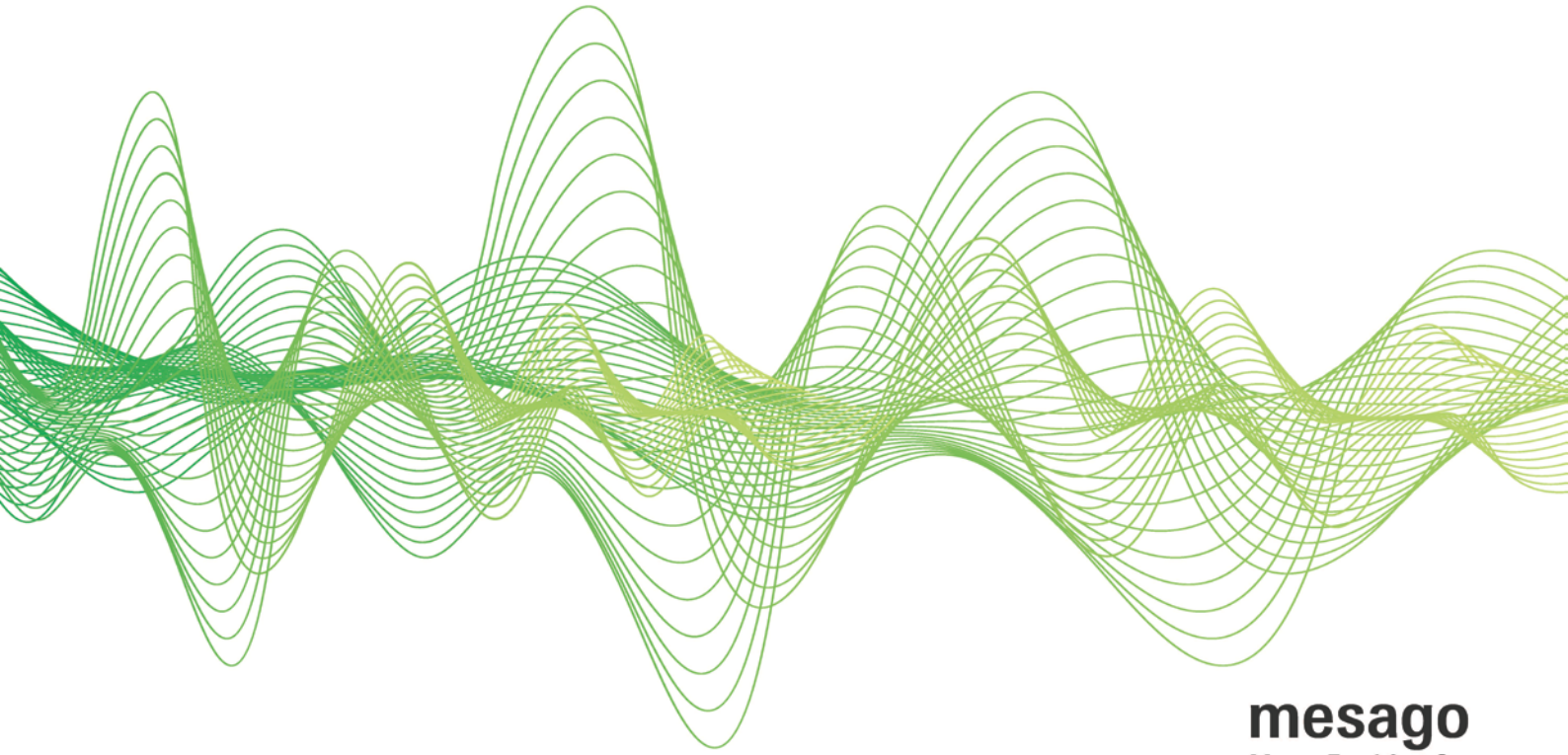

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Further details available at https://esda.org/events/symposia/

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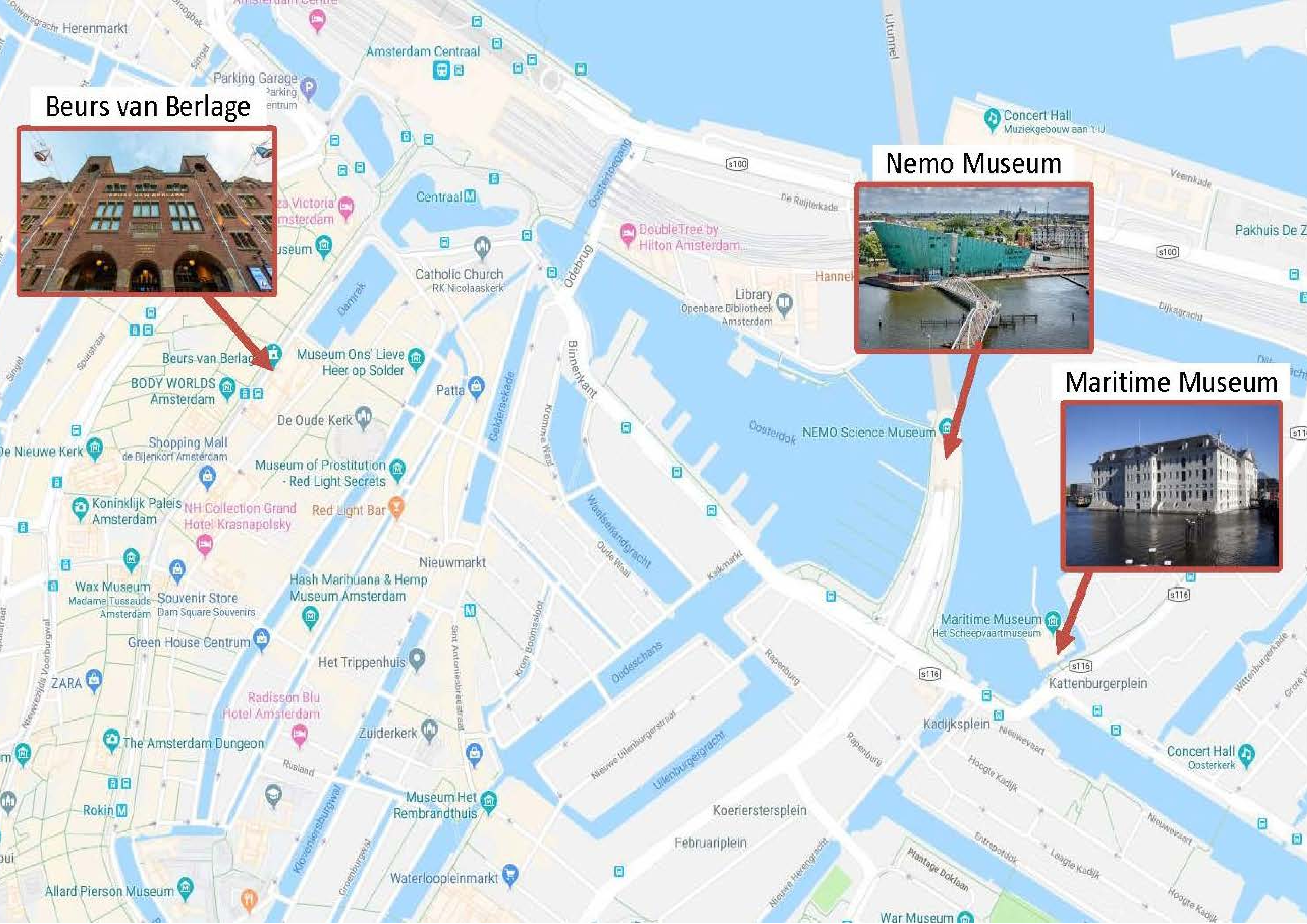
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