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2014 IEEE 11th International Multi-Conference on Systems, Signals and Devices (SSD)

ORGANIZED BY

• Universitat Politècnica de Catalunya, BarcelonaTech, Spain
• Chemnitz University of Technology, Germany
• Philadelphia University, Jordan

SUPPORTED BY

• Escola d’Enginyeria de Telecomunicació i Aeroespacial de Castelldefels - EETAC
• IEEE Power Electronics Society -Industrial Electronics Society Joint Spanish Chapter
• Spanish Chapter of the IEEE Sensors Council
• IEEE Instrumentation and Measurement Society
• IEEE Chapter of Instrumentation and Measurement, Germany
• Ajuntament de Castelldefels
Chairman’s Welcome Message

On behalf of the International Multi-Conference on Systems, Signals & Devices Organizing Committee, it is our great pleasure to welcome you to the 11th International Multi-Conference on Systems, Signals & Devices (SSD14) and to Castelldefels.

SSD conferences traditionally gather researchers in the main fields of electrical engineering and information technology form the leading research centers and universities around the world. Since 2001, SSD has grown substantially from a brand new conference with an innovative vision to the SSD of today, firmly established as an international conference with an outstanding scientific quality and an excellent reputation.

SSD14 multi-conference includes four conferences:

- SAC - Systems Analysis and Automatic Control, related to system design, modern control theory, robotics and human-machine interaction systems.
- PES - Power Electrical Systems (PES), devoted to electrical machines, drives and power systems, including modern smart grids.
- CSP - Communication and Signal Processing (CSP) covers electrical signal processing, image processing and communication systems.
- SCI - Sensors, Circuits and Instrumentation Systems (SCI) include topics in the fields of sensors, measurement interfaces, instrumentation systems and energy harvesting systems.

SSD14 secretariat has received 255 submissions from all the continents and 37 countries: Germany, Tunisia, Spain, Italy, Algeria, Jordan, Saudi Arabia, France, Denmark, Korea, Qatar, P.R. China, New Zealand, Egypt, USA, Brazil, India, Turkey, Norway, Iran, Sweden, Portugal, Iraq, Ukraine, Canada, Oman, Lebanon, The Netherlands, Georgia, Indonesia, Taiwan, Hungary, Finland, Slovenia, Russia, Austria and Bahrain.

Each paper has been reviewed by at least two reviewers of the program committee which consisted of more than 150 scientists form more than 20 countries. The program includes two plenary sessions, 12 keynote lectures, with the 180 accepted papers.

We would like to personally thank you for attending the conference. We hope the conference will be an opportunity to share the knowledge and the expertise with other in the field, favoring networking and exchange experiences.

Finally, it is with grateful hearts that we acknowledge the work carried out by Conference Chairs and Committee members in the work of preparing this conference to become a great success.

Prof. Olfa Kanoun and Dr. Angel Cuadras

Castelldefels, February 2014
SSD 2014 Organizers

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http://www.ssd-conf.org/ssd14
General Information

Venue
The 11th edition of the International Multi-Conference on Systems, Signals & Devices SSD’14 will be hosted at Castelldefels School of Telecommunications and Aerospace Engineering (Barcelona, Spain), campus of the Universitat Politecnica de Catalunya - Barcelona Tech.

Castelldefels is a nice summer resort, with long and sandy beaches, located 20 km south Barcelona and very well communicated, with the benefits of a quiet place. In the same campus there are well reputed research institutes: CTTC for communications research and ICFO for photonic sciences.

Barcelona is a very dynamic South-European and Mediterranean city. It is the perfect city to relax in with its charming people, stroll around the modernist art and enjoy its fine gastronomy.

It is also the Mobile World Capital, and an attractive pole for science and technology development.
Travel Information
http://goo.gl/maps/PDLjb

Air

Castelldefels is 15 km from the Barcelona International Airport. To reach Castelldefels from the airport:

By bus: L-99 bus from the new Terminal T1 to Castelldefels (regular shuttle buses between terminals T1 and T2). Frequency: every half hour.

By car: leave the airport and follow the signs for C-31 highway (heading towards Sitges).

By taxi: the average fare of 20 euros each way.

By train (Renfe): to reach Castelldefels, take line C-1 heading to El Prat de Llobregat, where you should change to line C-2 heading towards Sitges/Vilanova/Sant Vicenç de Calders.

Train

The Castelldefels train station is just 300 metres from the EETAC and connects it to Barcelona by the RENFE Rodalies (local trains) line C-2. Four to six trains run every hour from Barcelona-Passeig de Gracia and Barcelona-Sants stations. Travel time is 20-30 minutes.

Buses

Line L94 Barcelona - Castelldefels

Barcelona - L'Hospitalet - El Prat de Llobregat - Viladecans - Gava - Castelldefels

Line L95 Barcelona - Castelldefels

Barcelona - L'Hospitalet - El Prat de Llobregat - Viladecans - Gava - Castelldefels

Line N14 (Night Bus) Barcelona - Castelldefels

Barcelona Pl. Catalunya - Hospital - Esplugues - St. Boi - Viladecans - Gava - Castelldefels (downtown)

Line N16 (Night Bus) Barcelona - Castelldefels

Barcelona Pl. Catalunya - Hospital - Esplugues - St. Boi - Viladecans - Gava - Castelldefels (downtown)

Taxis

Radiotaxi Castelldefels Phone: (+34) 93 665 2222
Touristic information

CASTELLDEFELS

Castelldefels is located at the heart of Costa del Garraf, between the mountainous landscape of the massif of Garraf and the Mediterranean. More than five kilometres worth of fine beaches are found there, only a few minutes away from Barcelona and its international airport. Castelldefels Beach has received certified recognition for its tourist and environmental qualities.

This exceptional location makes it an attractive tourist destination for those who wish to observe the sharp contrasts that the region of Baix Llobregat exhibits. Thus, the visitor will be able to play any water sport in the unbeatable facilities of the marina, including canoeing in the Olympic Canal, built for the 1992 Olympics. The lovely temperatures of the coast of Barcelona will let us enjoy the Mediterranean waters, and the rich artistic heritage. The ancient castle of Fels, which gave this town its name, dominates the coastline of the city. You can also see medieval defence towers, erected in the 16th century, such as the towers of Can Ballester and Barona Tower.

http://www.castelldefelsturisme.com

ESCOLA D’ENGINYERIA DE TELECOMUNICACIÓ I AEROESPACIAL DE CASTELLDEFELS (EETAC)

Castelldefels School of Telecomunications and Aerospace Engineering (EETAC) is a Higher Education School of UPC specialising in technical and scientific courses in Aeronautics and Telecommunication (BSc, MSc and PhD), with a reputation for excellence in Teaching, Innovation and Quality. The school is also committed to research activities in close contact with industry to promote the transfer of results into practice.

EETAC was created in 1991 as a school belonging to the network of technical schools of the UPC. It was relocated to the Mediterranean Technology Park (PMT) in 2000 and since then it has experienced a continuous growth in the number of students (currently around 1500 students) and facilities (research and teaching laboratories, library, lecture rooms, etc). EETAC’s mission is to provide a higher education of outstanding quality at BSc, MSc and PhD levels to contribute to the social and economic development of the country and to carry out important R&D activities, many of them in collaboration with other organizations in the PMT.

http://eetac.upc.edu
UNIVERSITAT POLITÉCNICA DE CATALUNYA - UPC BARCELONA TECH

The Universitat Politècnica de Catalunya - BarcelonaTech (UPC) is a public institution dedicated to higher education and research, specialised in the fields of engineering, architecture and science.

In a highly creative context, the UPC's research, teaching and management projects are based on the principles of freedom, justice, democracy, solidarity, cooperation, sustainability, efficiency, transparency and social responsibility. They also reflect the University's commitment to the environment and to change.

The activity that goes on at UPC campuses and schools has made the University a benchmark institution. In 2009, in the Spanish Ministry of Education's first round of International Campus of Excellence designations, the Universitat Politècnica de Catalunya - BarcelonaTech (UPC) was granted the recognition for the Barcelona Knowledge Campus (BKC) project. As a leading member of international networks of excellence, the UPC has a privileged relationship with global scientific and educational organisations. As a result, the University is at an advantage when it comes to attracting international talent.

UPC has schools in Barcelona and other nearby cities: Castelldefels, Manresa, Sant Cugat del Vallès, Terrassa and Vilanova i la Geltrú. It also has affiliated schools in Barcelona, Terrassa, Igualada and Mataró.

https://www.upc.edu

BARCELONA

Barcelona, the capital of Catalonia, is a Mediterranean and cosmopolitan city with Roman remains, medieval quarters and the most beautiful examples of 20th century Modernism and avant-garde. It is no surprise that emblematic constructions by the Catalan architects Antoni Gaudí and Lluís Doménech i Montaner have been declared World Heritage Sites by the UNESCO. Barcelona is the 10th-most-visited city in the world and the third most visited in Europe after London and Paris, with several million tourists every year. With its Rambles, Barcelona is ranked the most popular city to visit in Spain.

The city's origins are Roman, and its long history and economic dynamism have made Barcelona a cultural city, which can be seen in the historic-artistic heritage and the promotion of the most innovative artistic trends. A wide cultural programme will take visitors to museums, exhibitions, open-air sculptures… and many concerts, plays and dances. Popular culture also has its manifestations in this city, which still conserves its most cherished traditions, like the fiestas of
La Mercè or the festivities in the neighbourhoods of Gràcia, Sants and Poblenou. These are all exceptional opportunities for getting to know the city's more festive side.

Tradition and modernity can also be seen in its innovative and imaginative gastronomy, based on fresh garden produce, fresh fish, a wide variety of sausages and olive oil. Traditional handmade cakes and pastries and sparkling wines are some of the other highlights in this brief overview of Barcelona's gastronomic culture.

Strolling around the streets of Barcelona will bring surprises at every turn. Pedestrian streets in the old quarter, green spaces, and a splendid seafront with a range of modern facilities are a reflection of its multi-faceted character. Barcelona has cleverly succeeded in embracing its past without forgetting its commitment to the future. The city is endowed with some exceptional infrastructures which are in demand as venues for seminars, symposia and international events. Its exceptional transport connections, the Mediterranean climate and the multitude of attractions for visitors make Barcelona one of the world's leading business cities. Business parks and exhibition and conference centres host a wide range of initiatives.

Visitors coming to Barcelona for pleasure or on business can also enjoy the city's Mediterranean character, which can so clearly be seen on the Barcelona coast. The city also has lovely urban beaches, marine resorts, and golf courses on the seashore. Nature lovers will not have to go far to explore the mountains in the Cordillera Litoral range and the Catalan Pyrenees.

http://www.barcelonaturisme.com/
Social Program

The complete program of social activities is shown below:

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday 11th, 15:30</td>
<td>Welcome cocktail</td>
<td></td>
</tr>
<tr>
<td>Tuesday 11th, 17:30</td>
<td>Visit to Castelldefels Castel</td>
<td></td>
</tr>
</tbody>
</table>

The castle sits atop a hill, dominating the coastal strip between the Garraf Massif and Barcelona. The southern half of the Castle houses the chapel, originally Romanesque in design, with one single nave and transept and the associated facilities: the rectory, the sacristy, the cemetery and the courtyard. A network of pathways leads slowly up to the castle and the Castle Park, with a range of different routes through the abundant flora, including such exotic species as Mediterranean fan palms. The summit of the hill is the best point from which to look out over the Garraf Massif, the Collserola Uplands, the Plain of Barcelona, Montjuïc, the Llobregat Delta and the coastline.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday 13th, 20:00</td>
<td>Gala Dinner</td>
<td></td>
</tr>
</tbody>
</table>

An enjoyable dinner on the very beach front.
Hotel Playafels
Platja Ribera de San Pedro, 1-9
Castelldefels

Friday 14th, 15:00
Gaudi Tour

Gaudi was an architect from Catalonia who is considered the main representative of Catalan Modernism. Nature, architecture and religion were his passions and all of them are reflected in his art. Particularly, we are going to visit Sagrada Familia and Casa Batlló which are two of the most emblematic works of Gaudi. An expert in Gaudi’s architecture will come with us during the tour.

Enjoy the visit!
Meet the experts

Dr. Francisco Falcone
Ambient Intelligence Towards Smart Cities

Francisco Falcone (M05, SM09) received his Telecommunications Engineering Degree (1999) and PhD in Communications Engineering (2005), both at the Universidad Pública de Navarra (UPNA) in Spain. From 1999 to 2000 he worked as Microwave Commissioning Engineer at Siemens-Italtel. From 2000 to 2008 he worked as Radio Network Engineer in Telefónica Móviles. In 2009 he co-founded Tafo Metawireless, a spin off devoted to complex EM analysis. From 2003 to 2009 he was also Assistant Lecturer at UPNA, becoming Associate Professor in 2009. Since 2012 he is Head of the Electrical and Electronic Engineering Dept at UPNA. His research area is artificial electromagnetic media, complex electromagnetic scenarios and wireless system analysis. He has over 300 contributions in journal and conference publications. He has been recipient of the CST Best Paper Award in 2003 and 2005, Best PhD in 2006 awarded by the Colegio Oficial de Ingenieros de Telecomunicación, Doctorate award 2004-2006 awarded by UPNA, Juan Lopez de Peñalver Young Researcher Award 2010 awarded by the Royal Academy of Engineering of Spain and Premio Talgo 2012 for Technological Innovation.

Prof. Paul Mitcheson
RF Energy Harvesting and Inductive Power Transfer

Paul D. Mitcheson received the M.Eng. degree in electrical and electronic engineering and the Ph.D. degree from Imperial College London, U.K., in 2001 and 2005, respectively. He became a Lecturer (Assistant Professor) at Imperial College in 2006 and is currently a Senior Lecturer (Associate Professor) in the Control and Power Research Group, Electrical and Electronic Engineering Department at Imperial College London. He has research interests in energy harvesting devices, in particular the power processing requirements for harvester powered systems, including RF energy harvesting. He has a parallel line of work, which also concerns getting power to "hard to reach" places, investigating inductive power transfer.

Prof. Eduard Alarcon
Energy harvesting: device, circuit and system co-design and on-chip integration

Eduard Alarcon received the M. Sc. (National award) and Ph.D. degrees (honors) in Electrical Engineering from the Technical University of Catalunya (UPC BarcelonaTech), Spain, in 1995 and 2000, respectively. Since 1995 he has been with the Department of Electronic Engineering at UPC, where he became Associate Professor in 2000. From August 2003 to January 2004, July-August 2006 and July-August 2010 he was a Visiting Professor at the CoPEC center, University ofColorado at Boulder, US, and during January-June 2011 he was Visiting Professor at the School of ICT/Integrated Devices and Circuits, Royal Institute of Technology (KTH), Stockholm, Sweden.
During the period 2006-2009 he was Associate Dean of International Affairs at the School of Telecommunications Engineering, UPC. He has co-authored more than 250 scientific publications, 4 books, 4 book chapters and 4 patents, and has been involved in different National, European and US (DARPA, NSF) R&D projects within his research interests including the areas of on-chip energy management circuits, energy harvesting and wireless energy transfer, and nanotechnology-enabled wireless communications. He is the PI of the Guardian Angels EU FET flagship project at UPC and through N3CAT center he is part of the graphene flagship.

Dr Ramon Blasco-Gimenez

HVDC Integration of large Wind Power Plants

Dr Ramon Blasco-Gimenez obtained his BEng. degree from the Technical University of Valencia, Spain, in 1992, and his Ph.D. degree in Electrical and Electronic Engineering from the University of Nottingham, U.K., in 1996.

From 1992 to 1995, he was a Research Assistant in the Department of Electrical and Electronic Engineering, University of Nottingham. He is currently an Associate Professor at the Dept. of Systems Engineering and Control of the Technical University of Valencia, where he teaches advanced control techniques and control of drives.

He has been a consultant to utilities on integration of wind farms in weak grids and to large wind farm operators on risk based operation and maintenance of off-shore wind farms. His research interests include control of motor drives, wind power generation, off-shore wind farms and large scale grid integration of renewable energy and has published more than 90 journal and conference papers in the aforementioned topics.

Dr Blasco-Gimenez has been a co-recipient of the 2005 IEEE Transactions on Industrial Electronics Best Paper Award. He is a Senior Member of the IEEE, member of the IEEE Electronics Society Technical Committee in Renewable Energy, a registered professional engineer in Spain, Chartered Engineer (U.K.) and member of the Institute of Engineering and Technology.

Alessandro Cidronali

Architectures and technologies for small-cell based communication systems

Alessandro Cidronali (M89, SM 10) is an Associate Professor of Electronics at the Department of Information Engineering, University of Florence, where he teaches courses on electron devices and integrated microwave circuits. From 1999 to 2003, he was a Visiting Researcher with the Motorola Physics Science Research Laboratory. From 2002 to 2005, he was a Guest Researcher with the Non-Linear Device Characterization Group, at the National Institute of Standards and Technology (NIST). Under the frame of the IST-EU FP6 Network TARGET (IST-1-507893-NOE), he served as workpackage leader for the transmitters modeling/architectures for wireless broadband access work packages. His research activities cover the study of analysis and synthesis methods for nonlinear microwave circuits, the design of broadband monolithic
microwave integrated circuits (MMICs) and the development of modeling for microwave devices and circuits. Prof. Cidronali was recipient of the Best Paper Award presented at the 61st ARFTG Conference. From 2004 to 2006, he was an associate editor for the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES. Prof. Cidronali is a member of the IEEE TC-20 Wireless Technologies MTT Technical Committee.

Luis M. Correia  
* A Perspective of the Networks of the Future and Smart Cities  

Luis M. Correia was born in Portugal, on 1958. He received the Ph.D. in Electrical and Computer Engineering from IST (University of Lisbon) in 1991, where he is currently a Professor in Telecommunications, with his work focused in Wireless/Mobile Communications in the areas of propagation, channel characterisation, radio networks, traffic, and applications, with the research activities developed in the INOV-INESC institute. He has acted as a consultant for Portuguese mobile communications operators and the telecommunications regulator, besides other public and private entities. Besides being responsible for research projects at the national level, he has been active in 28 ones within the European frameworks of RACE, ACTS, IST, ICT and COST (where he also served as evaluator and auditor), having coordinated 3 of them, and taken leadership responsibilities at various levels in many others. He has supervised more than 150 M.Sc. and Ph.D. students, having authored more than 350 papers in international and national journals and conferences, for which he has served also as a reviewer, editor, and board member, and edited 6 books. He has been part of 26 Ph.D. juries at the international level. He was part of the COST Domain Committee on ICT. He was the Chairman of the Technical Programme Committee of several major conferences, and is part of several Steering Boards. He is part of the Expert Advisory Group and of the Steering Board of the European Net!Works platform, and was the Chairman of its Working Group on Applications.

Dr. Ramon Costa-Castelló  
* On Tracking and Rejecting Periodical Signals  

Ramon Costa-Castelló was born in Lleida, CATALUNYA, SPAIN in 1970, obtained the master degree in computer science in 1993 from the Facultat d’Informàtica de Barcelona (FIB) from the Universitat Politècnica de Catalunya (UPC), in 2001 he obtained the PhD degree in computer science from the Advanced Automation and Robotics (AAR) program from the Cibernetics Institute (Institut de Cibernètica, IC) at UPC. Currently, he is an Associate Professor at the Automatic Control department (Department of Enginyeria de Sistemes Automàtica i Informàtica Industrial, ESAII) and the Control and Organization Institute (Institut d’Organització i Control de Sistemes Industrials, IOC) both from UPC. Currently, his teaching activity is related with the Industrial Engineering degree from the School of Industrial Engineering of Barcelona (Escola Tècnica Superior d’Enginyeria Industrial de Barcelona, ETSEIB) and the Master in Automation and Robotics (MAR) from the ESAII department. At this moment he is teaching: Computer Control, Advanced Control and Real Time Systems from the ETSEIB and Robust Control from the
MAR. His research is mainly focused on the development of digital control techniques for tracking/rejection periodic signals (repetitive control, resonant control), with application to power electronic converters (active filters, rectifiers) and mechatronic plants. In parallel with this activity he works on the development of virtual/remote laboratories and interactive applications applied to teaching of automatic control. He is the author of a number of magazines and conference papers. He is a Senior Member from the Institute of Electrical and Electronics Engineers (IEEE), member of the Comité Español de Automática (CEA) and member of IFAC (EDCOM, TC 9.4 Committee). https://sites.google.com/site/ramoncostacastello/

Dr.-Ing. José de Gea Fernández
Towards general-purpose autonomous mobile robotic manipulators

José de Gea Fernández received his M.Sc. in Electronics Engineering (2002) from the Technical University of Catalunya (UPC), Spain and his PhD in Robotics (2011) from the University of Bremen, Germany. Between 2003 and 2009 he was a Researcher at the Robotics Group of the University of Bremen. Since 2009 he is working at the Robotics Innovation Center of DFKI (German Research Center for Artificial Intelligence) in Bremen. There, from 2011 to 2013 he acted as Deputy Head of the Department for "Mobility and Manipulation". Currently, he is Senior Researcher and co-leader of the Team "Intelligent Kinematics". He has co-authored over 30 scientific publications and has been involved in different German national (BMBF, DFG, BMWi, DLR) and European projects (EU, ESA) in several areas within his research in robotic manipulation. He led the DFKI team in the German project SemProm which specified the software / hardware characteristics and designed the control strategies for the robot AILA. He also led the DFKI contributions in the EU Project Robofoot and is currently project leader of the project BesMan (Behaviors for Mobile Manipulation), funded by BMWi (German Federal Ministry of Economics and Technology) and DLR (German Space Agency). His research area is on mobile manipulation, which involves performing complex manipulation actions in unstructured and dynamically changing environments. This research area aims at getting robot manipulators out of typical industrial, pre-determined and enclosed environments and deploy them in real-world scenarios and unforeseen situations.

Prof. Gerard C.M. Meijer
Capacitive Sensor Systems, emerging technologies

Gerard Meijer received his M.Sc. and Ph.D. degrees in Electrical Engineering from the Delft University of Technology, Delft, The Netherlands, in 1972 and 1982, respectively. Since 1972 he has been a member of the Research and teaching staff of Delft University of Technology, where he is a professor, engaged in research and teaching on Analogue Electronics and Electronic Instrumentation. Since 1984, he has been consultant for industrial companies and research institutes. In 1996 he co-founded the company SensArt, where he is consultant in the field of sensor systems. In 1999 the Dutch Technology Foundation STW awarded him with the honoree degree "Simon StevinMeester" and in 2001 he was awarded the Anthony van Leeuwenhoek.
chair at TUDelft. In addition to many journal and conference papers, Meijer is also author and editor of books in the field of sensor systems, published by Wiley, Springer, IOP and Kluwer.

Prof. Eric Monmasson  
FPGA-based controllers for power electronics and drive applications

Eric Monmasson (M’96-SM’06) received the Ing. and Ph.D. degrees from the Ecole Nationale Supérieure d’Ingénieurs d’Electrotechnique d’Electronique d’Informatique et d’Hydraulique de Toulouse (ENSEEIHT), Toulouse, France, in 1989 and 1993, respectively. Eric Monmasson is currently a full professor at the University of Cergy-Pontoise, Cergy-Pontoise, France. He is also with the Systèmes et Applications des Technologies de l’Information et de l’Energie laboratory (SATIE, UMR CNRS8029). His current research interests include the advanced control of electrical motors and generators and the use of FPGAs for energy control systems. He was the chair of the technical committee on Electronic Systems-on-Chip of the IEEE Industrial Electronics Society (2008-2011). He is also a member of the steering committee of the European Power Electronics Association and the chair of the number one technical committee of the International Association for Mathematics and Computers in Simulation (IMACS). He was the general chair of ELECTRIMACS 2011 Conference. He is an associate editor of IEEE Transactions on Industrial Electronics and IEEE Transactions on Industrial Informatics. He is the author or coauthor of 3 books and more than 150 scientific papers.

Noel O’Connor  
Taming the Information Overload of the Sensor Web

Noel E. O’Connor is an Associate Professor in the School of Electronic Engineering at DCU and a Funded Investigator (FI) in INSIGHT, Ireland’s national research centre for data analytics, where he is responsible for aspects of the centre’s work on Media Analytics. His early research was in the field of video compression, specifically object-based compression in the context of MPEG-4, which subsequently led to an interest in video object segmentation and tracking as well as other aspects of computer vision. With the advent of MPEG-7, he became interested in audio-visual (AV) analysis for content-based information retrieval as well as low-power configurable hardware for AV processing, a key-enabler for next generation context-aware multimedia sensors. The focus of his current research is in multi-modal content analysis leveraging mutually complementary sensor data sources, for applications in sports and health, digital media, ambient assisted living and environmental monitoring. Since 1999 Prof. O’Connor has published over 180 peer-reviewed publications, filed 6 patents and spun off a campus company. He has graduated 16 Ph.D students and 3 Masters students. He is an Area Editor for Signal Processing: Image Communication (Elsevier) and an Associate Editor for the Journal of Image and Video Processing (Springer). He was awarded the DCU President’s Research Award for Science and Engineering in 2010. Also in 2010, he was awarded Enterprise Ireland’s National Commercialization Award for ICT. He is a member of the IEEE, ACM, Engineers Ireland and the IET.
Leonhard Reindl
Power Supply for Wireless Sensor or Actuator Nodes

Leonhard Reindl received his Diploma in Physics from Technical University of Munich, Germany, in 1985 and his Dr. sc. techn. from University of Technology Vienna, Austria, in 1997. In April 1985 Dr. Reindl joined the surface acoustic wave group of the Siemens Corporate Technology Division, Munich, Germany. At Siemens Dr. Reindl contributed to the development of SAW convolvers, dispersive, tapped, and reflective delay lines. His primary interest was in the development and application of SAW ID-tag and wireless passive SAW sensor systems. In April 1999 Dr. Reindl joined the Institute of Electrical Information Technology, Clausthal University of Technology, where he became professor of communications and microwave techniques. In May 2003 he accepted a full professor position as the chair for Electrical Instrumentation at the Institute for Microsystems Technology (IMTEK) at the University of Freiburg, Germany. Dr. Reindl is member of the IEEE, of the TPC of the IEEE Frequency Control Symposium, the Ultrasonics Symposium, the Eurosensors, and of the German biannual Symposium Sensoren und Messsysteme. He has been elected member of the AdCom of the IEEE UFFC society in 2005 to 2007 and from 2009 to 2011. He served also for the European ESRIF committee. He holds more than 30 patents on SAW devices and wireless passive sensors and has authored or co-authored more than 150 papers in this field.

Juan C. Vasquez
Research Challenges in Microgrid Technologies

Received the B.S. degree in Electronics Engineering from Autonomous University of Manizales, Colombia in 2004 where he has been teaching courses on digital circuits, servo systems and flexible manufacturing systems. In 2009, he received his Ph.D degree from the Technical University of Catalonia, Barcelona, Spain in 2009 at the Department of Automatic Control Systems and Computer Engineering, from Technical University of Catalonia, Barcelona, Spain, where he worked as Post-doc and also teaching courses based on renewable energy systems. Currently, he is an Assistant Professor at Aalborg University, Denmark, where he is the co-leader of the microgrid research programme. He has been involved in a number of real microgrid site projects around the world. His research interests include modeling, simulation, networked control systems and optimization applied to distributed generation in AC/DC microgrids.
Systems, Analysis and Automatic Control

SAC Conference Chairs

Cecilo Angulo (SP)

Program Committee

Abdulwahid Al-Saif (SA)  Abdelkrim Brahmi (CA)  Ines Tejado (ES)
Adriano Fagiolini (IT)  Denis Efimov (FR)  Addison Rios-Bolivar (VE)
Ahmed Chemori (FR)  Ahmed El Hajjaji (FR)  Duarte Valerio (PT)
Chokri Rekik (TN)  Fareh Raouf (CA)  Eric Rogers (UK)
Guillaume Charland (CA)  Hassen Mekki (TN)  Mohamed Djemel (TN)
Ioannis Iossifidis (DE)  Faical Mnif (OM)  Jorge Villagra (ES)
Kamal Medjaher (FR)  Maarouf Saad (CA)  Magdi Mahmood (KSA)
Matthew I. Campbell (USA)  Martin Mellado (ES)  Mohammed Chadli (FR)
Nobutaka Wada (JP)  Paulo Gil (PT)  Pierre Borne (FR)
Maamar Bettayeb (AE)  Salem Rahmani (TN)  Salwa Elloumi (TN)
Tarek Raissi (FR)  Mohamed Chtourou (TN)  Georg Frey (DE)
Yassine Bouteraa (TN)  Rajib Kar (IN)  Jean-Claude Trigeassou (FR)
Pierre Melchior (FR)  Marek Wegrzyn (PL)

Topics

SAC1: Robotics & Mechatronics
SAC2: System Identification
SAC4: MAV Special Session
SAC5: Nonlinear Control
SAC6: Nonlinear Observers
SAC8: Intelligent Control Systems
SAC9: Fuzzy Systems
SAC10: Adv. Linear Control Theory
Tuesday, February 11th – 15:30-17:30  
Registration  
Room: 028b

Tuesday, February 11th – 17:30  
Excursion

Wednesday, February 12th – 8:30-9:00  
Registration  
Room: 028b

Wednesday, February 12th – 9:00-9:30  
Opening  
Room: ICFO Auditorium

Wednesday, February 12th – 9:30-10:15  
Room: ICFO Auditorium

<table>
<thead>
<tr>
<th>PL1 Chair</th>
<th>Plenary Lecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angel Cuadras</td>
<td>Ambient Intelligence Towards Smart Cities</td>
</tr>
<tr>
<td>Francisco Falcone</td>
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Wednesday, February 12th – 10:15-10:45  
Coffee break  
Room: 028a

Wednesday, February 12th – 10:45-11:15  
Room: 022

<table>
<thead>
<tr>
<th>SAC KL 1 Chair</th>
<th>Keynote Lecture</th>
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<tbody>
<tr>
<td>Cecilio Angulo</td>
<td>Towards general-purpose autonomous mobile robotic manipulators</td>
</tr>
<tr>
<td>José de Gea Fernández</td>
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</table>

Wednesday, February 12th – 11:15-12:45  
Room: 022

<table>
<thead>
<tr>
<th>SAC 1 Chair</th>
<th>Robotics &amp; Mechatronics</th>
</tr>
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<tbody>
<tr>
<td>José de Gea Fernández</td>
<td>Development and implementation of a real time system for distributed control of an industrial robot</td>
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<tr>
<td>Yassine Bouteraa (University of SFAX, Tunisia)</td>
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<table>
<thead>
<tr>
<th>1569840887</th>
<th>Transferring Model-Free Objects between Human Hand and Robot Hand Using Vision/Force Control</th>
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</thead>
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<tr>
<td>Mohamad Bdiwi (Chemnitz University of Technology, Germany); Alexey Kolker (Novosibirsk State Technical University, Russia); Jozef Suchý (Chemnitz University of Technology, Germany)</td>
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<table>
<thead>
<tr>
<th>1569832815</th>
<th>Task-based whole-body control of humanoid robots with ZMP regulation, real-time application to a squat-like motion</th>
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</thead>
<tbody>
<tr>
<td>David Galdeano (LIRMM, France); Ahmed Chemori (LIRMM, France); Sebastien Krut (LIRMM, France); Philippe Fraisse (Cnrs Lirmm, France)</td>
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<thead>
<tr>
<th>1569845397</th>
<th>UAV Quadrotor Implementation: A Case Study</th>
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<tbody>
<tr>
<td>Dana Shatat (Philadelphia University, Jordan); Tarek A. Tutunji (Philadelphia University, Jordan)</td>
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<thead>
<tr>
<th>1569847629</th>
<th>Applying Reverse Engineering and its techniques on a Remote Controlled Toy Helicopter</th>
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<tbody>
<tr>
<td>Mohammed Bani Younis (Philadelphia University Jordan, Jordan); Mohammad Al-Shabi (Philadelphia University, Jordan); Samer Alamjed Alshaer (Philadelphia University Jordan, Jordan)</td>
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### SAC 2

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<tbody>
<tr>
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<td>Meet the expert</td>
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<tr>
<td>Wednesday, Feb 12th – 13:00-14:30</td>
<td>Lunch</td>
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<tr>
<td>Wednesday, Feb 12th – 14:30-16:10</td>
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<td>022</td>
</tr>
<tr>
<td><strong>Chair</strong></td>
<td><strong>System Identification</strong></td>
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<tr>
<td>1569846605</td>
<td>Evaluation of rotation formalisms in three dimensions using a Lissajous knot</td>
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<td></td>
<td>Hejia Pan (Mississippi State University, USA); Bryan Jones (Mississippi State University, USA)</td>
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<tr>
<td>1569847413</td>
<td>Derivative Based Control For LPV System With Unknown Parameters: An Application on a Permanent Magnet Synchronous Motors</td>
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<td></td>
<td>Sonia Maalej (INRIA-Lille and University of Lille, France); Alexandre Kruszewski (LAGIS/EC LILLE, France); Romain Delpoux (Laboratoire des Sciences de l'Information et des Systèmes, France); Lotfi Belkoura (LAGIS/Univ Lille1, France)</td>
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<tr>
<td>1569842145</td>
<td>State Estimation and Application to Induction Machines - A Comparative Study</td>
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<td></td>
<td>Majdi Mansouri (Electrical and Computer Engineering Program, Texas A&amp;M University at Qatar, Qatar); Hazem N Nounou (Texas A&amp;M University at Qatar, Qatar); Mohamed Nounou (Texas A&amp;M University at Qatar, Qatar)</td>
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<tr>
<td>1569842105</td>
<td>Modeling and Simulation of Quadrotor Helicopter with 2-DoF Tilting Rotors</td>
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<td>Mahmoud Elfeky (King Fahd University of Petroleum and Minerals, Saudi Arabia); Moustafa Elshafei (King Fahd University of Petroleum &amp; Minerals, Saudi Arabia); Abdulwahid A. Al-Saif (King Fahd University of Petroleum &amp; Minerals, Saudi Arabia); Mohammad F. Al-Malki (MFADEC - Design and Engineering Consultancy, Saudi Arabia)</td>
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<tr>
<td><strong>Meeting Rooms</strong></td>
<td><strong>Room:</strong> 022</td>
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<tr>
<td><strong>Wednesday, Feb 12th – 16:10-16:40</strong></td>
<td>Coffee break</td>
<td>028a</td>
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<td><strong>Wednesday, Feb 12th – 16:40-18:10</strong></td>
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### SAC4

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<tr>
<td><strong>Chair</strong></td>
<td><strong>MAV Special Session</strong></td>
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<tr>
<td>1569846545</td>
<td>Designing Embedded Systems for Fixed-Wing UAVs: Dynamic Models Study for the Choice of an Emulation Vehicle</td>
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<tr>
<td></td>
<td>Rabah Louali (École Militaire Polytechnique, Algeria); Bouaziz Samir (Paris, France); Abdelhafid Elouardi (University of Paris-Sud, IEF, France); Mohand Said Djouadi (Ecole Militaire Polytechnique, Algeria); Abdelkrim Nemra (École Militaire Polytechnique, Algeria)</td>
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<tr>
<td>1569847733</td>
<td>Flight Test and Simulation Results of an Integrated Dual Airborne Laser Scanner and Inertial Navigator for UAV Applications</td>
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<td></td>
<td>Maarten Uijt de Haag (Ohio University, USA); Pengfei Duan (Ohio University, USA)</td>
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<tr>
<td><strong>Meeting Rooms</strong></td>
<td><strong>Room:</strong> 022</td>
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## Systems, Analysis and Automatic Control

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<tr>
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<tr>
<td>Thursday, February 13th – 8:30-9:00</td>
<td>Registration</td>
<td>028b</td>
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</table>
| Thursday, February 13th – 9:00-9:45 | PL2 Plenary Lecture  
Manel Gasulla, Angel Cuadras  
RF Energy Harvesting and Inductive Power Transfer  
*Paul Mitcheson*         | 001 |
| Thursday, February 13th – 9:45-10:00 | Meet the expert                                                                   |      |
| Thursday, February 13th – 10:00-10:30 | Coffee break                                                                    | 028a |
| Thursday, February 13th – 10:30-11:00 | SAC KL 2 Keynote Lecture  
*On Tracking and Rejecting Periodical Signals*  
*Ramon Costa-Castelló* | 022 |
| Thursday, February 13th – 11:00-12:40 | SAC5 Nonlinear Control  
Ramon Costa-Castelló  
Multivariable adaptive neural control based on multimodel emulator for nonlinear square MIMO systems  
*Nesrine Bahri (University of Gabes, Tunisia); Ridha Ben Abdennour (Tunisia)* | 022 |

### Talks Overview

**1569847377** Towards an autonomous flying robot for inspections in open and constrained spaces  
*Massimo Satler (Scuola Superiore Sant’Anna, Italy); Matteo Unetti (Scuola Superiore Sant’Anna, Italy); Nicola Giordani (Scuola Superiore Sant’Anna, Italy); Carlo Avizzano (Scuola Superiore Sant’Anna, Italy); Paolo Tripicchio (Scuola Superiore Sant’Anna, Italy)*

**1569847363** Robust Video Stabilization based on Motion Intention for Low-Cost Micro Aerial Vehicles  
*Wilbert Aguilar (UPC-BarcelonaTech, Spain); Cecilio Angulo (Technical University of Catalonia, Spain)*

**1569832235** Load Swing control for an Unmanned Aerial Vehicle with a Slung load  
*Sami El Ferik (King Fahd University of Petroleum and Minerals, Saudi Arabia); Ghufran Ahmed (King Fahd University of Petroleum and Minerals, Saudi Arabia); Hanafy Omar (Qassim University, Burriyadh, Saudi Arabia)*
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<tr>
<th>Session Code</th>
<th>Title</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>1569847327</td>
<td>Application of a Second-Order Sliding Mode to Engine Speed Control during Gear Shifting Process on Automated Manual Transmission</td>
<td>Hua Huang (MDT, TU Berlin, Germany); Clemens Guehmann (Technische Universität Berlin, Germany); Yue Yu (Technische Universität Berlin, Germany)</td>
</tr>
<tr>
<td>1569844667</td>
<td>Position control of a hydraulic servo system using sliding mode with discontinuous surface</td>
<td>Emna Kolsi (Engineering School of Sfax, Tunisia)</td>
</tr>
<tr>
<td>1569847595</td>
<td>Continuous Closed Form Trajectories Generation and Control of Redundantly Actuated Parallel Kinematic Manipulators</td>
<td>Moussab Bennehar (Université Montpellier 2, France); Ahmed Chemori (LIRMM - CNRS / University Montpellier 2, France); Francois Pierrot (LIRMM, France); Sebastien Krut (LIRMM, France)</td>
</tr>
<tr>
<td>156983307</td>
<td>Feedback Linearization Control of Nonlinear Uncertain Systems Using Single Hidden Layer Neural Networks</td>
<td>Mohammed Belkheiri (Université Amar Telidji de Laghouat, Algeria); Hamou Ait Abbas (Université Amar Telidji de Laghouat, Algeria); Boubakeur Zegnini (Université Amar Telidji de Laghouat, Algeria)</td>
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Thursday, February 13th – 12:40-13:00 Meet the expert

Thursday, February 13th – 13:00-14:30 Lunch

Thursday, February 13th – 14:30-16:10 Room: 022

<table>
<thead>
<tr>
<th>SAC6 Chair</th>
<th>Nonlinear Observers</th>
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</thead>
<tbody>
<tr>
<td>Nabil Derbel</td>
<td>Design of Robust Observers for Positive Delayed Interval Systems</td>
</tr>
<tr>
<td>1569845375</td>
<td>Finite Time Observers for a class of nonlinear system</td>
</tr>
<tr>
<td>1569846661</td>
<td>Output feedback control of nonlinear hybrid dynamic systems</td>
</tr>
<tr>
<td>1569826561</td>
<td>Backstepping control for two tanks process based on adaptive high gain observer</td>
</tr>
<tr>
<td>1569846615</td>
<td>Partial Vehicle State Estimation using Hight Order Sliding Mode Observers</td>
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</table>

Thursday, February 13th – 16:10-16:40 Coffee break Room: 028a
<table>
<thead>
<tr>
<th>SAC 8 Chair</th>
<th>Intelligent Control Systems</th>
<th>Moez Feki</th>
</tr>
</thead>
<tbody>
<tr>
<td>1569846281</td>
<td>RISE Feedback Control for a R/W Head Track Following in Hard Disc Drives</td>
<td>Manel taktak-Meziou (ICOS, Tunisia); Ahmed Chemori (LIRMM - CNRS / University Montpellier 2, France); Jawhar Ghommam (INSAT, Tunis, Tunisia); Nabil Derbel (National Engineering School of Sfax, Tunisia)</td>
</tr>
<tr>
<td>1569847549</td>
<td>Robot control By Computed Torque Based on Support Vector Regression</td>
<td>Nacereddine Djelal (University of Science and Technology Houari Boumediene USTHB, Algeria)</td>
</tr>
<tr>
<td>1569847399</td>
<td>Outside-In: Simplifying Systems by Integrating the Outside Perspective</td>
<td>David Kampert (RWTH Aachen University, Germany); Ulrich Epple (RWTH Aachen University, Germany)</td>
</tr>
<tr>
<td>1569846931</td>
<td>Ultrasonic visibility tests and estimation of specular target plane orientation through a robotic scanning</td>
<td>Luigi Spedicato (University of Salento, Italy); Nicola Ivan Giannoccaro (University of Salento, Italy); Arcangelo Messina (University of Salento, Italy); Aime' Lay-Ekuakille (University of Salento, Italy)</td>
</tr>
<tr>
<td>1569850655</td>
<td>Evaluation and Analysis of an on-chip Safety System Architecture</td>
<td>Ali Hayek (University of Kassel, Germany); Josef Boercosek (University of Kassel, Germany)</td>
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</tbody>
</table>

Thursday, February 13\textsuperscript{th} – 20:30        Gala dinner

Friday, February 14\textsuperscript{th} – 10:00-10:30    Coffee break        Room: 028a
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<tbody>
<tr>
<td>Friday, February 14th – 10:30-11:00</td>
<td>SAC KL 3 Chair Keynote Lecture Cecilio Angulo From Personal Robots to Cloud Robotics <em>Jordi Albó Canals</em></td>
<td>022</td>
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<tr>
<td>Friday, February 14th – 11:00-12:50</td>
<td>SAC 9 Chair Fuzzy Systems Jordi Albó Canals Real-Time Monitoring and Intelligent Control for Greenhouses Based on Wireless Sensor Network <em>Yassine Bouteraa (University of SFAX, Tunisia)</em></td>
<td>022</td>
</tr>
<tr>
<td></td>
<td>1569827629 Fuzzy Augmented State Kalman Observer for Fault And State Estimation Imen Maalej (ENIS, Tunisia); Donia Ben halima (University of Sfax, Sfax Engineering School, Tunisia); Chokri Rekik (University of Sfax, Sfax Engineering School, Tunisia)</td>
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<td>1569847625 Fuzzy logic based energy management algorithm of a hybrid electric vehicle with range-extender Lei Yang (Chemnitz University of Technology, Germany); Erik Markert (Chemnitz University of Technology, Germany); Ulrich Heinkel (Chemnitz University of Technology, Germany)</td>
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<td>1569847851 On the state estimation of chaotic systems by a particle filter and an extended Kalman filter Sameh Mejri (Ecole Polytechnique de Tunisie, Tunisia); Ali Sghaier Tlili (Ecole Polytechnique de Tunisie, Tunisia); Naceur Benhadjbrarik (Higt school of sciences and technics Tunis, Tunisia)</td>
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<tr>
<td>SAC 10 Chair</td>
<td>Advanced Linear Control Theory Jordi Albó Canals Performance trade-offs between Type II and Type III PLLs Mikel Ugarte (Public University of Navarra, Spain); Alfonso Carlosena (Public University of Navarra, Spain)</td>
<td>001</td>
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<td></td>
<td>1569830665 Strong Stabilization of Time Delay Systems Mikel Ugarte (Public University of Navarra, Spain); Alfonso Carlosena (Public University of Navarra, Spain)</td>
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<tr>
<td>Friday, February 14th – 12:50-13:00</td>
<td>Meet the expert</td>
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<tr>
<td>Friday, February 14th – 13:00-14:30</td>
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<tr>
<td>Friday, February 14th – 14:30-14:45</td>
<td>Closure</td>
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<tr>
<td>Friday, February 14th – 14:45</td>
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Power Electrical Systems

PES Conference Chairs

Josep M. Guerrero (DK)

Program Committee

Andreas Lindemann (DE)  Daniel Montesinos-Miracle (ES)  Eric Monmasson (FR)
Khaled Jelassi (TN)  Aymen Flah (TN)  Josep Cairo (ES)
Salvatore D’Arco (NO)  Bruno François (FR)  Chokri Ben SALAH (TN)
Trabelsi Hafedh (TN)  Mohamed Elleuch (TN)  Said El-Barbari (TN)
Aymen Flah (TN)  Trabelsi Hafedh (TN)  Maamar Bettayeb(TN)
Stephan Ilijevic(ES)  Chokri Ben SALAH (TN)  Padmanabhan Sanjeevikumar (IN)

Topics

PES1: Optimization in electrical systems
PES2: Wind Energy
PES3: Photovoltaics
PES4: Electrical Grid Applications
PES5: Power Electronics
PES6: Machines
PES7-8: Microgrids
PES9: Transformers
PES10: Energy management
Tuesday, February 11th – 15:30-17:30 Registration Room: 028b
Tuesday, February 11th – 17:30 Excursion

Wednesday, February 12th – 8:30-9:00 Registration Room: 028b
Wednesday, February 12th – 9:00-9:30 Opening Room: ICFO Auditorium

Wednesday, February 12th – 9:30-10:15 Room: ICFO Auditorium

<table>
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<th>PL1 Chair</th>
<th>Plenary Lecture</th>
<th>Angel Cuadras</th>
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<tbody>
<tr>
<td></td>
<td>Ambient Intelligence Towards Smart Cities</td>
<td>Francisco Falcone</td>
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Wednesday, February 12th – 10:15-10:45 Coffee break Room: 028a

Wednesday, February 12th – 10:45-11:15 Room: 024

<table>
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<th>Keynote Lecture</th>
<th>Josep M. Guerrero</th>
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<tbody>
<tr>
<td></td>
<td>Research Challenges in Microgrid Technologies</td>
<td>Juan C. Vasques</td>
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<tr>
<th>PES 1 Chair</th>
<th>Optimization in electrical systems</th>
<th>Juan C. Vasquez</th>
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<tbody>
<tr>
<td>1569841695</td>
<td>Tuning of PID SSSC Controller Using Artificial Bee Colony Optimization Technique</td>
<td>Abu H. Rahim (King Fahd University of Petroleum &amp; Minerals, Saudi Arabia)</td>
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| 1569841831  | Approximate and Reinforcement Learning Techniques to Solve Non-Convex Economic Dispatch Problems | Mohammed Abouheaf (King Fahd University of Petroleum & Minerals, Saudi Arabia); Sofie Haesaert (Eindhoven University of Technology, The Netherlands); Wei-Jen Lee (Energy Systems Research Center, USA); Frank Lewis (Automation and Robotics Research Institute, University of Texas at Arlington, USA) |

| 1569846365  | Optimal Load Frequency Control Based on Hybrid Bacterial Foraging and Particle Swarm Optimization | Nour EL Yakine Kouba (University of Sciences and Technologies Houari Boumediene, Algeria); Mohamed Menaa (University of Sciences and Technologies Houari Boumediene, Algeria); Mourad Hasni (USTHB University, Algeria); Boussahoua Bouziane (USTHB, Algeria); Mohamed Boudour (Université des Sciences & Technologies, Houari Boumediene, Alger, Algeria) |
### 1569846439  
**Optimal Reactive Power Dispatch based on Particle Swarm Optimization Approach Applied to The Algerian Electric Power System**  
Yousef Amrane (University of Science and Technology Houari Boumediene, Algeria); Mohamed Boudour (Université des Sciences & Technologies Houari Boumediene, Alger, Algeria)

**Meet the expert**

**Wednesday, February 12th – 12:35-13:00**  
**Lunch**

**Wednesday, February 12th – 13:00-14:30**

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### 1569819323

**A WT Based High Resolution Approach to Quantify Single-Phase Power Components Defined in IEEE STD 1459-2010**  
Gad Mohamed (Alexandria University, Egypt); Medhat El Geneidy (Alexandria University, Egypt); Nabil Abbasy (Alexandria University, Egypt)

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### 1569819325

**A WT Based High Resolution Approach to Quantify Three-Phase Power Components Defined in IEEE STD 1459-2010**  
Gad Mohamed (Alexandria University, Egypt); Medhat El Geneidy (Alexandria University, Egypt); Nabil Abbasy (Alexandria University, Egypt)

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### 1569846257

**Direct Power Control of a Doubly Fed Induction Generator Dedicated to Wind Energy Conversions**  
Aicha Daoud (University of Sfax, Tunisia); Fatma Ben Salem (University of Sfax, National School of Engineering, Tunisia)

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### 1569846437

**Vector Control of a Cascaded Doubly Fed Induction Generator for a Wind Energy Conversion System**  
Ghada Boukettaya (National School of Engineering of Sfax, Tunisia); Omar Naifar (University of Sfax, National School of Engineering, Tunisia)

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### 1669846265

**Modeling and Simulation of Hybrid System Coupling a Photovoltaic Generator, a PEM Fuel Cell and an Electrolyzer (Part I)**  
Bechir Neily (University of Sfax, Tunisia); Nabil Tili (University of Sfax, Tunisia); Fatma Ben Salem (University of Sfax, National School of Engineering, Tunisia)

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### 1569846269

**Modeling and Simulation of Hybrid System Coupling a Photovoltaic Generator, a PEM Fuel Cell and an Electrolyzer (Part II)**  
Bechir Neily (University of Sfax, Tunisia); Nabil Tili (University of Sfax, Tunisia); Fatma Ben Salem (University of Sfax, National School of Engineering, Tunisia)
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<td>1569846273</td>
<td>Sliding Mode Control of Output-Parallel-Connected Two-Stage Boost</td>
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<td>Converters for PV Systems</td>
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<td>Reham Haroun Mohamed (Universitat Rovira i Virgili, Spain); Abdelali</td>
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<td>El Aroudi (Research group GAEI, Technical Engineering School of the</td>
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<td>Rovira i Virgili, Spain); Angel Cid-Pastor (Rovira I Virgili University,</td>
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<td>Spain); Luis Martinez-Salamero (Rovira I Virgili University, Spain)</td>
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<tr>
<td>1569847255</td>
<td>Low Cost Photovoltaic Array Emulator Design for the Test of PV Grid-</td>
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<td>Connected Inverters</td>
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<td>Javier Chavarria (UPC-BarcelonaTech, Spain); Domingo Biel (UPC-</td>
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<td>BarcelonaTech, Spain); Alberto Poveda (UPC-BarcelonaTech, Spain);</td>
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<td>Frances Guinjoan (Universitat Politècnica de Catalunya-BarcelonaTech,</td>
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<td>Spain); Francesc Masana (UPC-BarcelonaTech, Spain); Eduard Alarcon</td>
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<td>(Technical University of Catalunya, Spain)</td>
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<tr>
<td>1569848073</td>
<td>Experimental Implementation Techniques of P&amp;O MPPT Algorithm for PV</td>
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<td>Pumping System</td>
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<td></td>
<td>Najet Rebei (INSAT, Tunisia); Othman Hasnaoui (Institut Nationale des</td>
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<td>Sciences Appliquées de Tunis (INSAT), Tunisia); Ali Hmidet (Institut</td>
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<td>Nationale des Sciences Appliquées de Tunis (INSAT), Tunisia); Rabia</td>
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<td>Gammoudi (Institut Nationale des Sciences Appliquées de Tunis (INSAT),</td>
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<td>Tunisia)</td>
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<tr>
<td>1569827875</td>
<td>Active power filter based on wind turbine for electric power system</td>
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<td>quality improvement</td>
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<td></td>
<td>Mouna Rekik (ENIS, Tunisia)</td>
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Wednesday, February 12th – 16:10-16:40  
Coffee break  
Room: 028a

Wednesday, February 12th – 16:40-18:10  
Room: 024

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| 1569827875  | Active power filter based on wind turbine for electric power system quality improvement  
|             | Mouna Rekik (ENIS, Tunisia) |
| 1569845659  | Design of a Computer Code to Evaluate the Influence of the Harmonics in the Transient Stability studies of Electrical Networks  
|             | Aissa Souli (Nuclear Research Center of Birine - Algeria, Algeria); A Hellal (Electrical Engennering Department, Laghouat University Algeria, Algeria) |
| 1569846635  | HVDC Transmission in the Interconnected South Mediterranean Region - LFC Control Analysis  
|             | Adnene Haj Hamida (Tunisian Electric and Gas Company, Tunisia); Khadija Ben Kilani (National Engineering School of Tunis, Tunisia); Mohamed Elleuch (University of Tunis El Manar, Tunisia) |
| 1569847247  | Power Routing Strategies for Dense Electrical Grids  
<p>|             | Josep Cairo (Catalonia Institute for Energy Research, Spain); Jordi Pegueroles-Queralt (IREC, Spain) |</p>
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<th>Title</th>
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<tr>
<td>1569847397</td>
<td>Reduction of Low-Order-Even-Harmonics in Grid Connected Inverters for Renewable Energy Systems using Delta-Sigma based A/D Conversion</td>
<td>Tobias Barth (Dresden University of Technology, Germany); Martin Wagner (Technical University of Dresden, Germany); Steffen Bernet (Dresden University of Technology, Germany)</td>
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<tr>
<td>1569848427</td>
<td>Power Flow Limitations for LCL Grid-Connected Power Converters</td>
<td>Marcos Orellana (Universitat Politecnica de Catalunya (UPC), Spain); Robert Griño (Universitat Politecnica de Catalunya (UPC), Spain)</td>
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### Schedule

- **Thursday, February 13th**
  - **8:30-9:00**: Registration  
  - Room: 028b
  - **9:00-9:45**: Plenary Lecture  
  - Room: 001
    - **Chair**: Manel Gasulla, Angel Cuadras
    - **Title**: RF Energy Harvesting and Inductive Power Transfer  
      - **Speaker**: Paul Mitcheson
  - **9:45-10:00**: Meet the expert
  - **10:00-10:30**: Coffee break  
  - Room: 028a
  - **10:30-11:00**: Keynote Lecture  
  - Room: 024
    - **Chair**: Josep M. Guerrero
    - **Title**: FPGA-based controllers for power electronics and drive applications  
      - **Speaker**: Eric Monmasson
  - **11:00-12:40**: Power Electronics  
  - Room: 024
    - **Chair**: Eric Monmasson
    - **Presentation**: Sliding Mode Control of a Ćuk Converter with Variable Hysteresis Width for HBLEDs Applications  
      - **Authors**: Mirko Bodetto (Rovira i Virgili University, Spain); Abdelali El Aroudi (Research group GAEI, Technical Engineering School of the Rovira i Virgili, Spain); Angel Cid-Pastor (Rovira i Virgili University, Spain); Javier Calvente (Universitat Rovira i Virgili, Spain); Luis Martinez-Salamero (Rovira i Virgili University, Spain)
    - **Presentation**: Gate Drive Unit DC-DC Power Supply for Multi-Level Converters or Series Connection of IGBTs with High Voltage Insulation  
      - **Authors**: Tobias Barth (Dresden University of Technology, Germany); Sebastian Semmler (Siemens AG, Germany); Martin Buschendorf (TU Dresden, Germany); Rodrigo Alvarez (TU Dresden, Germany); Steffen Bernet (Dresden University of Technology, Germany)
VSC-based DTC-SVM with Adaptive Parameter Estimation
Fatma Ben Salem (University of Sfax, National School of Engineering, Tunisia)

Investigating the Effects of Parasitic Components on Wireless RF Energy Harvesting
Antwi Nimo (University of Freiburg, Germany); Joan Albesa (University of Freiburg, Germany); Leonhard Reindl (IMTEK - Institute for Microsystem Technology, Germany)

Development of a Smart LED Lighting System: Rapid Prototyping Scenario
Giovanni Calisse (Università Politecnica delle Marche, Italy); Gionata Cimini (Università Politecnica delle Marche, Italy); Luigi Colombo (Università Politecnica delle Marche, Italy); Alessandro Freddi (Università Politecnica delle Marche, Italy); Gianluca Ippoliti (Università Politecnica delle Marche, Italy); Andrea Monteriù (Università Politecnica delle Marche, Italy); Matteo Pirro (Università Politecnica Delle Marche, Italy)

Thursday, February 13th – 12:40-13:00 Meet the expert
Thursday, February 13th – 13:00-14:30 Lunch

Thursday, February 13th – 14:30-16:10 Room: 023

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| 1569841735 | Sliding mode control for induction machine based on the Lyapunov theory
            Omar Naifar (University of Sfax, National School of Engineering, Tunisia); Ghada Boukettaya (National School of Engineering of Sfax, Tunisia) |
| 1569846521 | Enhanced High Frequency Injection Algorithm For Sensorless Sliding Mode Control PMSM Drives
            Víctor Repecho (UPC Barcelona Tech, Spain); Domingo Biel (UPC-BarcelonaTech, Spain); Antoni Arias (UPC Barcelona Tech, Spain) |
| 1569847853 | Transient Performance of Isolated Induction Generator under Different Loading Conditions
            Ahmed Alsalloum (King Saud University, Saudi Arabia); Abdulrahman Alolah (College of Eng.-King Saud University, Saudi Arabia); Rizk Hamouda (King Saud University, Saudi Arabia) |
| 1569871715 | Stabilization of multimachine power systems
            Kahouli Amor (ENIS, Tunisia); Hsan Hadj Abdallah (University of Sfax, Tunisia) |
| 1569846691 | On the Dynamic Modeling of Inset Permanent Magnet Motor
            Msadek Hejra (Engineering School of Sfax, Tunisia); Ali Mansouri (Engineering School of Sfax, Tunisia); Trabelsi Hafedh (Engineering school of Sfax, Tunisia) |
### Power Electrical Systems

**Room: 024**

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| 1569846929 Control and Analysis of Droop and Reverse Droop Controllers for Distributed Generations  
Dan Wu (Aalborg University, Denmark); Fen Tang (Beijing Jiaotong University, P.R. China); Juan Vasquez (Aalborg University, Denmark); Josep M. Guerrero (Aalborg University, Denmark) |
| 1569847091 Decoupled Droop Control Techniques for Inverters in Low-Voltage AC Microgrids  
Jerónimo Quesada (University of the Basque Country UPV/EHU, Spain); Rafael Sebastián (Spanish University for Distance Education (UNED), Spain); Manuel Castro (Spanish University for Distance Education - UNED, Spain); Jose Antonio Sainz (University of the Basque Country UPV/EHU, Spain) |
| 1569847141 Tertiary Control for Optimal Unbalance Compensation in Islanded Microgrids  
Lexuan Meng (Aalborg University, Denmark); Fen Tang (Beijing Jiaotong University, P.R. China); Mehdi Savaghebi (Islamic Azad University, Iran); Josep M. Guerrero (Aalborg University, Denmark); Juan Vasquez (Aalborg University, Denmark) |
| 1569847149 Secondary Voltage Unbalance Compensation for Three-Phase Four-Wire Islanded Microgrids  
Fen Tang (Beijing Jiaotong University, P.R. China); Xiao Zhou (Beijing Jiaotong University, P.R. China); Lexuan Meng (Aalborg University, Denmark); Josep M. Guerrero (Aalborg University, Denmark); Juan Vasquez (Aalborg University, Denmark) |
| 1569847201 Hierarchical Control for Multiple DC-Microgrids Clusters  
Qobad Shafiee (Aalborg University, Denmark); Tomislav Dragičević (Aalborg University, Denmark); Juan Vasquez (Aalborg University, Denmark); Josep M. Guerrero (Aalborg University, Denmark) |

**Thursday, February 13th – 16:10-16:40**  
Coffee break  
**Room: 028a**

**Thursday, February 13th – 16:40-18:10**  
**Room: 024**

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| 1569847373 Modeling and Control of Flexible HEV Charging Station upgraded with Flywheel Energy Storage  
Tomislav Dragičević (Aalborg University, Denmark); Qobad Shafiee (Aalborg University, Denmark); Dan Wu (Aalborg University, Denmark); Lexuan Meng (Aalborg University, Denmark); Juan Vasquez (Aalborg University, Denmark); Josep M. Guerrero (Aalborg University, Denmark) |
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| 1569847461  | Dynamic-Phasor-Based Nonlinear Modelling of AC Islanded Microgrids Under Droop Control  
Valerio Mariani (Università degli Studi del Sannio, Italy); Francesco Vasca (Università degli Studi del Sannio, Italy); Josep M. Guerrero (Aalborg University, Denmark) |
| 1569847479  | Control of single-phase islanded PV/battery minigrids based on Power-Line Signaling  
Pablo Quintana (University of Oviedo, Spain); Josep M. Guerrero (Aalborg University, Denmark); Tomislav Dragičević (Aalborg University, Denmark); Juan Vasquez (Aalborg University, Denmark) |
| 1569848169  | Power flow analysis for DC voltage droop controlled DC microgrids  
Chendan Li (Aalborg University, Denmark) |

Thursday, February 13th – 20:30  
Gala dinner

Friday, February 14th – 8:45-10:00  
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| 1569846603  | Control of parallel EHV interconnection lines using Phase Shifting Transformers  
Anas El Hraiech (the Tunisian Electric and Gas Company (STEG), Tunisia); Khadija Ben Kilani (National Engineering School of Tunis, Tunisia); Mohamed Elleuch (University of Tunis El Manar, Tunisia) |
| 1569846675  | Transformer Modeling Suitable for DC/AC and AC/DC conversion chains  
Hedia Turki (Ecole Nationale d’Ingénieurs de Tunis, Tunisia); Mohamed Elleuch (University of Tunis El Manar, Tunisia) |
| 1569847237  | Design of a High-Frequency Transformer for an Induction Heating system  
Xavier Duran (Universitat Politècnica de Catalunya (UPC), Spain); Francisco-Javier Quirós (Universitat Politècnica de Catalunya (UPC), Spain); Daniel Montesinos-Miracle (Centre d’Innovació Tecnològica en Convertidors Estàtics i Accionaments, Spain) |
| 1569853115  | A comparative Study of impact of Electrical stress and thermal aging on transformer oil  
Saliha Boudraa (University of Laghouat Laghouat, Algeria); L. Mokhnache (University of Laghouat Laghouat, Algeria) |
Friday, February 14th – 10:00-10:30  
**Coffee break**  
Room: 028a

Friday, February 14th – 10:30-11:00  
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| Chair   | HVDC Integration of large Wind Power Plants  
Ramón Blasco-Giménez|

Friday, February 14th – 11:00-12:40  
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<th>PES 10</th>
<th>Energy management</th>
<th>Ramón Blasco-Giménez</th>
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| Chair  | 1569827855 Optimized energy diagnostics in energy efficiency projects managed by demand side  
Jose Rocha (PUC-Rio Pontificia Universidade Católica do Rio de Janeiro, Brazil); Marco Pacheco (PUC-RJ, Brazil) |

Energy Management of a Fuel Cell Serial-Parallel Hybrid System  
Harrysson Ramírez Murillo (Universitat Rovira i Virgili, Spain); Carlos Restrepo (Delft University of Technology, Spain); Javier Calvente (Universitat Rovira i Virgili, Spain); Alfonso Romero (Universitat Rovira i Virgili, Spain); Roberto Giral (Universitat Rovira i Virgili, Spain) |

Potential of Residential Demand Flexibility - Italian Scenario  
Malik Intisar Ali Sajjad (Politecnico di Torino, Italy); Gianfranco Chicco (Politecnico di Torino, Italy); Akhtar Rasool (Sabanci University, Turkey); Majid Aziz (Politecnico di Torino, Italy) |

A Statistical Analysis of Sampling Time and Load Variations for Residential Load Aggregations  
Malik Intisar Ali Sajjad (Politecnico di Torino, Italy); Gianfranco Chicco (Politecnico di Torino, Italy); Roberto Napoli (Politecnico di Torino, Italy) |

Demand side management of an isolated hybrid energy production unit supplying domestic loads  
Randa Kallel (National School of Engineering of Sfax, Tunisia); Ghada Boukettaya (National School of Engineering of Sfax, Tunisia) |

Friday, February 14th – 12:40-13:00  
**Meet the expert**

Friday, February 14th – 13:00-14:30  
**Lunch**

Friday, February 14th – 14:30-14:45  
**Closure**  
Room: 001

Friday, February 14th – 14:45  
**Excursion**
Communication and Signal Processing

CSP CONFERENCE CHAIRS

Pere Lluis Gilabert (SP)
Gabriel Montoro (SP)

PROGRAM COMMITTEE

Luis Alonso (ES)  Nikolaos Bartzoudis (ES)  Kasim Al-Aubidy (JO)
Eduard Bertran (ES)  Faouzi Bouslama (CA)  Nuno Carvalho (PT)
Sofiane Cherif (CA)  Mohamed Deriche (SA)  Mohamed Aymen Charrada (TN)
Antonio Pascual-Iseret (ES)  Leila Ben Letaifa (TN)  Jordi Mateu (ES)
John Wood (USA)  Apostolos Georgiadis (ES)  Antoni Gelonch (ES)
Lionel Prevost (FR)  Mario Garcia-Lozano (ES)  Leonhard Reindl (DE)
Besma Roui Abidi (US)  Luis Torres (ES)  Dominique Schreurs (BE)
Jose Pedro (PT)  Jose Garcia (ES)  Michael Gadringer (AT)
Thomas Eriksson (SE)  Gayle Collins (USA)  Berthold Lankl (DE)
Carlos Collado (ES)  Genevieve Baudoin (FR)  Vittorio Camarchia (IT)
Nuno Carvalho (PT)  Mohamed Aymen Charrada (TN)  Alessandro Cidoniali (IT)
Paolo Colantonio (IT)  Gayle Collins (USA)  Ana Collado (ES)
Ali Douik (TN)  Thomas Eriksson (SW)  Michael Gadringer (AU)
Jose Garcia (ES)  Nuno Carvalho (PT)  Paulo Gil (PT)
Bouraoui Mahmoud (TN)  Edouard Ngoya (FR)  Miquel Payaro (ES)
Jose Pedro (PT)  Dominique Schreurs (BE)  Daniel Silveira (BR)
Antoine Tabbone (FR)  Najoua Ben Amara (TN)

TOPICS

CSP1: Technologies for Wireless Communication Systems
CSP2: Communication Systems 1
CSP3: Session: Biometric & Medical Imaging
CSP4: Highly Linear and Efficient Wireless Transmitters I
CSP5: Highly Linear and Efficient Wireless Transmitters II
CSP6: Communication Systems 2
CSP7: Data fussion & Pattern Recognition
CSP8: Communication Systems 3
CSP9: New Trends in Content-Based Video Retrieval
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<td>Room: ICFO Auditorium</td>
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<tr>
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**PL1 Chair**: Angel Cuadras

**PL1** Committee

**Theme**: Ambient Intelligence Towards Smart Cities

*Francisco Falcone*

**Wednesday, February 12th – 10:15-10:45**

**CSP KL 1 Chair**: Taming the Information Overload of the Sensor Web

*Noel O’Connor*

**Wednesday, February 12th – 11:15-12:35**

**CSP 1 Chair**: Mario García

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<td>A new Channel and QoS Aware Scheduler to enhance the capacity of Voice over LTE systems</td>
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<td>1569846515</td>
<td>LEACH Enhancements for Wireless Sensor Networks Based on Energy Model</td>
<td><em>Mohammad M. Shurman (Jordan University of Science and Technology, Jordan)</em>; <em>Noor Awad (Jordan University of Science and Technology, Jordan)</em>; <em>Mamoun F. Al-Mistarihi (Jordan University of Science and Technology, Jordan)</em>; <em>Khalid Darabkh (Jordan University, Jordan)</em></td>
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<td>1569847643</td>
<td>A Collaborative Reputation Approach to Avoid Misbehaving Nodes in MANETs</td>
<td><em>Mohammad M. Shurman (Jordan University of Science and Technology, Jordan)</em>; <em>Mohammad Alfawares (Jordan University of Science and Technology, Jordan)</em>; <em>Mamoun F. Al-Mistarihi (Jordan University of Science and Technology, Jordan)</em>; <em>Khalid Darabkh (Jordan University, Jordan)</em></td>
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<td>1569848231</td>
<td>Performance Analysis of IPSec and SSL in 802.11n WLAN Using Fedora15</td>
<td><em>Samad Salehi Kolahi (Unitec Institute of Technology, New Zealand)</em>; <em>Yuqing Cao (Unitec, New Zealand)</em>; <em>Hong Chen (Unitec, New Zealand)</em></td>
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Wednesday, February 12th – 12:35-13:00  
Meet the expert

Wednesday, February 12th – 13:00-14:30  
Lunch

Wednesday, February 12th – 14:30-16:10  
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<td>A 1-V CMOS Double Loop Continuous-Time Adaptive Equalizer for Short-Haul Optical Networks</td>
<td>Cecilia Gimeno (University of Zaragoza, Spain); Erick Guerrero (University of Zaragoza, Spain); Carlos Sanchez-Azqueta (University of Zaragoza, Spain); Concepción Aldea (University of Zaragoza, Spain); Santiago Celma (University of Zaragoza, Spain)</td>
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<tr>
<td>1569847439</td>
<td>Design Considerations for Loop Filters in Continuous-Time Adaptive Equalizers</td>
<td>Carlos Sanchez-Azqueta (University of Zaragoza, Spain); Cecilia Gimeno (University of Zaragoza, Spain); Erick Guerrero (University of Zaragoza, Spain); Concepción Aldea (University of Zaragoza, Spain); Santiago Celma (University of Zaragoza, Spain)</td>
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<td>1569827675</td>
<td>Wavelet Transform Basis to detect the odd peaks in wireless systems</td>
<td>Ahlam Damati (The German Jordan University, Jordan); Omar Daoud (Philadelphia University, Jordan); Qadri Hamarsheh (Philadelphia University - , Jordan)</td>
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<td>1569826139</td>
<td>Analysis of a Class of Direct Sampling Receiver Architectures from Signal Processing and System Perspective</td>
<td>Christoph Schultz (Intel Corporation, Germany); Philipp Hillger (Intel Corporation, Germany)</td>
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<td>1569846703</td>
<td>Adaptive Asymmetric Least Squares baseline estimation for analytical instruments</td>
<td>Sergio Oller Moreno (Institute for Bioengineering of Catalonia, Spain); Santiago Marco (University of Barcelona, Spain)</td>
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<td>Short-term anxiety recognition from blood volume pulse signal</td>
<td>Wahida Handouzi (Lorraine, France); Choubeila Maaoui (Université de Lorraine, France); Alain Pruski (Université Lorraine, France)</td>
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<td>1569826179</td>
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<td>Okay Arik (Hacettepe University, Turkey); Semih Bingol (Hacettepe University, Turkey)</td>
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<td>1569845927</td>
<td>People identification for domestic non-overlapping RGB-D camera networks</td>
<td>Boris Takac (Universitat Politècnica de Catalunya - BarcelonaTECH, Spain); Andreu Catala (Universitat Politècnica de Catalunya, Spain); Wei Chen (Eindhoven University of Technology, The Netherlands); Matthias Rauterberg (Eindhoven University of Technology, The Netherlands)</td>
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Recognition of pathological voices
Salma Chekili (Ecole Nationale d’Ingénieurs de Tunis, Tunisia); Asma Belhaj (Université de Sfax, Tunisia); Aïcha Bouzid (National School of Engineers of Tunis, Tunisia); Nouredine Ellouze (ENIT, Tunisia)

CSP 4
Highly Linear and Efficient Wireless Transmitters I
José Angel Garcia, Gabriel Montoro (co-chair)

A Doherty Power Amplifier based on a Tapered Line Impedance Inverter
Mehran Yahyavi (Universitat Politècnica de Catalunya (UPC), Spain); Eduard Bertran (UPC, Spain)

Behavioral Modeling and Predistortion of nonlinear Power Amplifiers Based on Adaptive Filtering Techniques
Azzedine Zerguine (KFUPM, Saudi Arabia); Oualid Hammi (KFUPM, Saudi Arabia); Abubakr Abdelhafiz (The University of Calgary, Canada); Mohamed Helaoui (University of Calgary, Canada); Fadhel Ghannouchi (University of Calgary, Canada)

MILA - A Noise Mitigation Technique for RF Power Amplifier Linearization
Per N Landin (Chalmers University of Technology, Sweden); Annika Mayer (Chalmers University of Technology, Sweden); Thomas Eriksson (Chalmers University of Technology, Sweden)

A Hybrid PAPR Reduction Scheme for OFDM Using SLM with Clipping at the Transmitter, and Sparse Reconstruction at the Receiver
Matthias Gay (University of Applied Sciences Mittweida, Germany); Alexander Lampe (University of Applied Sciences Mittweida, Germany); Marco Breiling (Fraunhofer IIS, Germany)

Sami Bedra (Electronics Department, University of Batna, Algeria)
Thursday, February 13th – 8:30-9:00 Registration Room: 028b

Thursday, February 13th – 9:00-9:45 Room: 001

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Thursday, February 13th – 9:45-10:00 Meet the expert

Thursday, February 13th – 10:00-10:30 Coffee break Room: 028a

Thursday, February 13th – 10:30-11:00 Room: 025

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<td>A Perspective of the Networks of the Future and Smart Cities Luis M. Correia</td>
</tr>
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</table>

Thursday, February 13th – 11:00-12:40 Room: 025

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<tr>
<th>CSP 5</th>
<th>Highly Linear and Efficient Wireless Transmitters II José Angel García, Pere L. Gilabert (co-chair)</th>
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<tbody>
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<td>Room: 025</td>
<td>1569846241 Summary of Envelope Modulator designs by the University of Oviedo Pablo Fernandez (University of Oviedo, Spain); Alberto Rodríguez (University of Oviedo, Spain); Miguel Rodriguez (Colorado Power Electronics Center - University of Colorado, USA); Javier Sebastian (University of Oviedo, Spain)</td>
</tr>
<tr>
<td>Room: 025</td>
<td>1569846623 Evaluating GaN Doherty Architectures for 4G Picocells, WiMax and Microwave Backhaul Links Rocco Giofrè (University of Roma Tor Vergata, Italy); Luca Piazzon (University of Roma Tor Vergata, Italy); Paolo Colantonio (University of Roma Tor Vergata, Italy); Franco Giannini (University of Tor Vergata, Rome, Italy); Vittorio Camarchia (Politecnico di Torino, Italy); Giovanni Ghione (Politecnico di Torino, Italy); Marco Pirola (Politecnico di Torino, Italy); Roberto Quaglia (Politecnico di Torino, Italy)</td>
</tr>
<tr>
<td>Room: 025</td>
<td>1569847381 Performance Enhancement of RF Wideband Power Amplifier by Reconfigurable Matching Networks José-Ramón Pérez-Cisneros (University of Zaragoza, Spain); Paloma García-Ducar (University of Zaragoza, Spain); Pedro Carro (University of Zaragoza, Spain); Antonio Valdovinos (University of Zaragoza, Spain); Jesús de Mingo (University of Zaragoza, Spain)</td>
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<tr>
<td>1569847637</td>
<td>Characterizing power amplifier static AM/PM with spectrum analyzer measurements</td>
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<tr>
<td>1569847559</td>
<td>Receiver Desensitization in Envelope Tracking PA Based FDD LTE Transceivers</td>
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Thursday, February 13th – 12:40-13:00  Meet the expert
Thursday, February 13th – 13:00-14:30  Lunch

Thursday, February 13th – 14:30-16:10  Room: 025

CSP 6  Communication Systems 2  Toni Gelonch

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<thead>
<tr>
<th>ID</th>
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<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1569842149</td>
<td>Kullback-Leibler divergence -based Improved Particle Filter</td>
<td>Majdi Mansouri (Electrical and Computer Engineering Program, Texas A&amp;M University at Qatar, Qatar); Hazem N Nounou (Texas A&amp;M University at Qatar, Qatar); Mohamed Nounou (Texas A&amp;M University at Qatar, Qatar)</td>
</tr>
<tr>
<td>1569834643</td>
<td>Employing Smartphones Xenon Flashlight For Mobile Payment</td>
<td>Mariam Galal (Arab Academy of Science and Technology, Egypt); Ahmed Abd El Aziz (Photonics Research Lab, Arab Academy of Science and Technology, Egypt); Heba Fayed (Arab Academy for Science, Technology &amp; Maritime Transport, Egypt); Moustafa Hussein Aly (Arab Academy for Science, Technology &amp; Maritime Transport, Egypt)</td>
</tr>
<tr>
<td>1569832689</td>
<td>Closed-form Expression for Outage Probability in Relay-Based Cooperative Diversity Systems over Multipath Fading Channels with Interference</td>
<td>Mamoun F. Al-Mistarihi (Jordan University of Science and Technology, Jordan); Amer M Magableh (Jordan University of Science and Technology, Jordan); Rami Mohaisen (Jordan University of Science and Technology, Jordan)</td>
</tr>
<tr>
<td>1569832687</td>
<td>Performance Evaluation of Bit Error Probability in DCSK Cooperative Communication Systems over Nakagami-m Fading Channels</td>
<td>Amer M Magableh (Jordan University of Science and Technology, Jordan); Mamoun F. Al-Mistarihi (Jordan University of Science and Technology, Jordan); Maiss Al-Khasawneh (Jordan University of Science and Technology, Jordan)</td>
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</table>
**CSP 7**  
**Chair**: Lluis Torres  
**Room: 026**

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<tr>
<th>Presentation ID</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>1569845573</td>
<td>An Efficient Method for Feature Extraction of Human Iris Patterns</td>
<td>Khalid Darabkh (Jordan University, Jordan); Raed Taleb Al-Zubi (University of Jordan, Jordan); Mariam Jaludi (The University of Jordan, Jordan); Hind Al-Kurdi (The University of Jordan, Jordan)</td>
</tr>
<tr>
<td>1569846353</td>
<td>Wavelet Denoising and Fractal Feature Selection for Classifying Simulated Earthquake Signal from Mobile Phone Accelerometer</td>
<td>Tieta Antaresti (University of Indonesia, Indonesia)</td>
</tr>
<tr>
<td>1569855217</td>
<td>A Survey of Image-Based Arabic Sign Language Recognition</td>
<td>Mohamed Mohandes (King Fahd University of Petroleum &amp; Minerals, Saudi Arabia); Junzhao Liu (King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia); Mohamed Deriche (King Fahd University of Petroleum &amp; Minerals, Saudi Arabia)</td>
</tr>
<tr>
<td>1569855247</td>
<td>Copy and Move Image Forgery Detection Techniques</td>
<td>Qureshi Ali (King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia); Mohamed Deriche (King Fahd University of Petroleum &amp; Minerals, Saudi Arabia)</td>
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<tr>
<td>1569846331</td>
<td>Improved Closed Set Text Independent Speaker Identification System using Gammachirp Filterbank in Noisy Environments</td>
<td>Amina Ben Abdallah (Laboratory of Systems and Signal Processing National Engineering School of Tunis, TUNISIA, Tunisia); Zied Hajaiej (ENIT, Tunisia)</td>
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Thursday, February 13th – 16:10-16:40  
**Coffee break**  
Room: 028a

Thursday, February 13th – 16:40-18:10  
Room: 025

**CSP 8**  
**Chair**: Toni Pascual  

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<tr>
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<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>1569846909</td>
<td>Wi-Fi LDPC Encoder with Approximate Lower Triangular Diverse Implementation and Verification</td>
<td>Yi Hua Chen (Oriental Institute of Technology, Taiwan)</td>
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<td>1569826617</td>
<td>Generalized Concatenated Codes for Correcting Two-Dimensional Clusters of Errors and Independent Errors</td>
<td>Juergen Freudenberger (University of Applied Sciences, Konstanz, Germany); Jens Spinner (University of Applied Sciences, Konstanz, Germany); Sergo Shavgulidze (Georgian Technical University, Georgia)</td>
</tr>
<tr>
<td>1569826159</td>
<td>Set Partitioning of Gaussian Integer Constellations and its Application to Two-Dimensional Interleaver Design</td>
<td>Juergen Freudenberger (University of Applied Sciences, Konstanz, Germany); Jens Spinner (University of Applied Sciences, Konstanz, Germany); Sergo Shavgulidze (Georgian Technical University, Georgia)</td>
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</table>
1569848191  Closed-form Expression of Bit Error Rate in Dual-Hop Dual-Branch Mixed Relaying Cooperative Networks with Best-Path Selection over Rayleigh Fading Channels

Muawiah Hlayil (JUST, Jordan); Ali M Hayajneh (Jordan University of Science and Technology, Jordan); Mamoun F. Al-Mistarihi (Jordan University of Science and Technology, Jordan); Mohammad M. Shurman (Jordan University of Science and Technology, Jordan); Khalid Darabkh (Jordan University, Jordan)

Thursday, February 13th – 20:30  Gala dinner
Friday, February 14th – 10:00-10:30
Coffee break
Room: 028a

Friday, February 14th – 10:30-11:00
Room: 025

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<tr>
<th>CSP KL 3 Chair</th>
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<td>Pere L. Gilabert</td>
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Architectures and technologies for small-cell based communication systems

Alessandro Cidronali

Friday, February 14th – 11:00-12:40
Room: 025

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<th>CSP 9 Chair</th>
<th>New Trends in Content-Based Video Retrieval</th>
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<td>Francesc Tarrés</td>
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The Use of Digital Image Processing for IC Reverse Engineering

Raul Quijada (UPC-Barcelona Tech, Spain)

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<th>1569842675</th>
<th>New Matching Method for Human Body Tracking</th>
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<td>Mehrez Abdellaoui (National Engineering School of Monastir, Tunisia); Leila Kabbai (University of Monastir, Tunisia); Ali Douik (Ecole Nationale d'Ingénieurs de Monastir, Tunisia)</td>
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1569846711

The Importance of Audio Descriptors in Automatic Soccer Highlights Generation

Francesc Tarrés (Barcelona-Tech (UPC), Spain); Arnau Raventós (UPC-Barcelona Tech, Spain); Luis Torres (UPC-BarcelonaTECH, Spain); Raul Quijada (UPC-Barcelona Tech, Spain)

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<th>1569846987</th>
<th>Analysis of Low-Altitude Aerial Sequences for Road Traffic Diagnosis using Graph Partitioning and Markov Hierarchical Models</th>
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<td></td>
<td>Khaled Kaâniche (University of Sousse, Tunisia); Cédric Demonceaux (MIS, France); Pascal Vasseur (Université de Rouen, France)</td>
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1569842921

Automatic detection of lumen contours in IVUS images based on a sequence of combined techniques

Hassen Lazrag (Ecole Nationale d'Ingénieurs de Tunis, Tunisia)

1569845937

Friday, February 14th – 12:40-13:00
Meet the expert

Friday, February 14th – 13:00-14:30
Lunch

Friday, February 14th – 14:30-14:45
Closure
Room: 001

Friday, February 14th – 14:45
Excursion
Sensors, Circuits and Instrumentation Systems

SCI Conference Chairs

Manel Gasulla (SP)

Program Committee

- Bruno Ando (IT)
- Georg Brasseur (AT)
- Vittorio Ferrari (IT)
- Pedro Silva Girão (PT)
- Jörg Himmel (DE)
- Fernando Puente Leon (DE)
- Subhas Mukhopadhyay (NZ)
- Pedro Ramos (PT)
- Emilio Sardini (IT)
- Dan Stefanescu (RO)
- Gerhard Fischnerauer (DE)
- Ruggero Donida (IT)
- Pere Riu (ES)
- Kamel Besbes (TN)
- Santiago Marco (ES)
- Pedro Silva Girão (PT)

- Roberto Casas (ES)
- Werner Brenner (AT)
- Thomas Fröhlich (DE)
- Voicu Groza (CN)
- John Horstmann (DE)
- Claude Lucat (FR)
- Marco Parvis (IT)
- Leonhard Reindl (DE)
- Jose Pelegri-Sebastia (ES)
- Ernesto Serrano (ES)
- Jürgen Czarske (DE)
- Vincenzo Piuri (IT)
- Ferran Reverter (ES)
- Carmine Landi (IT)
- Gerard Meijer (NL)
- Gordon Silverman (USA)

- Vedran Bilas (HR)
- Ângel Cuadras (ES)
- Gerald Gerlach (DE)
- Wail Gueaieb (CA)
- Reinhard Lerch (DE)
- Bernhard Zagar (AT)
- Josef Preishuber-Pfluegl (DE)
- Pavel Ripka (CZ)
- Gemma Hornero (ES)
- Octavian Postolache (PT)
- Diego Ramirez (ES)
- Luis Fonseca (ES)
- Joan Albesa (DE)
- Aime' Lay-Ekuakille (IT)
- Pere Miribel Catala (ES)

Topics

- SCI1: Sensors and Measurement Systems I
- SCI2: Analog Circuit Design
- SCI3: Workshop on Wireless Sensor Networks in Industrial Plants I
- SCI4: Special Session on Biomedical & Environmental Measurements and Instrumentation I
- SCI5: Workshop on Wireless Sensor Networks in Industrial Plants II
- SCI6: Sensors and Measurement Systems II
- SCI7: Signal Processing and Parameter Estimation
- SCI8: Special Session on Biomedical & Environmental Measurements and Instrumentation II
- SCI9: Sensor Design
- SCI10: Data Acquisition & Distributed Measurements
- SCI11: Special Session on Impedance Spectroscopy for Measurement and Sensor Solutions I
- SCI12: Special Session on Impedance Spectroscopy for Measurement and Sensor Solutions II
- SCI13: Special Session on Energy Harvesting and Wireless Power Transfer Systems
Tuesday, February 11th – 15:30-17:00  
Registration  
Room: 028b

Tuesday, February 11th – 17:30  
Excursion

Wednesday, February 12th – 8:30-9:00  
Registration  
Room: 028b

Wednesday, February 12th – 9:00-9:30  
Opening  
Room: ICFO Auditorium

Wednesday, February 12th – 9:30-10:15  
Room: ICFO Auditorium

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<th>Angel Cuadras</th>
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<td>Ambient Intellgence Towards Smart Cities</td>
<td>Francisco Falcone</td>
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Wednesday, February 12th – 10:15-10:45  
Coffee break  
Room: 028a

Wednesday, February 12th – 10:45-11:15  
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<td>Capacitive Sensor Systems, emerging technologies</td>
<td>Gerard C.M. Meijer</td>
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Room: 001

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<th>Sensors and Measurement Systems I</th>
<th>Gerard C.M. Meijer</th>
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<td>Low Power Accelerometer Based Intrusion and Tamper Detector</td>
<td>Gergely Vakulya (University of Pannonia, Hungary); Gyula Simon (University of Pannonia, Hungary)</td>
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<td>1569831805</td>
<td>Acoustic Indoor-Localization System for Smart Phones</td>
<td>Fabian Höflinger (University of Freiburg, Germany); Johannes Wendeberg (University of Freiburg, Germany); Joachim Hoppe (University of Freiburg, IMTEK, Germany); Rui Zhang (University of Freiburg, Germany); Leonhard Reindl (IMTEK - Institute for Microsystem Technology, Germany); Christian Schindelhauer (University of Freiburg, Germany)</td>
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<tr>
<td>1569844461</td>
<td>A simple and flexible FPGA Based Autocorrelator for afterpulse Characterization of Single-Photon Detectors</td>
<td>Sixia Gong (Politecnico di Milano, Italy); Ivan Labanca (Politecnico di Milano, Italy); Ivan Rech (Politecnico di Milano, Italy); Massimo Ghioni (Politecnico di Milano, Italy)</td>
</tr>
<tr>
<td>1569847671</td>
<td>Wifi Sensor Networks: A study of energy consumption</td>
<td>Carlos Trasviña Moreno (University of Zaragoza, Spain)</td>
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Wednesday, February 12th – 12:35-13:00  
Meet the expert

Wednesday, February 12th – 13:00-14:30  
Lunch
### Wednesday, February 12th – 14:30-16:10

**Room: 001**

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<th>Analog Circuit Design</th>
<th>Joan Albesa</th>
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<tr>
<td>1569816701</td>
<td>High performance two-stage charge-pump for spur reduction in CMOS PLL</td>
<td>Jung-Woong Park (Chungbuk University, Korea); Nam-Soo Kim (Chungbuk National University, Korea); Hyeim Jeong (Chungbuk National University, Korea); Da-Sol Won (Chungbuk National University, Korea); Ho-Yong Choi (Chungbuk National University, Korea)</td>
</tr>
<tr>
<td>1569823681</td>
<td>Closed loop control for shape memory alloy actuators</td>
<td>Christian Auerswald (Chemnitz University of Technology, Germany); Björn Senf (Fraunhofer-Institut für Werkzeugmaschinen und Umformtechnik, Germany); Jan Mehner (Technische Universität Chemnitz, Germany); Welf-Guntram Drossel (Fraunhofer Institute for Machine Tools and Forming Technology IWU, Germany)</td>
</tr>
<tr>
<td>1569845337</td>
<td>Novel CMOS Second Generation Current Conveyor CCII with Rail-To-Rail Input Stage and Filter Application</td>
<td>Thouraya Ettaghzouti (University of Monastir, Tunisia); Néjib Hassen (University of Monastir, Tunisia); Kamel Besbes (University of Monastir, Tunisia)</td>
</tr>
<tr>
<td>1569846995</td>
<td>An Ultra-Low Voltage Tunable Dual-Band Pass Filter</td>
<td>Mehdi Azadmehr (Vestfold University College, Norway); Belal Khakpour Khajeh (Vestfold University College, Norway); Yngvar Berg (University of Oslo Norway, Norway)</td>
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<tr>
<td>1569825695</td>
<td>Wake-up receiver operating at 433 MHz</td>
<td>Gerd Gamm (University of Freiburg, Germany); Sebastian Stoecklin (University of Freiburg, Germany); Leonhard Reindl (IMTEK - Institute for Microsystem Technology, Germany)</td>
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### Wednesday, February 12th – 14:30-16:10

**Room: 021**

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<th>Workshop on Wireless Sensor Networks in Industrial Plants I</th>
<th>Olfa Kanoun, Thomas Keutel</th>
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<td>1569895605</td>
<td>Energy Harvesting for Wireless Sensor Nodes in Factory Environments</td>
<td>Christian Viehweger (Chemnitz University of Technology, Germany); Thomas Keutel (University of Technology, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany)</td>
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<tr>
<td>1569895613</td>
<td>Requirements for wireless sensors in production and logistic processes</td>
<td>Tobias Weisbach (Technische Universität Chemnitz, Germany); Andre Hurzig (Technische Universität Chemnitz, Germany); Thomas Keutel (University of Technology, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany)</td>
</tr>
<tr>
<td>1569895603</td>
<td>Energy-efficient Adaptive Communication by Preference-based Routing and Forecasting</td>
<td>Tobias Weisbach (Technische Universität Chemnitz, Germany); Andre Hurzig (Technische Universität Chemnitz, Germany); Thomas Keutel (University of Technology, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany)</td>
</tr>
</tbody>
</table>
### Improved MEMS AE sensors in HARM technology
Robert Sommer (Technische Universität Chemnitz, Germany); Markus Freitag (Technische Universität Chemnitz, Germany); Joerg Schaufuss (Chemnitz University of Technology, Germany); Alexander Sorger (Technische Universität Chemnitz, Germany); Jan Mehner (Technische Universität Chemnitz, Germany)

### Application of a Wireless Sensor Networks and Web2Py Architecture for Factory Line Production Monitoring
Massimo Grisostomi (Università Politecnica delle Marche, Italy); Lucio Ciabattoni (Universita' Politecnica delle Marche, Italy); Mariorosario Prist (IDEA Soc. Coop., Italy); Sauro Longhi (Università Politecnica delle Marche, Italy); Gianluca Ippoliti (Università Politecnica delle Marche, Italy)

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**Wednesday, February 12th – 16:10-16:40**
Coffee break Room: 028a

**Wednesday, February 12th – 16:40-18:10** Room: 001

| SCI 4 | Special Session on Biomedical & Environmental Measurements and Instrumentation I  
Chair | Aimé Lay-Ekuakille |
|-------|-------------------------------------------------|

#### 1569825911 Low-Cost System Based on Electro-oculography for Communication of Disabled People
Alberto López Martinez (University of Oviedo, Spain); Isidoro Rodriguez Cuervo (University of Oviedo, Spain); Francisco Ferrero Martín (University of Oviedo, Spain); Marta Valledor (University of Oviedo, Spain); Juan C. Campo Rodríguez (University of Oviedo, Spain)

#### 1569841677 Sensoring and Features Extraction for the Detection of Freeze of Gait in Parkinson Disease
Ali Saad (University le Havre, France); Guérin Francois (University le Havre, Lebanon); Zaarour Iyad (Lebanese University, Lebanon); Mohammed Ayache (UIL, Lebanon); Lefebvre Dimitri (Le Havre University, France)

#### 1569842035 Preliminary Study of Resistive Sensors in Inkjet Technology for Force Measurements in Biomedical Applications
Michela Borghetti (University of Brescia, Italy); Emilio Sardini (University of Brescia, Italy); Mauro Serpelloni (University of Brescia, Italy)

#### 1569847057 Identification of Visual Evoked Potentials in EEG detection by Empirical Mode Decomposition
Patrizia Vergallo (University of Salento, Italy); Aimé Lay-Ekuakille (University of Salento, Italy); Nicola Ivan Giannoccaro (University of Salento, Italy); Domenico Labate (Mediterranea University of Reggio Calabria, Italy); Francesca Morabito (University Mediterranea of Reggio Calabria, Italy); Antonio Trabacca (IRCCS Eugenia Medea, Associazione La Nostra Famiglia, BRINDISI - ITALY, Italy); Shabana Urooj (Gautam Buddha University, India); Vikrant Bhatija (Shri Ramswaroop Memorial Group of Professional Colleges, Lucknow (UP), India)
Towards a portable point-of-use blood analysis with EIS technique device
Jaime Punter (University of Barcelona, Spain); Beatriz del Moral (University of Barcelona, Spain); Jordi Colomer-Farrarons (University of Barcelona, Spain); Beatriz Prieto-Simon (Mawson Institute, University of South Australia, Spain); Ivón Rodriguez-Villareal (CRM-UAB, Spain); Joan Cid (Hospital Clinic, Spain); Pere Miribel-Catálà (University of Barcelona, Spain)

Wednesday, February 12th – 16:40-18:10
Room: 021

SCI 5
Chair
Workshop on Wireless Sensor Networks in Industrial Plants II
Olfa Kanoun, Christian Viehweger

1569895601 A Nanowatt Wake-Up Receiver for Industrial Production Line
Sadok Bdiri (University of Sfax, Tunisia); Faouzi Derbel (Leipzig University of Applied Sciences, Germany)

1569895607 Adaptable Electromagnetic Energy Harvester Design for Industrial Implementation
Sonia Bradai (University of Sfax, Tunisia); Slim Naifar (University of Sfax, Tunisia); Thomas Keutel (University of Technology, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany)

1569895611 MISO Configuration Efficiency in Inductive Power Transmission for Supplying Wireless Sensors
Bilel Kallel (University of Sfax, Tunisia); Thomas Keutel (University of Technology, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany)

1569895597 Modeling and simulation of magnetostriction in a twin lateral transducers energy harvester
Slim Naifar (University of Sfax, Tunisia); Sonia Bradai (University of Sfax, Tunisia); Thomas Keutel (University of Technology, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany)

Thursday, February 13th – 8:30-9:00
Registration
Room: 028b

Thursday, February 13th – 9:00-9:45
Room: 001

PL 2
Chair
Plenary Lecture
Manel Gasulla, Angel Cuadras

RF Energy Harvesting and Inductive Power Transfer
Paul Mitcheson

Thursday, February 13th – 9:45-10:00
Meet the expert

Thursday, February 13th – 10:00-10:30
Coffee break
Room: 028a
### Thursday, February 13\(^{th}\) – 10:30-11:00

**Room: 001**

| SCI KL 2 Chair | Keynote Lecture | **Power Supply for Wireless Sensor or Actuator Nodes**
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<tr>
<td><strong>Manel Gasulla</strong></td>
<td></td>
<td><strong>Leonhard Reindl</strong></td>
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### Thursday, February 13\(^{th}\) – 11:00-12:40

**Room: 001**

| SCI 6 Chair | Sensors and Measurement Systems II | **Signal conditioner for conductance measuring cells in gas-conducting liquid flows**
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<tr>
<td><strong>Leonhard Reindl</strong></td>
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<td><strong>Toufik Morsi (University of Science and Technology Houari Boumediene USTHB, Algeria); Noureddine Ababou (University of Science and Technology Houari Boumediene USTHB, Algeria); Amina Ababou (University of Science and Technology Houari Boumediene USTHB, Algeria); Faiza Saidj (University of Science and Technology Houari Boumediene, Algeria); Abdelwahid Azzi (University of Science and Technology Houari Boumediene, Algeria)</strong></td>
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| 1569832257 | **1569826465** | **Open Parallel-Plate Dielectric Resonator for Passive Torque Sensing**
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<td><strong>Joachim Hoppe (University of Freiburg, IMTEK, Germany); Jean-Michel Boccard (IMTEK - Institute for Microsystem Technology, Germany); Taimur Aftab (University of Freiburg, IMTEK, Germany); Adnan Yousaf (University of Freiburg, Germany); Abhishek Ojha (University of Freiburg, Germany); Thomas Ostertag (University of Freiburg, Germany); Leonhard Reindl (IMTEK - Institute for Microsystem Technology, Germany)</strong></td>
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| 1569826839 | **1569826839** | **Optical Systems for the Detection and Recognition of Fish in Rivers**
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<td></td>
<td></td>
<td><strong>Francisco Ferrero Martín (University of Oviedo, Spain)</strong></td>
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| 1569839857 | **1569842153** | **Rotation Angle Measurement Device: Principle of Operation and Initial Calibration Results**
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<td><strong>Valerii Granovskii (Concern CSRI Elektropribor, JSC, Russia)</strong></td>
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| 1569846939 | | **A new wireless interface for resistive chemical sensors**
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<td><strong>Luay Shahin (University of Siena, Italy); Francesco Bertocci (University of Siena, Italy); Ada Fort (University of Siena, Italy); Marco Mugnaini (University of Siena, Italy); Santina Rocchi (University of Siena, Italy); Valerio Vignoli (University of Siena, Italy)</strong></td>
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### Thursday, February 13\(^{th}\) – 11:00-12:40

**Room: 021**

| SCI 7 Chair | Signal Processing and Parameter Estimation | **Generalized Discrete Event Specifications of Logic Gates**
<table>
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<tr>
<td><strong>Thomas Keutel</strong></td>
<td></td>
<td><strong>Maamar Hamri (LSIS, France); Aziz Naamane (LSIS, France); Norbert Giambiasi (LSIS UMR CNRS 7296, France)</strong></td>
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| 1569827439 | **1569842153** | **Improved Particle Filtering for State and Parameter Estimation- CSTR Model**
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<tr>
<td></td>
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<td><strong>Majdi Mansouri (Electrical and Computer Engineering Program, Texas)</strong></td>
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</table>
A&M University at Qatar, Qatar); Hazem N Nounou (Texas A&M University at Qatar, Qatar); Mohamed Nounou (Texas A&M University at Qatar, Qatar).

1569846379 HMM used for Component Parameters Apportionment
Tommaso Addabbo (University of Siena, Italy); Francesco Bertocci (University of Siena, Italy); Ada Fort (University of Siena, Italy); Marco Mugnaini (University of Siena, Italy); Santina Rocchi (University of Siena, Italy); Luay Shahin (University of Siena, Italy); Valerio Vignoli (University of Siena, Italy).

1569846419 Nonlinear Model Order Reduction for High Q MEMS Gyroscopes
Markus Dorwarth (Robert Bosch GmbH, Germany); Steven Kehrberg (Robert Bosch GmbH, Germany); Robert Maul (Robert Bosch GmbH, Germany); Rudy Eid (Robert Bosch GmbH, Germany); Florian Lang (Robert Bosch GmbH, Germany); Benjamin Schmidt (Robert Bosch GmbH, Germany); Jan Mehner (Technische Universität Chemnitz, Germany).

1569847571 Localisation of Objects using Passive RFID Technology
Marten Wegener (Chemnitz University of Technology, Germany); Daniel Froß (TU Chemnitz, Germany); Marko Rößler (Chemnitz University of Technology, Germany); Ulrich Heinkel (Chemnitz University of Technology, Germany).

1569830701 Analysis of inhomogeneous Multilayer antenna structure by Hybrid Method
Gharbi Ramzi (Faculty of Science of Tunis, Tunisia).

Thursday, February 13th – 12:40-13:00
Meet the expert
Room:001

Thursday, February 13th – 13:00-14:30
Lunch

Thursday, February 13th – 14:30-16:10
Room: 001

SCI 8 Chair
Special Session on Biomedical & Environmental Measurements and Instrumentation II
Aimé Lay-Ekuakille

1569847105 Leak Detection in Waterworks for Preserving Environment: A Comparative Study
Giuseppe Griffo (University of Salento, Italy); Aime’ Lay-Ekuakille (University of Salento, Italy); Patrizia Vergallo (University of Salento, Italy).

1569847113 Power Loss Density Distribution in Biological Tissue to Analyse Processes in Electrosurgery
Christoph Knopf (Ruhr West University of Applied Sciences, Germany); Joerg Himmel (University of Applied Sciences Ruhr West, Muelheim an der Ruhr, Germany); Felix Hochgeschurz (University of Applied Sciences Ruhr West, Muelheim an der Ruhr, Germany); Stephan Klöckner (Olympus Winter & Ibe GmbH, Germany); Klaus Thelen (University of Applied Science, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany).
Development of a novel SNOM probe for in liquid biological samples
Francesco Armani (University of Trieste, Italy); Antonio Boscolo (University of Trieste, Italy); Massimo Bressanuti (University of Trieste, Italy); Marco Dalle Feste (University of Trieste, Italy); Barbara Piuuzzi (University of Trieste, Italy); Marina Zweyer (University of Trieste, Italy)

Measurement error sensitivity analysis for detecting and locating leak in pipeline using ANN and SVM
Mohammad Nasir (King Fahd University of Petroleum & Minerals, KSA, Saudi Arabia); Muhammad Mysorewala (King Fahd University of Petroleum & Minerals, Saudi Arabia); Lahouari Cheded (King Fahd University of Petroleum and Minerals, Saudi Arabia); Bilal Siddiqui (King Fahd University of Petroleum and Minerals, Saudi Arabia); Muhammad Sabih (King Fahd University of Petroleum & Minerals, Saudi Arabia)

Rectangular Patch Resonator Sensors For Characterization of Biological Materials
Nabila Aouabdia (Constantine 1 University, Algeria); Nour Eddine Belhadj-Tahar (UPMC, France); Georges Alquié (UPMC, France)

Thursday, February 13th – 14:30-16:10
Room: 021

<table>
<thead>
<tr>
<th>SCI 9 Chair</th>
<th>Sensor Design</th>
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<tbody>
<tr>
<td>Emilio Sardini</td>
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1569806853 Optoelectronic Properties of Silicon Photodetector Doped With Indium or Aluminum
Wagah Mohammed (Philadelphia University, Jordan); Munther Al-Tikriti (Philadelphia University, Jordan); Mudhar Hamoodi (Mosul University, Iraq)

1569847557 A CMOS Monolithic Integrated Ambient Light Sensor based on a Single Photodiode Stack
Michael Meister (IMMS GmbH, Germany); Ulrich Liebold (IMMS GmbH, Germany); Andre Jäger (IMMS GmbH, Germany); Sebastian Thiele (X-FAB Semiconductor Foundries AG, Germany); Robin Weirauch (X-FAB Semiconductor Foundries AG, Germany); Daniel Gäbler (X-FAB Semiconductor Foundries AG, Germany); Konrad Bach (X-FAB Semiconductor Foundries AG, Germany)

1569846925 Evaluation of the Piezoresistive Behavior of Multifunctional Nanocomposites Thin Films
Abderrahmane Benchirouf (Technische Universität Chemnitz, Germany); Abdulkadir Sanli (Technische Universität Chemnitz, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany)

1569847389 Single-Wall Carbon Nanotubes Based Infrared Sensors on Flexible Substrate
Ravikant Sharma (Technische Universität Chemnitz, Germany); Ammar Al-Hamry (Chemnitz University of Technology, Reichenhainer Str. 70 Chemnitz, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany); Abdulkadir Sanli (Technische Universität Chemnitz, Germany); Abderrahmane Benchirouf (Technische Universität Chemnitz, Germany); Müller Christian (Technische Universität Chemnitz, Germany)
1569846407 Pyroelectric Sensor for Entropy Measurements
Angel Cuadras (Universitat Politècnica de Catalunya, Spain); Victoria Julia Ovejas (Universitat Politècnica de Catalunya, Spain)

Thursday, February 13th – 16:10-16:40 Coffee break Room: 028a

Thursday, February 13th – 16:40-18:10 Room: 001

<table>
<thead>
<tr>
<th>SCI 10 Chair</th>
<th>Data Acquisition &amp; Distributed Measurements Jörg Himmel</th>
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<tr>
<td>1569842587</td>
<td>A Low-Cost Open-Source Data Acquisition System Francisco Ferrero Martín (University of Oviedo, Spain); Juan C Campo Rodriguez (University of Oviedo, Spain); Marta Valledor (University of Oviedo, Spain); Jose Ramón Garcia (University of Oviedo, Spain)</td>
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<tr>
<td>1569863985</td>
<td>Experimental performance evaluation of battery powered small-scale reverse osmosis desalination system Moustafa Elshafei (King Fahd University of Petroleum &amp; Minerals, Saudi Arabia); Abdulwahid A. Al-Saif (King Fahd University of Petroleum &amp; Minerals, Saudi Arabia)</td>
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<td>1569844493</td>
<td>Monitoring and Remote Control of Energy Consumption by WiFi Networks Sergio Zarza Sánchez (UPC, Spain); Rosa Fernández-Cantí (UPC, Spain); Jose A Lazaro (Universitat Politècnica de Catalunya (UPC), Spain); Isidre Ortega (UPC, Spain); José A Altabás (University of Zaragoza, Spain)</td>
</tr>
<tr>
<td>1569848869</td>
<td>Design High Precision Time Keeping Clock System Based on Time Digital Convert Tao Linwei (Northwestern Polytechnical University, P.R. China)</td>
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Thursday, February 13th – 16:40-18:10 Room: 021

<table>
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<tr>
<th>SCI 11 Chair</th>
<th>Special Session on Impedance Spectroscopy for Measurement and Sensor Solutions I Olfa Kanoun</th>
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<tbody>
<tr>
<td>1569839859</td>
<td>Low-cost Online Determination of Calcium-Magnesium-Ratio by Cyclic Voltammetry Roman Gruden (Seuffer GmbH &amp; Co. KG, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany)</td>
</tr>
<tr>
<td>1569849343</td>
<td>SoH Evaluation of LiFePO4 Cells Using Impedance and Thermal Measurements Victoria Julia Ovejas (Universitat Politècnica de Catalunya, Spain); Angel Cuadras (Universitat Politècnica de Catalunya, Spain); Joan Ramon Morante (IREC, Spain)</td>
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</table>
1569848107 Characterization of the dielectric properties of multi-walled carbon nanotubes (MWCNTs) /PEDOT:PSS nanocomposites
Abdulkadir Sanli (Technische Universität Chemnitz, Germany); Abderrahmane Benchirouf (Technische Universität Chemnitz, Germany); Ravikant Sharma (Technische Universität Chemnitz, Germany); Müller Christian (Technische Universität Chemnitz, Germany); Olfa Kanoun (Chemnitz University of Technology, Germany)

1569846595 Towards the Impedimetric Tracking of Single Magnetically Trailed Microparticles
Marco Carminati (Politecnico di Milano, Italy); Giorgio Ferrari (Politecnico di Milano, Italy); Soon Uk Kwon (Politecnico di Milano, Italy); Marco Monticelli (Politecnico di Milano, Italy); Andrea Torti (Politecnico di Milano, Italy); Daniela Petti (Politecnico di Milano, Italy); Edoardo Albisetti (Politecnico di Milano, Italy); Matteo Cantoni (Politecnico di Milano, Italy); Riccardo Bertacco (Politecnico di Milano, Italy); Marco Sampietro (Politecnico di Milano, Italy)

Thursday, February 13th – 20:30 Gala dinner

Friday, February 14th – 9:00-10:00 Room: 001

SCI 12 Chair Special Session on Impedance Spectroscopy for Measurement and Sensor Solutions II
Angel Cuadras

1569825531 Electrocircuit Modeling and Simulation Analysis of a Resonant Acoustic Gas Sensor
Ting Zhang (Wuhan Second Ship Design and Research Institute, P.R. China); Wang Shu (HUST, P.R. China)

1569826369 Frequency Corrected Model for Soil Moisture Measurement Based on Magnitude Ratio and Phase Difference Detection Method
Lazuardi Umar (University of Riau in Pekanbaru, Indonesia)

1569831401 Integrating Mobile And NN For Monitoring Diabetes In E-Health System
Karim Aljebory (Al Isra University, Jordan); Jamal Alyousef (Engiineer, Jordan)

Friday, February 14th – 10:00-10:30 Coffee break Room: 028a
### SCI KL 3

#### Keynote Lecture

- **Chair:** Manel Gasulla
- **Date:** Friday, February 14th – 10:30-11:00
- **Room:** 001

**Energy harvesting: device, circuit and system co-design and on-chip integration**

*Eduard Alarcon*

### SCI 13

#### Special Session on Energy Harvesting and Wireless Power Transfer Systems

- **Chair:** Eduard Alarcon, Manel Gasulla
- **Date:** Friday, February 14th – 11:00-12:40
- **Room:** 001

**1569818523** Tunable Interface for Piezoelectric Energy Harvesting

*Alexander Richter (Technische Universität Dresden, Germany); Axel Strobel (Technische Universität Dresden, Germany); Niko Joram (Technische Universität Dresden, Germany); Frank Ellinger (Dresden University of Technology, Germany); Lars Göpfert (Zentrum Mikroelektronik Dresden AG, Germany); Reimar Marg (Zentrum Mikroelektronik Dresden AG, Germany)*

**1569830547** Monitoring of Indoor Light Conditions for Photovoltaic Energy Harvesting

*Martin Kasemann (University of Freiburg, Germany); Jan Kokert (University of Freiburg, Germany); Karola Rühle (University of Freiburg, Germany); Leonhard Reindl (IMTEK - Institute for Microsystem Technology, Germany)*

**1569836775** Design Specifications and Guidelines for Efficient Solar Chargers of Mobile Phones

*Christian Schuss (University of Oulu, Finland); Bernd Eichberger (Graz University of Technology, Austria); Timo Rahkonen (University of Oulu, Finland)*

**1569849269** Class E2 Resonant Non-Radiative Wireless Power Transfer Link: A design-oriented joint circuit-system co-characterization approach

*Elisenda Bou Balust (Universitat Politècnica de Catalunya, Spain); Eduard Alarcon (Technical University of Catalunya, Spain)*

**1569847109** Investigating the Effects of Parasitic Components on Wireless RF Energy Harvesting

*Antwi Nimo (University of Freiburg, Germany); Joan Albesa (University of Freiburg, Germany); Leonhard Reindl (IMTEK - Institute for Microsystem Technology, Germany)*

### Friday, February 14th – 12:40-13:00

Meet the expert

### Friday, February 14th – 13:00-14:30

Lunch

### Friday, February 14th – 14:30-14:45

Closure

### Friday, February 14th – 14:45

Excursion
Looking forward to see you at SSD 2015

Thank you

http://www.ssd-conf.org/ssd15
# Program of the 11th International SSD Conference on Systems, Analysis and Automatic Control (SAC)

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<th>Time</th>
<th>Tuesday 11th</th>
<th>Wednesday 12th</th>
<th>Thursday 13th</th>
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<td>Plenary Session</td>
<td>Dr. Paul Mitcheson</td>
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<td>Dr. Francisco Falcone</td>
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<td>Coffe break</td>
<td>Keynote Lecture</td>
<td>Dr. Costa</td>
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<td>Dr. De Gea</td>
<td>SAC9 Fuzzy Systems</td>
<td>SAC10 Adv. Linear Control Theory</td>
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<td>11:00</td>
<td>SAC1 Robotics &amp; Mechatronics</td>
<td>SAC5 Intelligent Control Systems</td>
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<td>SAC1 Robotics &amp; Mechatronics</td>
<td>SAC6 Nonlinear Observers</td>
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<td>SAC2 System Identification</td>
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<td>Power Electronics</td>
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<tr>
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<td>Keynote Lecture</td>
<td>Dr. Juan Vásquez</td>
<td>Keynote Lecture</td>
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<td>Dr. Eric Monmasson</td>
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<td>PES1 Optimization in electrical systems</td>
<td>PES5 Power Electronics</td>
<td>PES10 Energy management</td>
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<td>PES2 Wind Energy</td>
<td>PES6 Machines</td>
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<td>PES3 Photovoltaics</td>
<td>PES7 Microgrids</td>
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<td>PES8 Microgrids</td>
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<td>PES4 Electrical Grid Applications</td>
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<td>Microgrids</td>
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<td>20:00</td>
<td>Gala dinner</td>
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Program of the 11th International SSD Conference on Communications and Signal Processing (CSP)

Tuesday 11th

8:30 Registration
9:00 Opening
9:30 Plenary Session Dr. Paul Mitcheson
10:00 Meet the expert
10:30 Coffe break
11:00 Keynote Lecture Dr. O’Connor
11:30 CSP1 Technologies for Wireless Communication Systems
12:00 Lunch
12:30 Meet the expert
13:00 CSP2 Communication Systems 1
14:30 CSP3 Biometric & Medical Imaging
15:00 CSP4 Highly Linear and Efficient Wireless Transmitters I
15:30 CSP5 Highly Linear and Efficient Wireless Transmitters II
16:30 Coffee break
17:00 CSP6 Communication Systems 2
17:30 CSP7 Data fusion & Pattern Recognition
18:00 CSP8 Communication Systems 3
18:30 Excursion
20:00 Gala dinner

Wednesday 12th

8:30 Registration
9:00 Plenary Session
9:30 Dr. Francisco Falcone
10:00 Meet the expert
10:30 Coffe break
11:00 Keynote Lecture Dr. Correia
11:30 CSP1 Technologies for Wireless Communication Systems
12:00 Lunch
12:30 Meet the expert
13:00 CSP2 Communication Systems 1
14:30 CSP3 Biometric & Medical Imaging
15:00 CSP4 Highly Linear and Efficient Wireless Transmitters I
15:30 CSP5 Highly Linear and Efficient Wireless Transmitters II
16:30 Coffee break
17:00 CSP6 Communication Systems 2
17:30 CSP7 Data fusion & Pattern Recognition
18:00 CSP8 Communication Systems 3
18:30 Excursion
20:00 Gala dinner

Thursday 13th

8:30 Registration
9:00 Plenary Session Dr. Francisco Falcone
10:00 Meet the expert
10:30 Coffe break
11:00 Keynote Lecture Dr. Correia
11:30 CSP1 Technologies for Wireless Communication Systems
12:00 Lunch
12:30 Meet the expert
13:00 CSP2 Communication Systems 1
14:30 CSP3 Biometric & Medical Imaging
15:00 CSP4 Highly Linear and Efficient Wireless Transmitters I
15:30 CSP5 Highly Linear and Efficient Wireless Transmitters II
16:30 Coffee break
17:00 CSP6 Communication Systems 2
17:30 CSP7 Data fusion & Pattern Recognition
18:00 CSP8 Communication Systems 3
18:30 Excursion
20:00 Gala dinner

Friday 14th

8:30 Registration
9:00 Plenary Session
9:30 Dr. Francisco Falcone
10:00 Meet the expert
10:30 Coffe break
11:00 Keynote Lecture Dr. Cidronali
11:30 CSP1 Technologies for Wireless Communication Systems
12:00 Lunch
12:30 Meet the expert
13:00 CSP2 Communication Systems 1
14:30 CSP3 Biometric & Medical Imaging
15:00 CSP4 Highly Linear and Efficient Wireless Transmitters I
15:30 CSP5 Highly Linear and Efficient Wireless Transmitters II
16:30 Coffee break
17:00 CSP6 Communication Systems 2
17:30 CSP7 Data fusion & Pattern Recognition
18:00 CSP8 Communication Systems 3
18:30 Excursion
20:00 Gala dinner
### Program of the 11th International SSD Conference on Sensors, Circuits and Instrumentation Systems (SCI)

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<tbody>
<tr>
<td><strong>8:30</strong></td>
<td>Registration</td>
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<td><strong>SC12</strong> Special Session on Impedance Spectroscopy for Measurement and Sensor Solutions II</td>
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<td><strong>9:00</strong></td>
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<td>Plenary Session Dr. Paul Mitcheson</td>
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<tr>
<td><strong>9:30</strong></td>
<td>Plenary Session Dr. Francisco Falcone</td>
<td>Meet the expert</td>
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<tr>
<td><strong>10:00</strong></td>
<td>Coffe break</td>
<td>Coffe break</td>
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<tr>
<td><strong>10:30</strong></td>
<td>Keynote Lecture Prof. Meijer</td>
<td>Keynote Lecture Prof. Reindl</td>
<td>Keynote Lecture Dr. Cidronali</td>
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<tr>
<td><strong>11:00</strong></td>
<td>SCI1 Sensors and Measurement Systems I</td>
<td>SCI6 Sensors and Measurement Systems II</td>
<td>SCI13 Special Session on Energy Harvesting and Wireless Power Transfer Systems</td>
</tr>
<tr>
<td><strong>12:00</strong></td>
<td>SCI1 Sensors and Measurement Systems I</td>
<td>SCI6 Sensors and Measurement Systems II</td>
<td>SCI13 Special Session on Energy Harvesting and Wireless Power Transfer Systems</td>
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<tr>
<td><strong>12:30</strong></td>
<td>Meet the expert</td>
<td>Meet the expert</td>
<td>Meet the expert</td>
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<td><strong>13:00</strong></td>
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<tr>
<td><strong>14:30</strong></td>
<td>Lunch</td>
<td>Lunch</td>
<td>Closure</td>
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<td><strong>15:00</strong></td>
<td>SCI2 Analog Circuit Design</td>
<td>SCI8 S. Session on Biomedical &amp; Environmental Measurements and Instrumentation II</td>
<td>Excursion</td>
</tr>
<tr>
<td><strong>15:30</strong></td>
<td>SCI3 Workshop on Wireless Sensor Networks in Industrial Plants I</td>
<td>SCI9 Sensor Design</td>
<td>Gaudí Tour</td>
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<td><strong>16:10</strong></td>
<td>SCI4 Special S. on Biomedical &amp; Environmental Meas. and Instrumentation I</td>
<td>SCI10 Data Acquisition &amp; Distributed Meas.</td>
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<td><strong>16:40</strong></td>
<td>Registration</td>
<td>SCI11 Sensor Design</td>
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<tr>
<td><strong>17:00</strong></td>
<td>SCI5 Workshop on Wireless Sensor Networks in Industrial Plants II</td>
<td>SCI11 Sensor Design</td>
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<td><strong>17:30</strong></td>
<td>Excursion</td>
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<td><strong>18:00</strong></td>
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<td>Gala dinner</td>
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<tr>
<td><strong>20:00</strong></td>
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<td>Gala dinner</td>
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