

WIRELESS POWER WEEK

17-21 June 2019, LONDON



**IEEE MTT-S Wireless Power Transfer Conference (WPTC)
&
IEEE PELS Workshop on Emerging Technologies: Wireless Power (WoW)**

PROGRAM



Wireless Power Week 2019

Bringing together the two major wireless power events: IEEE MTT-S Wireless Power Transfer Conference (WPTC) and IEEE PELS Workshop on Emerging Technologies: Wireless Power (WoW)

Conference Co-Chairs:

Paul D. Mitcheson, Imperial College London
Hubregt J. Visser, Eindhoven University of Technology

Technical Program Committee Co-Chairs:

Grant A. Covic - The University of Auckland
David C. Yates - Imperial College London
Alessandra Costanzo - University of Bologna
Bart Smolders - Eindhoven University of Technology

WPW School Chair:

Nuno Carvalho - University of Aveiro, Portugal

Local Organising Committee Chairs:

Lingxin Lan - Imperial College London, UK
Juan Arteaga - Imperial College London, UK

The conference proceedings will be published in IEEEExplore,
separately for WPTC and WoW

PROGRAM: WIRELESS POWER WEEK 2019

Contents

| | |
|--|----|
| Committees | 1 |
| Chairs..... | 1 |
| TPC Chairs | 1 |
| WPTC | 1 |
| WoW | 1 |
| TPC Members | 2 |
| Local Organising Committee..... | 2 |
| General Information..... | 4 |
| Registration & Information Desk..... | 4 |
| Local Area Map | 5 |
| Floor Plan..... | 6 |
| Program | 8 |
| Tuesday 18 June..... | 12 |
| Registration and Opening | 12 |
| Plenary Talk 1 | 12 |
| WPTC Session 1 – Systems for Power and Data Transfer | 12 |
| WoW Session 1 – Magnetic Designs | 12 |
| Coffee Break..... | 13 |
| Plenary Talk 2 | 13 |
| Lunch | 13 |
| Joint Invited Talk 1 | 13 |
| WPTC Session 2 – Novel Rectifier Solutions..... | 14 |
| WoW Session 2 – System Characterisation | 14 |
| Poster Session 1 and Coffee Break | 15 |
| 15:30 – 17:00 Poster Session 1 – WPTC..... | 15 |
| 15:15 – 17:00 Poster Session 1 – WoW..... | 19 |
| Wednesday 19 June | 21 |
| Registration | 21 |
| WPTC Session 3 – Wearable and Biomedical Systems | 21 |
| WoW Session 3 – Multicoil Design | 21 |
| Plenary Talk 3 | 22 |
| Coffee Break..... | 22 |
| WPTC Session 4 – Microwave Power Converters | 22 |
| WoW Session 4 – Auxiliary Systems and Emissions | 23 |

PROGRAM: WIRELESS POWER WEEK 2019

| | |
|--|----|
| Lunch | 23 |
| WPTC Session 5 – Unconventional WPT Links | 23 |
| Millimeter Wave Wireless Power Transmission-Technologies and Applications | 23 |
| WoW Session 5 – Industrial Design and Applications..... | 24 |
| Coffee Break..... | 24 |
| 15:50 – 17:00 Panel Session – The future of WBG devices in power processing and wireless power | 24 |
| Thursday 20 June..... | 25 |
| Registration | 25 |
| WPTC Session 6 – Antenna and Systems for WPT | 25 |
| WoW Session 6 – Dynamic IPT | 25 |
| Coffee Break..... | 26 |
| WPTC Session 7 – Capacitive and Inductive WPT | 26 |
| WoW Session 7 – High Frequency WPT | 27 |
| Lunch | 27 |
| WPTC Session 8 – Novel Transmitter Architectures | 28 |
| WoW Session 8 – Converter Design & Control..... | 28 |
| Poster Session II and Coffee Break | 29 |
| 15:00 – 17:00 Poster Session II – WPTC..... | 29 |
| 15:05 – 17:00 Poster Session II – WoW..... | 34 |
| 18:00 – 22:00 Banquet..... | 36 |
| Friday 21 June..... | 37 |
| Registration | 37 |
| WPTC & WoW Joint Session I – High Power and Ultrasonic WPT | 37 |
| Coffee Break..... | 37 |
| WPTC & WoW Joint Session 2 – Moving WPT Systems..... | 38 |
| 12:10 – 12:45 WPW 2020 Announcement and Closing Ceremony | 38 |
| WPW2019 Sponsors | 39 |
| Platinum sponsors: | 39 |
| Gold sponsors: | 39 |
| Silver sponsors: | 39 |
| Bronze sponsors: | 40 |
| Other sponsors: | 40 |
| Prize sponsors: | 40 |

Committees

Chairs



Paul D. Mitcheson
Imperial College London
(United Kingdom)



Hubregt J. Visser
Eindhoven University of Technology
(The Netherlands)

TPC Chairs

WPTC



Alessandra Costanzo
University of Bologna
(Italy)



Bart Smolders
Eindhoven University of Technology
(The Netherlands)

WoW



Grant Covic
University of Auckland
(New Zealand)



David Yates
Imperial College London
(United Kingdom)

PROGRAM: WIRELESS POWER WEEK 2019

TPC Members

Juan Arteaga, Imperial College London (United Kingdom)
Alessandra Costanzo, University of Bologna (Italy)
Grant Covic, University of Auckland (New Zealand)
Lingxin Lan, Imperial College London (United Kingdom)
Christopher Kwan, Imperial College London (United Kingdom)
Bart Smolders, Eindhoven University of Technology (The Netherlands)
Hubregt Visser, Eindhoven University of Technology (The Netherlands)
David Yates, Imperial College London (United Kingdom)
Jesus Acero, University of Zaragoza (Spain)
Seungyoung Ahn, Korea Advanced Institute of Science and Technology (South Korea)
Federico Alimenti, University of Perugia (Italy)
David Arnold, University of Florida (United States of America)
Al Thaddeus Avestruz, University of Michigan (United States of America)
Ikko Arai, Ryutech Corporation (Thailand)
Damienne Bajon, ISAE - Université de Toulouse (France)
Stephen Beeby, University of Southampton (United Kingdom)
Djuradj Budimir, University of Westminster (United Kingdom)
Steve Burrow, University of Bristol (United Kingdom)
Nuno Carvalho, University of Aveiro / IT Aveiro (Portugal)
Jung-Chih Chiao, The University of Texas at Arlington (United States of America)
Dong-Ho Cho, Korea Advanced Institute of Science and Technology (South Korea)
Bruno Clerckx, Imperial College London (United Kingdom)
Marco Dionigi, University of Perugia (Italy)
Simon Hemour, University of Bordeaux (France)
Aiguo Patrick Hu, University of Auckland (New Zealand)
Ron Hui, University of Hong Kong (Hong Kong)
Chi-Kwan Lee, University of Hong Kong (Hong Kong)
Jenshan Lin, University of Florida (United States of America)
Chengbin Ma, Shanghai Jia Tong University (China)
Udaya Madawala, University of Auckland (New Zealand)
Diego Masotti, University of Bologna (Italy)
Richard McMahon, University of Warwick (United Kingdom)
Chris Mi, San Diego State University (United States of America)
Mauro Mongiardo, University of Perugia (Italy)
Giuseppina Monti, University of Salento (Italy)
Amir Mortazawi, University of Michigan (United States of America)
Kenjiro Nishikawa, Kagoshima University (Japan)
Young-Jin Park, KERI & UST (South Korea)
Volker Pickert, Newcastle University (United Kingdom)
Zbynek Raida, Brno University of Technology (Czech Republic)
Juan Rivas-Davila, Stanford University (United States of America)
Luca Roselli, University of Perugia (Italy)
Dominique Schreurs, Katholieke Universiteit Leuven (Belgium)
Naoki Shinohara, Kyoto University (Japan)
Hiroki Shoki, Toshiba Corporation (Japan)
Nobby Stevens, Katholieke Universiteit Leuven (Belgium)
Alex Takacs, University of Toulouse (France)
Luciano Tarricone, University of Salento (Italy)
Duleepa Thrimawithana, University of Auckland (New Zealand)
Ke Wu, University of Montreal (Canada)
Seho Kim, University of Auckland (New Zealand)
Jackman Lin, University of Auckland (New Zealand)

Local Organising Committee

Lingxin Lan
Juan Arteaga
Tom Van Nunen
Junghoon Kim
Christopher Kwan
Ioannis Nikiforidis
Mahmoud Ouda
Nunzio Pucci

PROGRAM: WIRELESS POWER WEEK 2019

Chairs' Welcome Message

On behalf of the organizing committee, it gives us enormous pleasure to welcome you to Wireless Power Week 2019 (WPW2019) at IET Savoy Place, London.

Wireless Power Week started in 2018 in Montreal, Canada, bringing together the IEEE MTT-S Wireless Power Transfer Conference (WPTC) and the IEEE PELS Workshop on Emerging Technologies: Wireless Power (WoW). This year, at the second edition of Wireless Power Week, we are happy to see an increase of over 30% in paper submissions, with 304 submissions in total. In total, 237 papers were accepted, giving an acceptance rate of 78%. There are 841 separate authors from 41 countries, of which 49% are from academia, 34% are students, 21% are from industry, 3% are from government, and 1% are from NGOs.

Wireless Power Transfer is a technology finding its way into products and so this year we have strived to make a strong connection between academia and industry. We see this reflected in the many contributions from industry and joint contributions from industry and academia. The technical program is led by 4 plenary talks, 2 joint-track invited talks, and 4 track-specific invited talks. The conference has both a WPTC/MTT track and a WoW/PELS track, but all tickets allow access to all sessions, so please feel free to roam between tracks as you wish.

We are delighted to enjoy the support from this year's sponsors and exhibitors, and we hope you will make the most of the exhibition, which is co-located with the posters.

The highlight of the social program is the conference banquet, to be held on Thursday evening, in "Tesla's Secret London Laboratory". We are fortunate that the banquet falls on "Power Electronics Society Day" and are happy that PELS, MTT and other members of the WPW community can get together and network in what promises to be an interesting environment!

There are many people we wish to thank, who have put an enormous amount of time and effort into Wireless Power Week. The TPC, chaired by Alessandra Costanzo and Bart Smolders (WPTC) and Grant Covic and David Yates (WoW) have given valuable time shaping the technical program. Nuno Borges Carvalho chaired the WPW School, held on Monday at Imperial College London. The local organizing committee, chaired by Lingxin Lan and Juan Arteaga, have worked tirelessly to make the conference happen.

Thank you for joining us at WPW2019, and we hope you will have an enjoyable and productive conference and enjoy your stay in London.



Paul D. Mitcheson
Imperial College London



Hubregt J. Visser
Eindhoven University of Technology

PROGRAM: WIRELESS POWER WEEK 2019

General Information

Registration & Information Desk

The Registration and Information Desk will be open during the following times:

| | |
|---------------------------------|---------------|
| Monday 17 th June | 6pm – 10pm |
| Tuesday 18 th June | 8am – 5pm |
| Wednesday 19 th June | 8am – 5pm |
| Thursday 20 th June | 8am – 5pm |
| Friday 21 st June | 8am – 12:45pm |

Meeting room Locations

| | |
|---------------------|--|
| Plenary | Kelvin Lecture Theatre (Ground floor) |
| WPTC | Kelvin Lecture Theatre |
| WoW | Turing Lecture Theatre (Second floor) |
| Joint Invited Talks | Kelvin Lecture Theatre |
| Posters | Maxwell Library & Siemens Board Room (First floor) |
| Exhibitors | Maxwell Library |
| Refreshments | Maxwell Library & Siemens Board Room |
| Registration Desk | Flowers Room (Ground floor) |
| Banquet | Ivory House, “Tesla’s Secret Lab” |

Name Badges

All attendees must wear their name badges at all times to gain admission to all conference events.

Electronic Proceedings

One copy of the Electronic Proceedings will be provided to you on a flash drive during registration.

Traveller’s Checks and Credit Cards

Credit cards, including MasterCard®, Visa® and American Express®, and traveller’s checks are accepted at most hotels, restaurants, and souvenir shops.

Tipping Standards

Tipping of 10-12.5% is standard for good service at restaurants with table service. Note that tipping and taxes are usually included in the bill. Tips are not expected in pubs when you are not dining.

Smoking

There is no smoking in Savoy Place and in “Tesla’s Secret Lab”. Smoking is forbidden by law in the UK in all public buildings, public transport and in taxis.

Mobile Phones

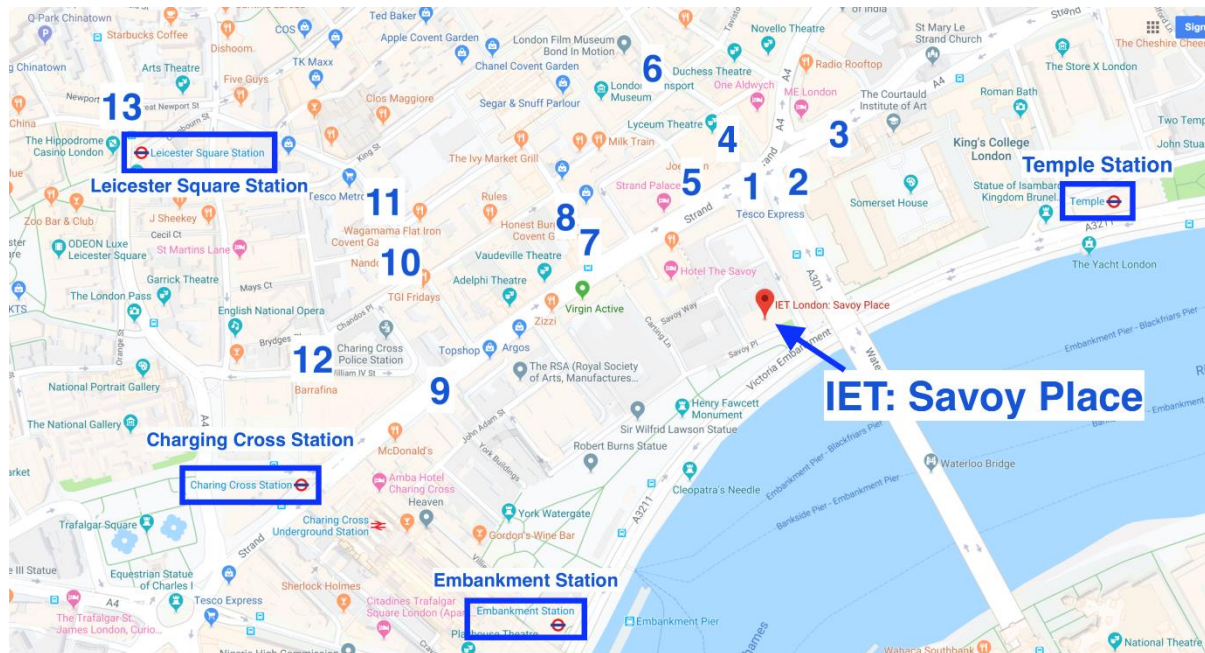
As a courtesy to your fellow attendees, please turn off your mobile phone ringer during the conference.

Food at the Venue

Please note that food bought outside cannot be brought into IET Savoy Place.

PROGRAM: WIRELESS POWER WEEK 2019

Local Area Map



Nearby Places to Eat:

1. Pret A Manger – Sandwiches
2. Caffè Nero – Coffee shop
3. Pizza Express – Pizza place
4. Starbucks – Coffee shop
5. Joe Allen – American food
6. Wasabi – Japanese Sushi and bento
7. Byron – Casual dining burger place
8. Costa Coffee – Coffee shop
9. Nando's – South African style chicken dishes
10. Pizza Hut – Pizza place
11. Wagamama – Asian/ Japanese style cuisine
12. Barrafinna – Spanish tapas
13. Chinatown (Many Chinese restaurants)

Tube Stations:

1. Embankment ~5 minutes walk
2. Temple Station ~5 minutes walk
3. Charing Cross Station ~7 minutes walk
4. Leicester Square ~ 11 minutes walk

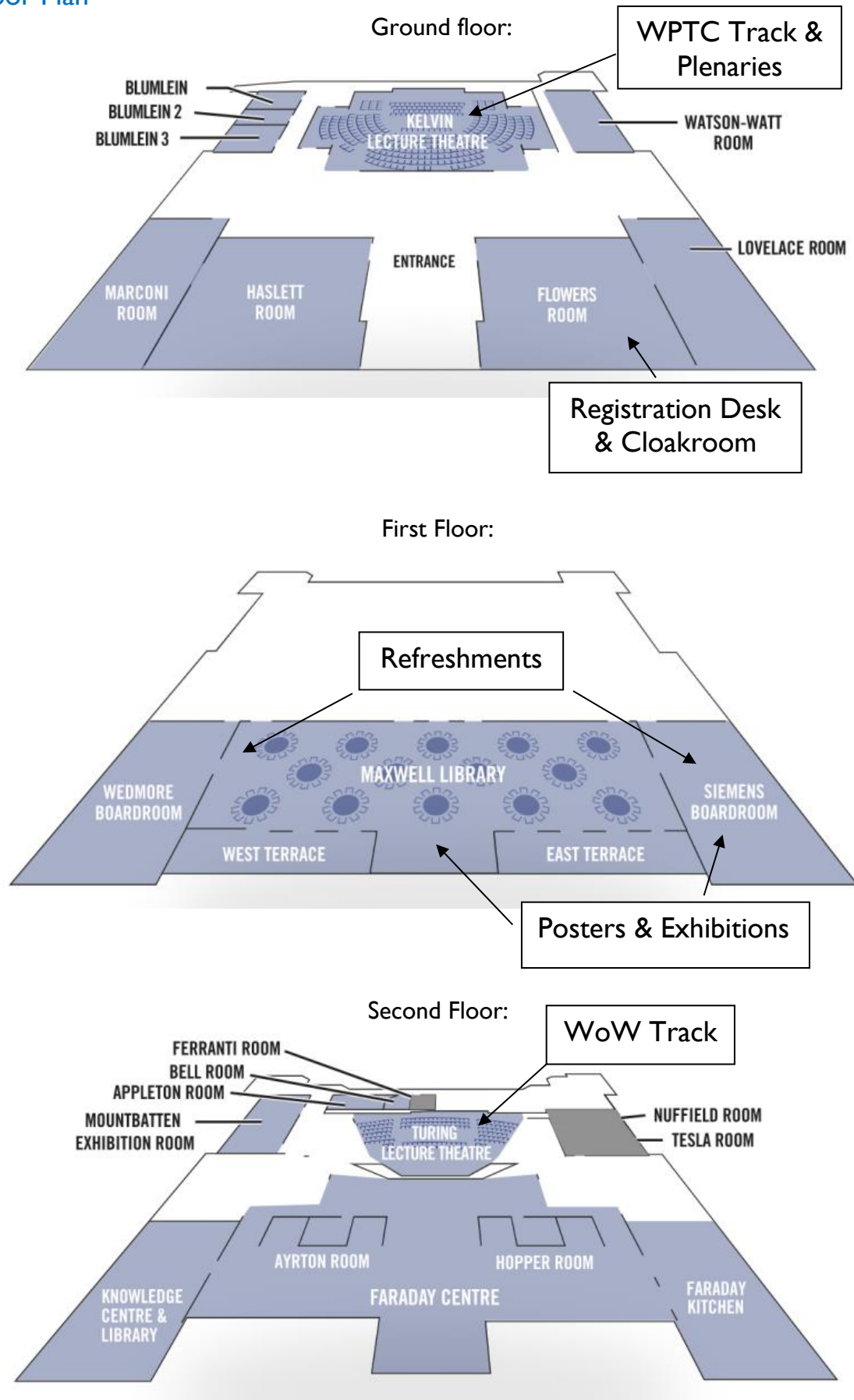
Banquet: Tesla's Lost London Laboratory:

Ivory House
St. Katharine's dock
EIW IAT

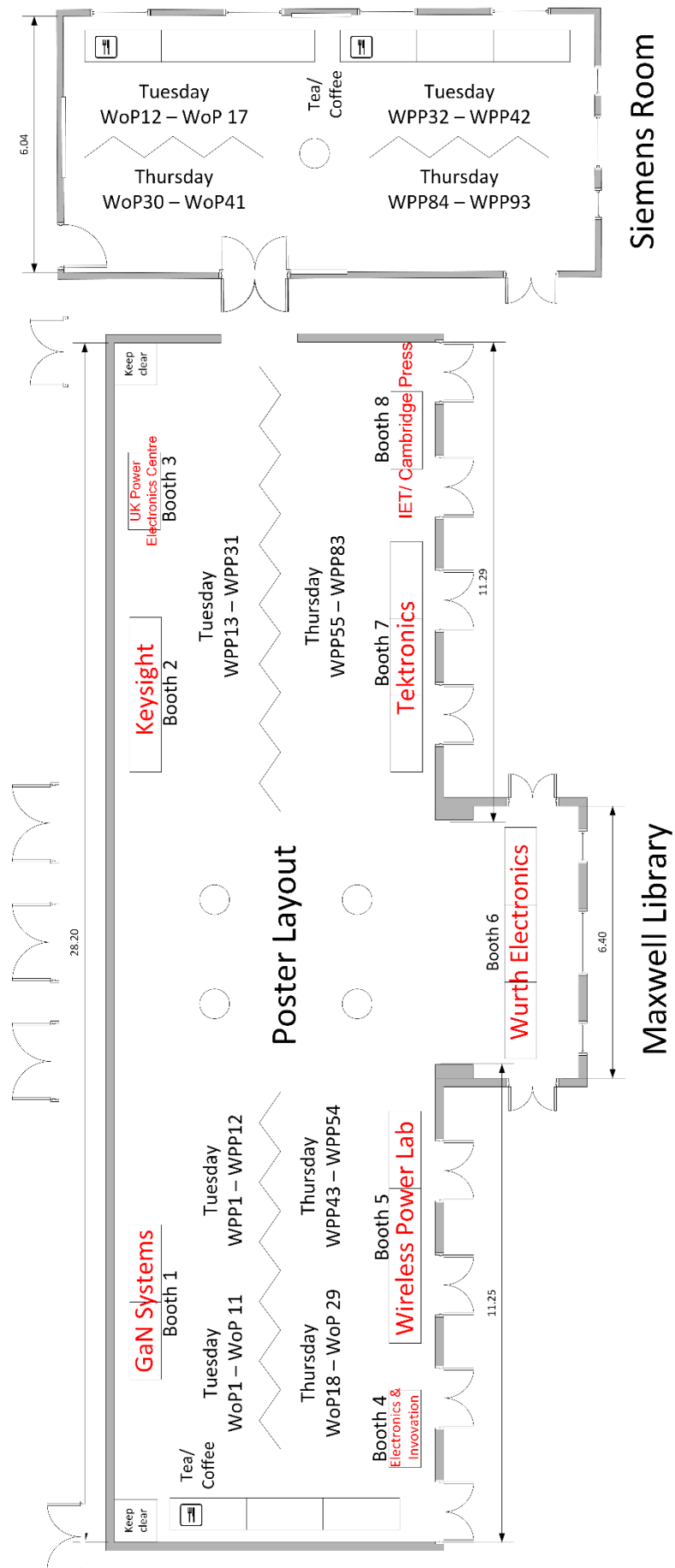
(Take the Circle/District line from Temple/Embankment Station to Tower Hill Station)

PROGRAM: WIRELESS POWER WEEK 2019

Floor Plan



Posters & Exhibition room layout:



PROGRAM: WIRELESS POWER WEEK 2019

Program

Monday

| |
|--|
| 18:00-22:00 IET Savoy Place Registration & Welcome reception |
|--|

Tuesday

| | |
|--|---|
| 08:00-08:25 Flowers Room Registration & Coffee | |
| 08:25-08:55 Kelvin Lecture Theatre Welcome talk | |
| 08:55-09:40 Kelvin Lecture Theatre Plenary talk 1 - Alex Gruzen (CEO of WiTricity) Wireless Charging: Driving EV Adoption and the Autonomous Future | |
| 09:45-11:15 Kelvin Lecture Theatre WPTC session 1 Systems for Power and Data Transfer | 09:45-11:15 Turing Lecture Theatre WoW session 1 Systems for Power and Data Transfer |
| 11:15-11:40 Maxwell Library & Siemens Board Room Coffee Break | |
| 11:40-12:25 Kelvin Lecture Theatre Plenary talk 2 - Alexander Gerfer (CEO/CTO of Würth Elektronik) Market & Future of Global Wireless Power Transfer Industry | |
| 12:25-13:45 Lunch | |
| 13:45-14:10 Kelvin Lecture Theatre Joint invited talk 1 - Paul Wiener (GaN Systems, Canada) Moving to a World without Wires | |
| 14:15-15:30 Kelvin Lecture Theatre WPTC session 2 Novel Rectifier Solutions | 14:15-15:30 Turing Lecture Theatre WoW session 2 System Characterisation |
| 15:30-17:00 Maxwell Library & Siemens Board Room Poster session & Coffee | |

PROGRAM: WIRELESS POWER WEEK 2019

Wednesday

| | |
|---|--|
| 08:00-08:25 Flowers Room Registration & Coffee | |
| 08:25-09:55 Kelvin Lecture Theatre WPTC session 3 Wearable and Biomedical Systems | 08:25-09:55 Turing Lecture Theatre WoW session 3 Wearable and Biomedical Systems |
| 10:00-10:45 Kelvin Lecture Theatre Plenary talk 3 - Mirko de Melis (Lead Scientist EMEA - Medtronic) Advances in Wireless Power Transfer Technology & Implanted Medical Devices | |
| 10:45-11:15 Maxwell Library & Siemens Board Room Coffee Break | |
| 11:15-12:30 Kelvin Lecture Theatre WPTC session 4 Microwave Power Converters | 11:15-12:30 Turing Lecture Theatre WoW session 4 Auxiliary Systems and Emissions |
| 12:30-13:45 Lunch | |
| 13:45-15:25 Kelvin Lecture Theatre Invited talk – Hooman Kazemi (Raytheon, USA) Millimeter Wave Wireless Power Transmission- Technologies and Applications WPTC session 5 Unconventional WPT Links | 13:45-15:25 Turing Lecture Theatre Invited talk – Jürgen Meins (University of Braunschweig, Germany) Solution for simplified wireless Inductive Power Transfer WoW session 5 Industrial Design and Applications |
| 13:25-15:50 Maxwell Library & Siemens Board Room Coffee Break | |
| 15:50-17:00 Kelvin Lecture Theatre Panel session The future of WBG devices in power processing and wireless power | |

PROGRAM: WIRELESS POWER WEEK 2019

Thursday

| | |
|--|--|
| 08:00-08:25 Flowers Room Registration & Coffee | |
| 08:25-09:55 Kelvin Lecture Theatre WPTC session 6 Antenna Systems for WPT | 08:25-09:55 Turing Lecture Theatre WoW session 6 Dynamic IPT |
| 09:55-10:25 Maxwell Library & Siemens Board Room Coffee Break | |
| 10:25-11:55 Kelvin Lecture Theatre WPTC session 7 Capacitive and Inductive WPT | 10:25-11:55 Turing Lecture Theatre WoW session 7 High Frequency WPT |
| 11:55-13:20 Lunch | |
| 13:20-15:00 Kelvin Lecture Theatre Invited talk – Zoya Popovic (University of Colorado, USA) WPT: from $\mu\text{W}/\text{cm}^2$ harvesting to kW capacitive powering WPTC session 8 Novel Transmitting Architectures | 13:20-15:00 Turing Lecture Theatre Invited talk – Burak Ozpineci (Oak Ridge National Laboratory, USA) Progress Towards Extreme Fast Wireless Static and Dynamic Charging WoW session 8 Converter Design & Control |
| 15:00-17:00 Maxwell Library & Siemens Board Room Poster session 2 & Coffee | |
| 18:00-22:00 Banquet “Tesla’s Lost London Laboratory” | |

PROGRAM: WIRELESS POWER WEEK 2019

Friday

| |
|--|
| 08:00-08:25 Flowers Room Registration & Coffee |
| 08:25-09:45 Kelvin Lecture Theatre WPTC & WoW joint session I High Power and Ultrasonic WPT |
| 09:45-10:30 Kelvin Lecture Theatre Plenary talk 4 - Irina Khromova (Head of Science and Technology - Metaboards Ltd) Large-area wireless charging enabled by metamaterials |
| 10:30-11:00 Maxwell Library & Siemens Board Room Coffee Break |
| 11:00-12:10 Kelvin Lecture Theatre WPTC & WoW joint invited talk 2 – Dinesh Kithany (HIS Markit, United Kingdom) Wireless power market set to evolve beyond mobile phones – Market overview WPTC & WoW joint session 2 Moving WPT Systems |
| 12:10-12:45 Kelvin Lecture Theatre WPW2020 announcement & Closing ceremony |

PROGRAM: WIRELESS POWER WEEK 2019

Tuesday 18 June

Registration and Opening

- 08:00 Registration & Coffee
- 08:25 Welcome Talk
Paul Mitcheson, Hubregt Visser

Plenary Talk I

Kelvin Lecture Theatre
Chairs: Bart Smolders, Grant Covic

- 08:55 [Wireless Charging: Driving EV Adoption and the Autonomous Future](#)
Alex Gruzen
WiTricity, United States of America

09:40 [Transit](#)

WPTC Session I – Systems for Power and Data Transfer

Kelvin Lecture Theatre
Chairs: Bruno Clerckx, Luca Roselli

- 09:45 [Experimental Analysis of Harvested Energy and Throughput Trade-Off in a Realistic SWIPT System](#)
Junghoon Kim¹, Bruno Clerckx¹, Paul D. Mitcheson¹
¹Imperial College London, United Kingdom
- 10:00 [Experimental Characterization of Narrowband Power Optimized Waveforms](#)
Takashi Ikeuchi¹, Yoshihiro Kawahara¹, Joshua R. Smith²
¹University of Tokyo, Japan, ²University of Washington, United States of America
- 10:15 [Power Allocation Method Using Pilot Signal for Simultaneous Transmission of Power and Information](#)
Nam-I Kim¹, Dae geun Yang¹, Ju Yong Lee¹, Dong-Ho Cho¹
¹KAIST, South Korea
- 10:30 [A New Wireless Power and Data Transmission Circuit for Cochlear Implants](#)
Iman Abdali Mashhadi¹, Behzad Poorali¹, Majid Pahlevani¹
¹University of Calgary, Canada
- 10:45 [Receiving ASK-OFDM in Low Power SWIPT Nodes without Local Oscillators](#)
Steven Claessens¹, Ya Ting Chang¹, Dominique Schreurs¹, Sofie Pollin¹
¹University of Leuven, Belgium
- 11:00 [A Wideband Efficient Rectifier Design for SWIPT](#)
Ya Ting Chang¹, Steven Claessens¹, Sofie Pollin¹, Dominique Schreurs¹
¹University of Leuven, Belgium

WoW Session I – Magnetic Designs

Turing Lecture Theatre

PROGRAM: WIRELESS POWER WEEK 2019

Chairs: Jürgen Meins, Christopher Kwan

- 09:45 [Optimising Ferrite-Less Pad Reflection Winding with a Multi-Objective Genetic Algorithm](#)
Matthew G.S. Pearce¹, Michael J. O'Sullivan¹, Claudio Carretero², Grant A. Covic¹, John T. Boys¹
¹University of Auckland, New Zealand, ²University of Zaragoza, Spain
- 10:00 [Evaluation of Soft Magnetic Composites for Inductive Wireless Power Transfer](#)
Daniel Barth¹, Giuseppe Cortese², Thomas Leibfried¹
¹Karlsruhe Institute of Technology, Germany, ²Daimler AG, Germany
- 10:15 [Avoiding Null Power Point in DD coils](#)
Manuele Bertoluzzo¹, Giuseppe Buja¹, Hemant Dashora¹
¹University of Padova, Italy
- 10:30 [A Dead-Angle-Free Omnidirectional Wireless Power Transfer](#)
Bowen Zhang¹, Zhen Zhang¹, Hongliang Pang¹, Cong Xie¹, Xingyu Li¹, Lin Yang¹
¹Tianjin University, China
- 10:45 [Misalignment Influence on Resonance Shielding in Wireless Power Transfer for Electric Vehicles](#)
Myrel Alsayegh¹, Markus Clemens¹, Benedikt Schmuelling¹
¹University of Wuppertal, Germany
- 11:00 [Reduction of the Shielding Effect on the Coupling Factor of an EV WPT System](#)
Karim Kadem¹, Yann Le Bihan¹, Mohamed Bensetti¹, Éric Laboure¹, Antoine Diet¹, Mustapha Debbou²
¹Sorbonne Université, France, ²Vedecom, France

Coffee Break

11:15 Coffee Break

Plenary Talk 2

Kelvin Lecture Theatre

Chairs: Alessandra Costanzo, David Yates

- 11:40 [Market & Future of Global Wireless Power Transfer Industry](#)
Alexander Gerfer
Würth Elektronik, Germany

Lunch

12:25 Lunch

Joint Invited Talk I

Kelvin Lecture Theatre

Chairs: Ron Hui, Nuno Carvalho

- 13:45 [Moving to a World without Wires](#)
Paul Wiener
GaN Systems, United States of America

14:10 [Transit](#)

PROGRAM: WIRELESS POWER WEEK 2019

WPTC Session 2 – Novel Rectifier Solutions

Kelvin Lecture Theatre

Chairs: Nuno Carvalho, Pedram Mousawi

- 14:15 [Input Impedance Calculation of a Multi-Stage Rectifier Circuit](#)
Hubregt Visser¹, Hans Pflug², Shady Keyrouz³
¹imec, Netherlands, ²GTX Medical, Netherlands, ³Antenna Company, Netherlands
- 14:30 [GaN Schottky Barrier Diode for Sub-Terahertz Rectenna](#)
Sei Mizojiri¹, Kengo Takagi¹, Kohei Shimamura¹, Shigeru Yokota¹, Masafunari Fukunari², Yoshinori Tatematsu², Teruo Saito²
¹University of Tsukuba, Japan, ²University of Fukui, Japan
- 14:45 [Design of High Voltage Output for CMOS Voltage Rectifier for Energy Harvesting Design](#)
Jefferson A. Hora¹, Eryk Dutkiewicz¹, Xi Zhu¹
¹University of Technology Sydney, Australia
- 15:00 [Wide Dynamic Range Rectifier Circuit with Varactor Tuning Technique](#)
Ayako Suzuki¹, Koshi Hamano¹, Hayato Shimizu¹, Hiroshi Okazaki², Yasunori Suzuki², Kunihiro Kawai², Atushi Fukuda², Kenjiro Nishikawa¹
¹Kagoshima University, Japan, ²NTT Docomo, Inc., Japan
- 15:15 [2.4 GHz CMOS Design RF-to-DC Energy harvesting with Charge Control System for WSN Application](#)
Jefferson A. Hora¹, Eryk Dutkiewicz¹, Xi Zhu¹
¹University of Technology Sydney, Australia

WoW Session 2 – System Characterisation

Turing Lecture Theatre

Chairs: Ron Hui, Patrick Hu

- 14:15 [Optimal Excitation of Multi-transmitter Wireless Power Transfer System without Receiver Sensors](#)
Prasad Jayathurathnage¹, Fu Liu¹
¹Aalto University, Finland
- 14:30 [Loss Shifted Design of Transcutaneous Energy Transfer Systems](#)
Alexander Enssle¹, Lukas Elbracht¹, Nejila Parspour¹, Marco Zimmer¹, Joerg Heinrich¹
¹University of Stuttgart, Germany
- 14:45 [Measuring the Q-factor of IPT Magnetic Couplers](#)
Gaurav R. Kalra¹, Matthew G. S. Pearce¹, Seho Kim¹, Duleepa J. Thrimawithana¹, Grant A. Covic¹
¹University of Auckland, New Zealand
- 15:00 [Impedance Measurement on Inductive Power Transfer Systems](#)
Marius Hassler¹, Oguz Atasoy², Morris Kesler², Karl Twelker², Tobias Achatz³, Markus Jetz³, Josef Krammer¹
¹BMW Group, Germany, ²WiTricity Corporation, United States of America, ³Zollner Elektronik AG, Germany
- 15:15 [A Reflected Impedance Estimation Technique for Inductive Power Transfer](#)
Lingxin Lan¹, Juan M. Arteaga¹, David C. Yates¹, Paul D. Mitcheson¹
¹Imperial College London, United Kingdom

PROGRAM: WIRELESS POWER WEEK 2019

Poster Session I and Coffee Break

15:30 – 17:00 Poster Session I – WPTC

Chair: Diego Masotti

WPTC-PI- Near-Field Links

Maxwell Library

- WPP1 [Design of Coil Turn Ratios to Achieve Extensive Load Range and High Efficiency in Wireless Power Transfer System](#)
Heng-Ming Hsu¹, Yu-Fu Liu¹, Jian-Kai Liao¹, Pang Yu Liu¹
¹National Chung Hsing University, Taiwan
- WPP2 [Using Metallic Coil to Optimize the Heating Efficiency for Tumor Hyperthermia](#)
Guoxiong Chen¹, Chenxi Wang¹, Yuhua Cheng¹, Gaofeng Wang¹
¹Hangzhou Dianzi University, China
- WPP3 [Virtual Impedance Control for Efficient Power Transfer in Electromagnetic Levitation Melting System](#)
Moria Elkayam¹, Yotam Frechter¹, Idan Sassonker¹, Alon Kuperman¹
¹Ben-Gurion University of the Negev, Israel
- WPP4 [High Q-factor Coil with Transistorized Negative Impedance Converter for Mobile Applications](#)
Tae-Hyung Kim¹, Gi-Ho Yun², Jong-Gwan Yook¹
¹Yonsei University, South Korea, ²Sungkyul University, South Korea
- WPP5 [Global Optimization Design of Inductively Coupled Power Transfer System Parameter](#)
Qiang Bo^{1,2}, Lifang Wang^{1,3}, Tao Chengxuan¹
¹Institute of Electrical Engineering Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China, ³Beijing Co-Innovation Center for Electric Vehicles, China
- WPP6 [Modeling of Magnetic Coupled Coil for Wireless Power Transfer in Conductive Medium](#)
Jongwook Kim¹, Haerim Kim¹, Dongwook Kim¹, Yujun Shin¹, Chanjun Park¹, Seungyoung Ahn¹
¹KAIST, South Korea
- WPP7 [A Design Procedure for CPT System with LCL Resonant Network](#)
Hongfei Xia¹, Huanhuan Wu¹, Yuhua Cheng¹, Gaofeng Wang¹
¹Hangzhou Dianzi University, China
- WPP8 [85-kHz band 450-W Inductive Power Transfer for Unmanned Aerial Vehicle Wireless Charging Port](#)
Shuichi Obayashi¹, Yasuhiro Kanekiyo¹, Kouju Nishizawa², Hiroaki Kusada²
¹Toshiba Corporation, Japan, ²Tepco Research Institute, Japan
- WPP9 [Design of Free-Positioning Wireless Power Transfer using A Half-Rectangular Prism Transmitting Coil](#)
Nam Ha-Van¹, Hoang Le-Huu¹, Chulhun Seo¹
¹Soongsil University, South Korea
- WPP10 [Wireless Power Transfer System Using Sub-Wavelength Toroidal Magnetic Metamaterials](#)
Yuqian Wang¹, Xu Chen¹, Yewen Zhang¹, Kai Fang¹, Yong Sun¹, Yunhui Li¹, Hong Chen¹
¹Tongji University, China

PROGRAM: WIRELESS POWER WEEK 2019

- WPP11 [Design of Magnetic Shielding Structure for Wireless Charging Coupler](#)
Heqi Xu¹, Houji Li¹, Chunfang Wang¹
¹Qingdao University, China
- WPP12 [Study on Series Printed-Circuit-Board Coil Matrix for Misalignment-Insensitive Wireless Charging](#)
Jianchao Li¹, Liming Wang¹, Fanghui Yin¹
¹Tsinghua University, China
- WPP13 [An Efficiency Optimization Strategy in a Wireless Power Transfer Device Under Seawater](#)
Wei Gao¹, Jingjing Jiang², Jianxin Gao¹, Da Li¹
¹Naval University of Engineering, China, ²Central Hospital in Wuhan, China
- WPP14 [Optimal Coil Design for Wireless powering of Biomedical Implants Considering Safety Constraints](#)
Erik Andersen¹, Binh Duc Truong¹, Shad Roundy¹
¹University of Utah, United States of America
- WPP15 [Wireless Power Transfer System whose Input / Output Ratio is Determined Only by Self-Inductance](#)
Kenji Nara¹, Naofumi Madoiwa², Yasuyoshi Kaneko¹
¹Saitama University, Japan, ²Tokyo Institute of Technology, Japan
- WPP16 [Alternative Configuration of Open-Bifilar Coil for Self-Resonant Wireless Power Transfer System](#)
Caio M. de Miranda¹, Sérgio F. Pichorim¹
¹Federal University of Technology, Brazil
- WPP17 [AC Loss Behavior of Wireless Power Transfer Coils](#)
Christoph Utschick¹, Christian Merz¹, Cem Som¹
¹Würth Elektronik eiSos GmbH & Co. KG, Germany
- WPP18 [Investigation of Magnetic Field Shielding by Mesh Aluminum Sheet in Wireless Power Transfer System](#)
Cancan Rong¹, Xiong Tao¹, Conghui Lu¹, Minghai Liu¹
¹Huazhong University of Science and Technology, China
- WPP19 [Efficiency Factor Calculation for Contactless Energy Transfer Systems](#)
Jörg Heinrich¹, Philipp Prägl¹, Nejila Parspour¹, David Maier¹
¹University of Stuttgart, Germany
- WPP20 [Current Distribution Analysis for Automatic Resonator Design in Wireless Power Transfer](#)
Yoshiaki Narusue¹, Misaki Fujishiro¹, Yoshihiro Kawahara¹, Hiroyuki Morikawa¹
¹University of Tokyo, Japan
- WPP21 [Research on Dynamic Wireless Charging of Electric Vehicle Based on Double LCC Compensation Mode](#)
Xian Zhang¹, Jie Wang¹, Ming Xue¹, Yang Li¹, Qingxin Yang¹
¹Tianjin Polytechnic University, China
- WPP22 [Research on Shield Structure of Inductively Coupled Power Transfer System](#)
Houji Li¹, Heqi Xu¹, Chunfang Wang¹
¹Qingdao University, China

PROGRAM: WIRELESS POWER WEEK 2019

- WPP23 [Maximum Efficiency Point Tracking in Inductive Links: Series versus Parallel Receiver's Compensation](#)
Pablo Pérez-Nicoli¹, Fernando Silveira¹
¹Universidad de la República, Uruguay
- WPP24 [Omni-directional Inductive Wireless Power Transfer with 3D MID inductors](#)
Kamotesov Sergei¹, Philippe Lombard², Vincent Semet², Bruno Allard², Maël Moguedet¹, Michel Cabrera²
¹Smart Plastic Products (S2P), France, ²Université de Lyon, France
- WPP25 [Maximising Inductive Power Transmission using a Novel Analytical Coil Design Approach](#)
Maryam Heidarian¹, Samuel J. Burgess¹, Radhakrishna Prabhu¹, Nazila Fough¹
¹Robert Gordon University, United Kingdom
- WPP26 [Novel Calculation Model for Bunched Litz Wires](#)
Christian Roth¹, Dieter Gerling¹
¹Universitaet der Bundeswehr Muenchen, Germany
- WPP27 [Efficiency Improvement for Three-coil Cooperative Inductive Power Transfer Systems](#)
Quoc-Trinh Vo¹, Quang-Thang Duong¹, Minoru Okada¹
¹Nara Institute of Science and Technology, Japan
- WPP28 [Multiple-Receiver Wireless Power Transfer System Using a Cubic Transmitter](#)
Hoang Le-Huu¹, Nam Ha-Van¹, Chulhun Seo¹
¹Soongsil University, South Korea
- WPP29 [Capacitively Coupled Resonators for Misalignment-Tolerant Wireless Charging through Metallic Cases](#)
Fabiano Cezar Domingos¹, Susanna Vital de Campos de Freitas¹, Rashid Mirzavand I, Pedram Mousavi¹
¹University of Alberta, Canada
- WPP30 [Omnidirectional Power Transfer Through the Inductive and Capacitive Coupling Region of a Transmitter](#)
Yen Po Wang¹, Reo Kometani¹, Shin'ichi Warisawa¹
¹University of Tokyo, Japan
- WPP31 [Parallel Resonant Inductive Wireless Power Transfer](#)
Hans W. Pflug^{1,2}, Steven Beumer², Koen Weijand, Tina Bartulović Čulibrk¹, Jeroen Tol¹, Hubregt J. Visser^{2,3}
¹GTX Medical BV, The Netherlands, ²Eindhoven University of Technology, The Netherlands, ³imec / Holst Centre, The Netherlands
- [WPTC-P2 -Materials](#)
Siemens Board Room
- WPP32 [A Novel Dual Band Defected Ground Structure for Short Range Wireless Power Transfer Applications](#)
Shalin Verma¹, Dinesh Rano¹, Mohammad Hashmi^{1,2}
¹IIT Delhi, India, ²Nazarbajev University, Kazakhstan
- WPP33 [Wireless Power Transfer through Low-e Glass](#)
Shengming Shan¹, Vincent Hsiao¹, Ruey-Bing Hwang²
¹SWR Technology Inc., United States of America, ²National Chiao Tung University, Taiwan

PROGRAM: WIRELESS POWER WEEK 2019

- WPP34 [Designment of Wireless Power Transmitting System with Magnetic Megahertz Metamaterials](#)
Guo Li¹, Lifang Lang¹, Jie Ren¹, Kai Fang¹, Yong Sun¹, Yewen Zhang¹, Yunhui Li¹, Hong Chen¹
¹Tongji University, China
- WPP35 [An Efficient Metamaterial Based Design of Wireless Power Transfer System](#)
Pratim Dasmahapatra¹, Tarakeswar Shaw¹, Soumyadeep Kal¹, Debasis Mitra¹
¹Indian Institute of Engineering Science and Technology, India
- WPP36 [Qi Compliant Wireless Charger with PCB Integrated Magnetic Material](#)
Gerald Weis¹, Ivan Salkovic¹, Gerald Weidinger¹, Mario Schober¹, Johannes Stahr¹, Ronald Sekavcnik¹
¹AT & S Austria Technologie & Systemtechnik Aktiengesellschaft, Austria
- [WPTC-P3 -Data and Energy Transmission](#)
Siemens Board Room
- WPP37 [Multiple FSK Data and Power Transmission System using Magnetic Resonance Wireless Power Transfer](#)
Masaki Ishii¹, Kosuke Yamanaka¹, Masahiro Sasaki¹
¹Shibaura Institute of Technology, Japan
- WPP38 [A Novel Simultaneous Wireless Information and Power Transfer System](#)
Xin Liu¹, Xijun Yang¹, Dianguang Ma¹, Nan Jin², Xiaoyang Lai¹, Houjun Tang¹
¹Shanghai Jia Tong University, China, ²Zhengzhou University of Light Industry, China
- WPP39 [125 kHz Wireless Energy and 25 kbps Data Transfer for Wearable Device](#)
Diyang Gao¹, Rongpeng Zhai¹, Peter Baltus¹, Huib Visser¹, Hao Gao¹
¹Eindhoven University of Technology, The Netherlands
- WPP40 [Data Communication over a Novel Capacitive Resonant Wireless Power Transmission System](#)
Semion Belau¹, Susanna Vital de Campos de Freitas¹, Fabiano Cezar Domingos¹, Rashid Mirzavand¹, Pedram Mousavi¹
¹University of Alberta, Canada
- WPP41 [Impact of 5G Waveforms on Energy Harvesting Rectifier Performance](#)
Oludotun Olukoya¹, Boris Malcic², Djuradj Budimir¹, Djuradj Budimir³
¹Westminster University, United Kingdom, ²University of Banja Luka, Bosnia and Herzegovina, ³University of Belgrade, Serbia
- WPP42 [Mixed-Time Scale Based Adaptive Mode Switching for Dual Mode SWIPT](#)
Jong Jin Park¹, Jong Ho Moon¹, Kang-Yoon Lee¹, Dong In Kim¹
¹Sungkyunkwan University, Korea

PROGRAM: WIRELESS POWER WEEK 2019

15:15 – 17:00 Poster Session I – WoW

Chair: Christopher Kwan

WoW-P1 - Optimisation/Economics

Maxwell Library

WoP1 [Parameter Optimization of Modern Tram Wireless Power Transfer Power Supply System](#)

Geng Yuyu¹, Wang Yi¹, Yang Zhongping¹, Lin Fei¹

¹Beijing Jiaotong University, China

WoP2 [Inductive Power Transfer Charging Infrastructure for Electric Vehicles: A New Zealand Case Study](#)

Mingyue (Selena) Sheng¹, Ajith Viswanath Sreenivasan¹, Grant A. Covic¹, Douglas Wilson¹, Basil Sharp¹

¹University of Auckland, New Zealand

WoP3 [Data-Driven Design and Assessment of Dynamic Wireless Charging Systems](#)

Diala Haddad¹, Theodora Konstantinou¹, Akhil Prasad¹, Zhanxiang Hua¹, Dionysios Aliprantis¹, Konstantina Gkritza¹, Steven Pekarek¹

¹Purdue University, United States of America

WoW-P2 - Magnetic Design

Maxwell Library

WoP4 [Investigation of the Influence of Split Ferrite Tiles in an Inductive Charging System with FEM-Simulation](#)

Timo Lämmle¹, Nejila Parspour², Christian Fuchs²

¹MAHLE International GmbH, Germany, ²University of Stuttgart, Germany

WoP5 [Statistical Model of Foreign Object Detection for Wireless EV Charger](#)

Kaiwen Gan¹, Huan Zhang¹, Chen Yao¹, Xiaoyang Lai¹, Nan Jin², Houjun Tang¹

¹Shanghai Jiao Tong University, China, ²Zhengzhou University of Light Industry, China

WoW-P3 – System Characterisation

Maxwell Library

WoP6 [Analysis of Bifurcation in Series-Series and Series-Parallel Compensated Inductive Power Transfer](#)

Michal Košík¹, Jiří Lettl¹

¹Czech Technical University in Prague, Czech Republic

WoP7 [Quadrature Demodulator based Output Voltage and Load Estimation of a Resonant Inductive WPT Link](#)

O. Trachtenberg¹, A. Shoihet¹, E. Beer¹, E. Fux², N. Tiktin², S. Kolesnik², A. Kuperman²

¹Nuclear Research Center of the Negev, Israel, ²Ben-Gurion University of the Negev, Israel

WoP8 [Maximum Efficiency Control of a Wireless EV Charger with On-Line Parameter Calculation](#)

Ali Zakerian¹, Sadegh Vaez-Zadeh¹, Amir Babaki¹

¹University of Tehran, Iran

PROGRAM: WIRELESS POWER WEEK 2019

- WoP9 [Power Transfer Profile Boosting in DWC Systems by Two-Element Compensation Network](#)

Manuele Bertoluzzo¹, Rupesh Jha², Giuseppe Buja¹

¹University of Padova, Italy, ²Zeal College of Engineering and Research, India

- WoPI0 [Analysis of Electromagnetic Force on Metal Objects in Vertical Direction of Wireless Power Transfer](#)

Xian Zhang¹, Xuejing Ni¹, Qingxin Yang¹, Bin Wei², Songcen Wang²

¹Tianjin Polytechnic University, China, ²China Electric Power Research Institute, China

- WoPI1 [Wireless Power At-A-Distance Technology – A Strategy for Nurturing Ecosystem Development](#)

Philip Swan¹

¹Ossia Inc, United States of America

[WoW-P4 – Industrial Design and Applications](#)

Siemens Boardroom

- WoPI2 [MPPT Control for PV based Wireless Power Transfer System in Lunar Rover by Secondary Side Converter](#)

Bingcheng Ji¹, Katsuhiro Hata¹, Takehiro Imura¹, Yoichi Hori¹, Shuhei Shimada², Osamu Kawasaki²

¹University of Tokyo, Japan, ²Japan Aerospace Exploration Agency, Japan

- WoPI3 [Strategy for Design of Misalignment Tolerant Inductive Powering System for Medical Implants](#)

Arseny Danilov¹, Eduard Mindubaev¹, Rafael Aubakirov¹, Konstantin Gurov¹, Oleg Surkov¹, Sergey Selishchev¹

¹JSC ZITC, Russia

- WoPI4 [A Wide-Range IPT System for Body Worn Sensors](#)

Stephen G. Burrow¹, Lindsay R. Clare¹

¹University of Bristol, United Kingdom

- WoPI5 [Approaching the Power Limit of an Electrodynamic WPTS with Nearly Coupling-Independent Operation](#)

Binh Duc Truong¹, Shad Roundy¹

¹University of Utah, United States of America

- WoPI6 [Wireless Motor Drives with a Single Inverter in Primary Side of Power Transfer Systems](#)

Amir Babaki¹, Sadegh Vaez-Zadeh¹, Mohammad Jahanpour-Dehkordi¹, Ali Zakerian¹

¹University of Tehran, Iran

- WoPI7 [Design of a 30 kW-85 kHz Wireless Power Transfer System for Charging Electric Vehicles](#)

Leyla Arioua¹, Hadi Alawieh¹, Salim Guerroudj¹

¹VEDECOM institute, France

PROGRAM: WIRELESS POWER WEEK 2019

Wednesday 19 June

Registration

08:00 Registration & Coffee

WPTC Session 3 – Wearable and Biomedical Systems

Kelvin Lecture Theatre

Chairs: Alessandra Costanzo, Alexandru Takacs

- 08:25 [An Octave Bandwidth RF Harvesting Tee-Shirt](#)
José Antonio Estrada¹, Eric Kwiatkowski¹, Ana López-Yela², Mónica Borgoños-García²,
Daniel Segovia-Vargas², Taylor Barton, and Zoya Popović¹
¹University of Colorado, United States of America, ²Universidad Carlos III de Madrid, Spain
- 08:40 [A Wearable Passive Microwave Fluid Sensor Wirelessly Activated](#)
Francesca Benassi¹, Nicola Zincarelli¹, Diego Masotti¹, Alessandra Costanzo¹
¹University of Bologna, Italy
- 08:55 [Wireless Power Receiver with Wide Dynamic Range for Biomedical Implants](#)
Hankyu Lee¹, Seungchul Jung¹, Yeunhee Huh¹, Sang Joon Kim¹
¹Samsung Advanced Institute of Technology, South Korea
- 09:10 [Millimeter-Wave Textile Antenna for On-Body RF Energy Harvesting in Future 5G Networks](#)
Mahmoud Wagih¹, Alex S. Weddell¹, Steve Beeby¹
¹University of Southampton, United Kingdom
- 09:25 [Energy Harvesting of a NFC Flexible Patch for Medical Applications](#)
Madjda Bouklachi¹, Marc Biancheri-Astier¹, Antoine Diet¹, Yann Le Bihan¹
¹Sorbonne Université, France
- 09:40 [Feasibility Study of a Wireless Power Transfer System Applied to a Left Ventricular Assist Device](#)
T. Campi¹, S. Cruciani¹, F. Orlando¹, F. Maradei², M. Feliziani¹
¹University of L'Aquila, Italy

WoW Session 3 – Multicoil Design

Turing Lecture Theatre

Chairs: David Yates, Jackman Lin

- 08:25 [Investigation of a DD2Q Pad Structure for High Power Inductive Power Transfer](#)
Benny J. Varghese¹, Abhilash Kamineni¹, Regan A. Zane¹
¹Utah State University, United States of America
- 08:40 [Analysis of Intermediate Resonant Couplers for High Displacement Inductive Power Transfer](#)
Ahmad Bilal¹, Grant Covic¹, John Boys¹, Seho Kim¹
¹University of Auckland, New Zealand

PROGRAM: WIRELESS POWER WEEK 2019

- 08:55 [Magnetic Design of a Q-Coil for a 10 kW DDQ System for Inductive Power Transfer](#)
Denis Kraus¹, Hans-Georg Herzog¹
¹Technical University of Munich, Germany
- 09:10 [Reduced Switch Operation of the Tripolar for Interoperability in Inductive Power Transfer](#)
Kaiquan Sun¹, Grant A. Covic¹, Duleepa Thrimawithana¹, Seho Kim¹
¹University of Auckland, New Zealand
- 09:25 [A Three-Phase Inductive Power Transfer Coil with SAE J2954 WPT3 Magnetic Interoperability](#)
Thorsten Kurpat¹, Lutz Eckstein¹
¹RWTH Aachen University, Germany
- 09:40 [Power Transferability Analysis of I-SS-Buck Dynamic Wireless Charging System](#)
Shuangcheng Song¹, Zhihao He¹, Chao Cui¹, Qianfan Zhang¹
¹Harbin Institute of Technology, China
- 09:55 [Transit](#)

Plenary Talk 3

Kelvin Lecture Theatre

Chairs: Grant Covic, Alessandra Costanzo

- 10:00 [Advances in Wireless Power Transfer Technology & Implanted Medical Devices](#)
Mirko de Melis
Medtronic, United States of America

Coffee Break

- 10:45 Coffee Break

WPTC Session 4 – Microwave Power Converters

Kelvin Lecture Theatre

Chairs: Djuradj Budimir, Kenjiro Nishikawa

- 11:15 [Time Trajectory Rectifier Impedance Analysis](#)
Hans W. Pflug¹, Hubregt J. Visser²
¹GTX Medical BV, The Netherlands, ²imec / Holst Centre, The Netherlands
- 11:30 [Investigation of a GaN-Based Bidirectional Wireless Power Converter Using Resonant Inductive Coupling](#)
Haimeng Wu¹, Xiang Wang¹, Bowen Gu¹, Volker Pickert¹
¹Newcastle University, United Kingdom
- 11:45 [Comparisons of MOSFET and Relay Switches in Impedance Matching Networks for Wireless Power Transfer](#)
Cristina A. Alexandru¹, Dibin Zhu¹
¹University of Exeter, United Kingdom
- 12:00 [A Comparison of Tunnel Diode and Schottky Diode in Rectifier at 2.4 GHz for Low Input Power Region](#)
Veselin Manev¹, Huib Visser¹, Peter Baltus¹, Hao Gao¹
¹Eindhoven University of Technology, The Netherlands

PROGRAM: WIRELESS POWER WEEK 2019

- 12:15 [High Sensitive 2.4 GHz Band Rectenna with Direct Matching Topology](#)
Shunya Tsuchimoto¹, Kenji Itoh¹, Keisuke Noguchi¹, Jiro Ida¹
¹Kanazawa Institute of Technology, Japan

WoW Session 4 – Auxiliary Systems and Emissions

Turing Lecture Theatre

Chairs: Ahn Seungyoung, Jae Lee

- 11:15 [Effect of Fields Generated Through Wireless Power Transfer on Implantable Biomedical Devices](#)
Nunzio Pucci¹, Paul D. Mitcheson¹, Christopher H. Kwan¹, David C. Yates¹
¹Imperial College London, United Kingdom
- 11:30 [Conducted Emission in an 85 kHz, 50 kW WPT System with Opposite-Phase Transfer and Spread Spectrum](#)
Masatoshi Suzuki¹, Kenichirou Ogawa¹, Tetsu Shijo¹, Yasuhiro Kanekiyo¹, Kazuhiro Inoue¹, Koji Ogura¹, Shuichi Obayashi¹, Masaaki Ishida¹
¹Toshiba Corporation, Japan
- 11:45 [Omnidirectional Vehicle Sensing for Wireless Power Transfer Applications](#)
Charles A. Robinson¹, Hao Lu¹, C. W. Van Neste¹
¹Tennessee Technological University, United States of America
- 12:00 [Wireless Charging in Electric Vehicles: EMI/EMC Risk Mitigation in Pacemakers by Active Coils](#)
S. Cruciani¹, T. Campi¹, F. Maradei², M. Feliziani¹
¹University of L'Aquila, Italy, ²Sapienza University of Rome, Italy
- 12:15 [Eigenvector Lookup Position Detection Method for Wireless Power Transfer of Electric Vehicles](#)
Shihui Xu¹, Huan Zhang¹, Chen Yao¹, Dianguang Ma¹, Nan Jin², Houjun Tang¹
¹Shanghai Jiao Tong University, China, ²Zhengzhou University of Light Industry, China

Lunch

- 12:30 Lunch

WPTC Session 5 – Unconventional WPT Links

Kelvin Lecture Theatre

Chairs: Naoki Shinohara, Ke Wu

- 13:45 **Invited Talk**
[Millimeter Wave Wireless Power Transmission-Technologies and Applications](#)
Hooman Kazemi
Raytheon, United States of America
- 14:10 [Harvesting for Scattering Modulated RF-Signals Receivable by Mobile Telephones](#)
Matthias Schütz¹
¹IDP Invent AG, Switzerland

PROGRAM: WIRELESS POWER WEEK 2019

- 14:25 [Study on Antennas for Wireless Power Transfer to In-Line Inspection Robots](#)
Isami Sato¹, Naoki Shinohara¹
¹Kyoto University, Japan
- 14:40 [A New Circularly Polarized Antenna Suppressing Surface Wave for Microwave Power Transmission](#)
Seishiro Kojima¹, Naoki Shinohara¹
¹Kyoto University, Japan
- 14:55 [An RF-Powered IoT Node for Environment Sensoring](#)
John Nicot¹, Ludivine Fadel¹, Thierry Taris¹
¹University of Bordeaux, France
- 15:10 [Compact Dual-Band Rectenna on a New Paper Substrate Based on Air-Filled Technology](#)
E. Vandelle¹, G. Ardila¹, S. Hemour², K. Wu³, T.P. Vuong¹
¹Université Grenoble Alpes, France, ²Université de Bordeaux, France, ³Polytechnique Montréal, Canada

WoW Session 5 – Industrial Design and Applications

Turing Lecture Theatre

Chairs: Richard McMahon, Abhilash Kamineni

- 13:45 **Invited Talk**
[Solution for simplified wireless Inductive Power Transfer](#)
Jürgen Meins
University of Braunschweig, Germany
- 14:10 [Thermal Characterisation of a Double-D Pad](#)
Seho Kim¹, Maedeh Amirpour¹, Grant Covic¹, Simon Bickerton¹
¹University of Auckland, New Zealand
- 14:25 [Design and Construction of a 100 W Wireless Charger for an E-Scooter at 6.78 MHz](#)
Christopher H. Kwan¹, Juan M. Arteaga¹, David C. Yates¹, Paul D. Mitcheson¹
¹Imperial College London, United Kingdom
- 14:40 [Contactless Energy Transfer for Inductive Electrically Excited Synchronous Machines](#)
David Maier¹, Nejila Paspour¹, Jonas Kurz¹
¹University of Stuttgart, Germany
- 14:55 [Performance of Inductive Power Transfer-based Pavements of Electrified Roads](#)
Ahmed Marghani¹, Douglas Wilson¹, Tam Larkin¹
¹University of Auckland, New Zealand
- 15:10 [Inductive Power Delivery with Acoustic Distribution to Wireless Sensors](#)
David E. Boyle¹, Steven W. Wright¹, Michail E. Kiziroglou¹, Akshayaa Pandiyan¹, Eric M. Yeatman¹
¹Imperial College London, United Kingdom

Coffee Break

- 15:25 Coffee Break

15:50 – 17:00 Panel Session – The future of WBG devices in power processing and wireless power

Kelvin Lecture Theatre

Chaired by: Compound Semiconductor Applications Catapult

PROGRAM: WIRELESS POWER WEEK 2019

Thursday 20 June

Registration

08:00 Registration & Coffee

WPTC Session 6 – Antenna and Systems for WPT

Kelvin Lecture Theatre

Chairs: Bart Smolders, Pedram Mousavi

- 08:25 [Energy Focusing Through Layout-Based Frequency-Diverse Arrays](#)
Diego Masotti¹, Mazen Shanawani¹, Alessandra Costanzo¹
¹University of Bologna, Italy
- 08:40 [Implementation of a High-Efficient and Simple CPW Rectenna at the 2.45 GHz ISM Radio Band](#)
Mohamed Mansour¹, Haruichi Kanaya¹
¹Kyushu University, Japan
- 08:55 [An Efficient RF Power Transfer Scheme using Location-based Phase-controlled Array Antenna](#)
Eui Bum Lee¹, Wonshil Kang¹, Hyunchul Ku¹
¹Konkuk University, South Korea
- 09:10 [Study on Multipath Retrodirective for Efficient and Safe Indoor Microwave Power Transmission](#)
Taichi Sasaki¹, Naoki Shinohara¹
¹Kyoto University, Japan
- 09:25 [Efficiency of Wireless Power transfer with a Multi-sine Source Optimized for the Propagation Channel](#)
Regis Rousseau¹, Guillaume Villemaud¹, Florin Hutu¹
¹University of Lyon, France
- 09:40 [Beaming Efficiency of I-D Frequency-Scanned Based Radiative WPT System for Wireless Sensor Networks](#)
Miguel Poveda-García¹, José Luis Gómez-Tornero¹
¹Technical University of Cartagena, Spain, ²University of Aveiro, Portugal

WoW Session 6 – Dynamic IPT

Turing Lecture Theatre

Chairs: Regan Zane, Seho Kim

- 08:25 [Charging Infrastructure Design for In-motion WPT Based on Sensorless Vehicle Detection System](#)
Katsuhiro Hata¹, Takehiro Imura¹, Hiroshi Fujimoto¹, Yoichi Hori¹, Daisuke Gunji²
¹University of Tokyo, Japan, ²NSK Ltd., Japan
- 08:40 [Push-pull driven Low-cost Coupler Array for Dynamic IPT systems](#)
Vahid Zahiri Barsari¹, Duleepa J Thrimawithana¹, Grant A. Covic¹
¹University of Auckland, New Zealand

PROGRAM: WIRELESS POWER WEEK 2019

- 08:88 [Sensorless Automatic Stop Control of Electric Vehicle in Semi-dynamic Wireless Charging System](#)
Jirawat Sithinamsuwan¹, Kensuke Hanajiri¹, Katsuhiro Hata¹, Takehiro Imura¹, Hiroshi Fujimoto¹, Yoichi Hori¹
¹University of Tokyo, Japan
- 09:10 [Comparison of Single and Three phase Dynamic Charging Systems for Electric Vehicles](#)
Van-Binh Vu¹, Mohamed Dahidah¹, Volker Pickert¹, Van-Tung Phan¹
¹Newcastle University, United Kingdom
- 09:25 [One-Sided Magnetic Field Halbach Pad for EV Wireless Charging](#)
Mei Su^{1,2}, Tao Ling^{1,2}, Qi Zhu^{1,2}, and Pengcheng Wang^{1,2}
¹Central South University, China, ²Human Provincial Key Laboratory of Power Electronics Equipment and Grid, China
- 09:40 [A Concept of Multiphase Dynamic Charging System with Constant Output Power for Electric Vehicles](#)
Van-Binh Vu¹, Mohamed Dahidah¹, Volker Pickert¹, Van-Tung Phan¹
¹Newcastle University, United Kingdom

Coffee Break

- 09:55 Coffee Break

WPTC Session 7 – Capacitive and Inductive WPT

Kelvin Lecture Theatre

Chairs: Pablo Pérez-Nicoli, Giuseppina Monti

- 10:25 [High Efficient Wireless Power Transfer System for AUV with Multiple Coils and Ferrite under Sea](#)
Ryosuke Hasaba¹, Katsuya Okamoto¹, Tatsuo Yagi¹, Souichi Kawata¹, Kazuhiro Eguchi¹, Yoshio Koyanagi¹
¹Panasonic Corporation, Japan
- 10:40 [Capacitive Resonant System to Charge Devices with Metallic Embodiments](#)
Susanna Vital de Campos de Freitas¹, Fabiano Cezar Domingos¹, Rashid Mirzavand¹, Pedram Mousavi¹
¹University of Alberta, Canada
- 10:55 [Optimizing the Power Output for a Capacitive Wireless Power Transfer System with N receivers](#)
Ben Minnaert¹, Franco Mastri², Alessandra Costanzo², Mauro Mongiardo³ and Nobby Stevens⁴
¹Odisee University College of Applied Sciences, Belgium, ²University of Bologna, Italy, ³University of Perugia, Italy, ⁴KU Leuven, Belgium
- 11:10 [Multifactorial Rig for Study of Inductive Powering Systems with Arbitrary Orientation of the Coils](#)
Arseny A. Danilov¹, Eduard A. Mindubaev¹, Konstantin O. Gurov¹
¹IJSC ZITC, Russia

PROGRAM: WIRELESS POWER WEEK 2019

- 11:25 [Determination of the Optimal Resonant Condition for Multi-receiver Wireless Power Transfer Systems](#)
Seung Beop Lee¹, Mingi Kim², In Gwun Jang²
¹Chonbuk National University, South Korea, ²KAIST, South Korea
- 11:40 [A Wireless Charging Coil in Printed Circuit Board with Partially Split Conductors for Low Resistance](#)
Yujun Shin¹, Jaehyoung Park¹, Haerim Kim¹, Bumjin Park¹, Jongwook Kim¹, Chanjun Park¹, Seungyoung Ahn¹
¹KAIST, South Korea

WoW Session 7 – High Frequency WPT

Turing Lecture Theatre

Chairs: Burak Ozpineci, Juan Arteaga

- 10:25 [Quarter Wavelength Surface Structures for Improved Operation in Unipolar Capacitive Power Transfer](#)
Donald Chaney¹, Charles A. Robinson¹, C. W. Van Neste¹
¹Tennessee Technological University, United States of America
- 10:40 [A Phase-controlled Stacked-transmitter Wireless Power Transfer System for Magnetic Field Beamforming](#)
Ning Kang¹, Ming Liu², Chengbin Ma¹
¹Shanghai Jiao Tong University, China, ²Princeton University, United States of America
- 10:55 [High Power Density Stacked-Coils Based Power Receiver for MHz Wireless Power Transfer](#)
Jibin Song¹, Ming Liu², Minfan Fu³, Chengbin Ma¹
¹Shanghai Jiao Tong University, China, ²Princeton University, United States of America, ³ShanghaiTech University, China
- 11:10 [Design of a Switchable Driving Coil for Magnetic Resonance Wireless Power Transfer](#)
Yelzhas Zhaksylyk¹, Ulrik Hanke¹, Mehdi Azadmehr¹
¹University of South-Eastern Norway, Norway
- 11:25 [E-Field Analysis of a 3D Capacitive Power Transfer Configuration with Single Source Excitation](#)
Qi Zhu^{1,2}, Lixiang Jackie Zou³, Mei Su^{1,2}, Aiguo Patrick Hu³
¹Central South University, China, ²Human Provincial Key laboratory of power Electronics Equipment and Grid, China, ³University of Auckland, New Zealand
- 11:40 [Compactly Assembled Transmitting and Receiving Modules with Shield for Capacitive Coupling Power Transfer System](#)
Aam Muharam^{1,3}, Mitsuru Masuda², Reiji Hattori¹, Abdul Hapid³
¹Kyushu University, Japan, ²Furukawa Electric Co., Japan, ³Indonesian Institute of Sciences, Indonesia

Lunch

- 11:55 Lunch

PROGRAM: WIRELESS POWER WEEK 2019

WPTC Session 8 – Novel Transmitter Architectures

Kelvin Lecture Theatre

Chairs: Bart Smolders, Simon Hemour

- 13:20 **Invited Talk**
[WPT: from \$\mu\text{W}/\text{cm}^2\$ harvesting to kW capacitive powering](#)
Zoya Popovic
University of Colorado, United States of America
- 13:45 [2.45-GHz Wireless Power Transmitter with Dual-Polarization-Switching Antenna for LED Accessories](#)
Kosuke Yoshida¹, Norifumi Kashiya¹, Miho Kanemoto¹, Shogo Umemoto¹, Hisashi Nishikawa¹, Ami Tanaka¹, Takakuni Douseki¹
¹Ritsumeikan University, Japan
- 14:00 [Thermal Performance of Class-FF Converter Used for Wireless Power Transfer in Retinal Implants](#)
Iman Abdali Mashhadi¹, Behzad Poorali¹, Majid Pahlevani¹
¹University of Calgary, Canada
- 14:15 [Development of an Automatic Bidirectional Wireless Charging System for Mobile Devices](#)
James Washak¹, Cristina Alexandru¹, Dibin Zhu¹
¹University of Exeter, United Kingdom
- 14:30 [Implementation of Constant Current Performance of 13.56MHz Wireless Power Transfer System](#)
Heng-Ming Hsu¹, Yan-Kai Huang¹, Tung-Lin Wu¹
¹National Chung Hsing University, Taiwan
- 14:45 [A Distributed, Phase-locked, Class-E, RF Generator with Automatic Zero-Voltage Switching](#)
Robert A. Moffatt¹, Trevor Howarth¹, Connor Gafner¹, Jeffrey J. Yen¹, Feng-Kai Chen¹, Josh Yu¹
¹Etherdyne Technologies Inc., United States of America

WoW Session 8 – Converter Design & Control

Turing Lecture Theatre

Chairs: Volker Pickert, Duleepa Thrimawithana

- 13:20 **Invited Talk**
[Progress Towards Extreme Fast Wireless Static and Dynamic Charging](#)
Burak Ozturk¹
Oak Ridge National Laboratory, United States of America
- 13:45 [500W 13.56MHz Class EF Push-pull Inverter for Advanced Dynamic Wireless Power Applications](#)
Samer Aldhafer¹, Paul D. Mitcheson¹
¹Imperial College London, United Kingdom
- 14:00 [Design Method for Resonant Inductive Power Transfer Systems Using a Resistor Ladder Prototype](#)
Aaron D. Scher¹, Bogdan Z. Savic¹, Kalena L. Ching¹, Irvin H. Nguyen¹, William Garibo¹, Mohamud Hussein¹
¹Oregon Institute of Technology, United States of America

PROGRAM: WIRELESS POWER WEEK 2019

- 14:15 [Misalignment Tolerant Control of an Inductive Charger for Electric Vehicles with V2G Possibilities](#)
Wiljan Vermeer¹, Soumya Bandyopadhyay¹, Pavol Bauer¹
¹Delft University of Technology, The Netherlands
- 14:30 [Design of the Primary Side LCC Compensation Network Based on ZVS for Wireless Power Transfer Systems](#)
Yuwang Zhang^{1,2}, Yanjie Guo^{1,3}, Lifang Wang^{1,3}
¹Key Laboratory of Power Electronics and Electric Drives Institute of Electrical Engineering Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China, ³Beijing Co-Innovation Center for Electric Vehicles
- 14:45 [A Wireless Power Transfer System with a Primary-Side Process Variable for Maximum Efficiency Control](#)
Aaron D. Scher¹
¹Oregon Institute of Technology, United States of America

Poster Session II and Coffee Break

15:00 – 17:00 Poster Session II – WPTC

Chair: Ben Minnaert

[WPTC-P4– WPT Architectures](#)

Maxwell Library

- WPP43 [Improving Conversion Loss Performance of Fully Passive Harmonic Transponder at Low Temperature](#)
Xiaoqiang Gu¹, Simon Hemour², Ke Wu¹
¹Polytechnique Montreal, Canada, ²University of Bordeaux, France
- WPP44 [DIY Electromagnetic Phantoms for Biomedical Wireless Power Transfer Experiments](#)
Tom van Nunen¹, Esmee Huismans¹, Rob Mestrom¹, Mark Bantum¹, Hubregt Visser¹
¹Eindhoven University of Technology, The Netherlands
- WPP45 [Voltage Multiplier Rectifier with Second Harmonic Resonance for Wireless Power Transfer System](#)
Juwan Kim¹, Wonshil Kang¹, Hyunchul Ku¹
¹Konkuk University, South Korea
- WPP46 [Demonstration of Sub-Terahertz Coplanar Rectenna using 265 GHz Gyrotron](#)
Sei Mizojiri¹, Kengo Takagi¹, Kohei Shimamura¹, Shigeru Yokota¹, Masafumi Fukunari², Yoshinori Tatematsu², Teruo Saito²
¹University of Tsukuba, Japan, ²University of Fukui, Japan
- WPP47 [The Logistics System by Rotary Wing Unmanned Aerial Vehicle with 28GHz Microwave Power Transmission](#)
Satoru Suganuma¹, Duc Hung Nguyen², Yuma Nishioka¹, Kohei Shimamura¹, Koichi Mori², Shigeru Yokota¹
¹University of Tsukuba, Japan, ²Nagoya University, Japan

PROGRAM: WIRELESS POWER WEEK 2019

- WPP48 [Design of Rectifiers for High Power Wireless Power Transmission System](#)
Ce Wang¹, Bo Yang¹, Naoki Shinohara¹
¹Kyoto University, Japan
- WPP49 [A Rectenna Using Copper Foil on Glass to Reduce Cost of Space Solar Power](#)
Evan Shi¹, Erik Centeno¹, Rafael Figueroa¹, Cheng Qi¹, Gregory Durgin¹
¹Georgia Tech, United States of America
- WPP50 [Photonic-Assisted Field-Probing Receiver for kW Peak-Power Wideband Radiative Wireless Transmitter](#)
Young-Pyo Hong¹, Jung-Il Park¹, No-Weon Kang¹, Dong-Joon Lee¹
¹Korea Research Institute of Standards and Science, South Korea
- WPP51 [An RF-Powered Self-Locating Flexible Building Environment Sensor System](#)
David Schwartz¹, Shabnam Ladan¹, Vijay Karthik Venkatasubramanian¹, Joseph Lee¹, Ping Mei¹, Brent Krusor¹, Clinton Smith¹, Shakthi Gowri¹
¹Palo Alto Research Center, United States of America
- WPP52 [We've Got the Power: Overcoming the Distance Enlargement Fraud with Wireless Power Transfer](#)
Leo Botler¹, Konrad Diwold¹, Kay Römer¹
¹Graz University of technology, Austria
- WPP53 [An Improved Rectenna Design for Battery-free Wireless Sensors and Structural Health Monitoring](#)
A. Sidibe¹, A. Tacaks¹, A. Okba¹, G. Loubet¹
¹Université de Toulouse, France
- WPP54 [Chipless Backscatter for Vital e-Health Sensing](#)
Felisberto Pereira¹, Ricardo Correia¹, Nuno B. Carvalho¹
¹Universidade de Aveiro, Portugal
- WPP55 [Pacemaker Recharge Through Inductive Resonant Wireless Power Transfer](#)
Giuseppina Monti¹, Laura Corchia¹, Luciano Tarricone¹
¹University of Salento, Italy
- WPP56 [Implantable Rectenna System for Biomedical Wireless Applications](#)
Shuoliang Ding¹, Stavros Koulouridis², Lionel Pichon¹
¹Université Paris-Sud, France, ²University of Patras, Greece
- WPP57 [A Study on Dynamic Charging Using Off-Resonant Coil Array With Receiver-side Compensation](#)
Tatsuya Ohashi¹, Quang-Thang Duong¹, Minoru Okada¹
¹Nara Institute of Science and Technology, Japan
- WPP58 [A Reconfigurable Antenna for Enhancing the Magnetic Coupling in WPT](#)
Jaafar Al Sinayyid¹, Hakim Takhedmit¹, Patrick Poulichet¹, Marjorie Grzeskowiak², Antoine Diet³, Gaele Lissorgues¹
¹Université Paris-Est, France, ²Deos Isae Supaero, France, ³Université Paris-Sud, France
- WPP59 [13.56 MHz Near Field Magnetic Coupling Efficiency Evaluation for IMDs Powering](#)
Antoine Diet¹, Marc Biancheri-Astier¹, Yann Le Bihan¹, Pablo Pérez-Nicoli², Madjda Bouklachi¹, Olivier Meyer¹, Fernando Silveiro², Lionel Pichon¹
¹Université Paris-Sud, France, ²Universidad de la República, Uruguay

PROGRAM: WIRELESS POWER WEEK 2019

- WPP60 [Research on Wireless Power Transfer in Modular Spacecraft](#)
Longlong Zhang¹, Lei Wang¹, Haidi Yu¹, Yan Zong¹, Yucai Zhang¹, Xudong Ming¹, Zhenyu Zhang¹
¹Shandong Institute of Space Electronics Technology, China
- WPP61 [Charging Base Stations Deployment Algorithms for Wireless Rechargeable Sensor Networks](#)
Peng Wan¹, Baoyu Wu¹, Yuhua Cheng¹, Gaofeng Wang¹
¹Hangzhou Dianzi University, China
- WPP62 [Coupled Magnetic Field-Circuit Analysis of Inductive Power Transfer in High-Potential Transformers](#)
Alex Pokryvailo¹, Hiren Dave¹
¹Spellman High Voltage Electronics Corp., United States of America
- WPP63 [Charging Area Extensible Wireless power Transfer System with an Orthogonal Structure](#)
Chen Xu¹, Yuan Zhuang¹, Anqi Chen¹, Yi Huang¹, Jiafeng Zhou¹
¹University of Liverpool, United Kingdom
- WPP64 [Innovative Technique for HPA Characteristics Extraction and Accurate Predistorsion Function Modeling](#)
Blaise Mulliez¹, Emmanuel Moutaye¹, H       Tap¹
¹Universit   de Toulouse, France
- WPP65 [MSA with Stacked Metal Rings for Rectenna System using Narrow Beam](#)
Seiya Mizuno¹, Ryosuke Kashimura^{1, 2}, Tomohiro Seki¹, Yasunori Suzuki³, Hiroshi Okazaki³
¹Nihon University, Japan, ²Japan Radio Co., Ltd., Japan, ³NTT Docomo Inc., Japan
- WPP66 [Free-Positioning Magnetic Resonance Wireless Power Transfer System for Biomedical Devices](#)
Kyungmin Na¹, Jieun Kim¹, Young-Jin Park¹
¹Korea Electrotechnology Research Institute, South Korea
- WPP67 [Analysis of the Efficiency of Wireless Power Transfer to Multiple Receivers](#)
Wanberton Gabriel de Souza¹, Luciano Coutinho Gomes¹, Darizon Alves de Andrade¹, Lucas Rocha Lobo Lannes¹, Josemar Alves dos Santos Jr.¹, Eust       Fernandes J      ¹
¹University Federal of Uberl      , Brasil
- WPP68 [Geometric Quantities Characterizing Wireless Power Transfer Between a Resonator and Resonant Dipoles](#)
Robert A. Moffatt¹
¹Etherdyne Technologies, Inc., United States of America
- WPP69 [Rectenna for Bluetooth Low Energy Applications](#)
Boules A. Mouris¹, Wael Elshennawy², Panagiotis Petridis³, Yuan Ding³, Spyridon N. Daskalakis³
¹KHT Royal Institute of Technology, Sweden, ²Orange Business Services, Egypt, ³Heriot-Watt University, United Kingdom
- WPP70 [Temperature Induced Degradation of RF Energy Harvesters Efficiency: Experiments and Interpretation](#)
Massimo Merenda¹, Riccardo Carotenuto¹, Francesco G. Della Corte¹
¹Mediterranea University Reggio Calabria, Italy

PROGRAM: WIRELESS POWER WEEK 2019

- WPP71 [Analysis of Transmission Distance and Transmission Efficiency of Wireless Power Transfer System](#)
Rongge Yan¹, Zexun Wu¹, Xiaoting Guo¹, Shaoqing Cao¹
¹Hebei University of Technology
- WPP72 [Traveling-Wave Fed Two-Dimensional Phased-Array Antenna for Microwave-Power Transfer](#)
Naoki Hasegawa¹, Yuki Takagi¹, Yoshichika Ohta¹
¹Softbank Corp., Japan
- WPP73 [Energy Harvesting Cooperative Wireless Systems: Probabilistic Modeling and Statistical Analysis](#)
M. Aparna¹, Bitragunta Sainath¹
¹BITS Pilani, India
- WPP74 [A Study of Improve Efficiency of Broad-Angle Rectenna Using Hybrid Coupler](#)
Yuki Tanaka¹, Kazuki Kanai¹, Ryosuke Hasaba¹, Hiroshi Sato¹, Yoshio Koyanagi¹, Takuma Ikeda¹, Hiroyuki Tani¹, Shoichi Kajiwar¹ and Naoki Shinohara²
¹Panasonic Corporation, Japan, ²Kyoto University, Japan
- WPP75 [Influences of Magnetic Couplings in Transmitter Array of MIMO Wireless Power Transfer System](#)
Kyungtae Kim¹, Ji-Woong Choi¹
¹Daegu Gyeongbuk Institute of Science and Technology, South Korea
- WPP76 [Development of Wireless Power Supply Implantable Device Based on LED](#)
Li Yamin¹, Tang Jun¹, Liu Kun¹
¹Chinese Academy of Sciences, China
- WPP77 [Visualization of Energy Flow in Wireless Power Transfer Systems](#)
Hanwei Wang¹, Cheng Zhang², Shu Yuan Ron Hui³
¹Tsinghua University, China, ²University of Manchester, United Kingdom, ³University of Hong Kong, China
- WPP78 [Proposal of Simplified Transfer Function Model for Dynamic Rectified DC Voltage in DWPT](#)
Kodai Takeda¹, Wataru Ohnishi¹, Takefumi Koseki¹
¹University of Tokyo, Japan
- WPP79 [Voltage Control and Current Distribution for Multiple-Coil Wireless Power Transfer System](#)
Weikun Cai¹, Houjun Tang¹, Dianguang Ma¹, Xin Liu¹
¹Shanghai Jiao Tong University, China
- WPP80 [A Self-Synchronous Rectifier for Application of W-level Input Power](#)
Ying Wang¹, Gao Wei¹, Fei You², Xumin Yu³, Yazhou Dong³, Xiaojun Li³
¹Northwestern Polytechnical University, China, ²University of Electronic Science and Technology of China, China, ³China Academy of Space Technology, China
- WPP81 [Experimental Evaluation of Coupling Coils for Underwater Wireless Power Transfer](#)
Cândido Duarte¹, Francisco Gonçalves¹, Miguel Silva¹, Vasco Correia¹, Luis M. Pessoa¹
¹INESC TEC and FEUP, Portugal

PROGRAM: WIRELESS POWER WEEK 2019

- WPP82 [Hybrid Mode Wireless Power Transfer for Wireless Sensor Network](#)
Shi-Wei Dong¹, Xiaojun Li¹, Xumin Yu¹, Yazhou Dong¹, Hao Cui¹, Tao Cui¹, Ying Wang¹, Shuo Liu¹
¹China Academy of Space, China
- WPP83 [EMI Suppression of MEMS Honeycomb-Shaped Inductor on Oscillators for Wireless-Powered IC Design](#)
Hao-Jiun Wu¹, Po-Ming Wang¹, Tzuen-Hsi Huang¹, Sheng-Fan Yang²
¹National Cheng Kung University, Taiwan, ²Global Unichip Corp., Taiwan
- WPTC-P5– Rectifiers and Converters*
Siemens Board Room
- WPP84 [A Comparative Study of Conventional Rectifier Topologies for Low Power RF Energy Harvesting](#)
Jérôme Tissier¹, Mohsen Koohestani¹, Mohamed Latrach¹
¹ESEO-IETR, France
- WPP85 [Modified Log Periodic Spiral Antenna for Multi-Band RF Energy Harvesting Applications](#)
Kapil Gangwar¹, Jérôme Tissier²
¹Indian Institute of Technology, India, ²ESEO-IETR, France
- WPP86 [Theoretical Analysis of Single Shunt Rectifiers](#)
Takashi Hirakawa¹, Naoki Shinohara¹
¹Kyoto University, Japan
- WPP87 [Design of Buck Converter with Dead-time Control and Automatic Power-Down System for WSN Application](#)
Jefferson A. Hora¹, Aileen Chris Arellano², Eryk Dutkiewicz¹, Xi Zhu¹
¹University of Technology Sydney, Australia, ²MSU-Iligan Institute of Technology, Philippines
- WPP88 [A 19.6 dB Input Power Range 403 MHz Rectifier Based on Quality Factor in Matching Technique](#)
NgocDuc Au¹, Chulhun Seo¹
¹Soongsil University, South Korea
- WPP89 [Voltage-Double RF Rectifier using Inductive Matching Network](#)
Muh-Dey Wei¹, Renato Negra¹
¹RWTH Aachen University, Germany
- WPP90 [10W Class High Power C-Band Rectifier Using GaN HEMT](#)
Satoshi Yoshida¹, Kenjiro Nishikawa¹, Shigeo Kawasaki²
¹Kagoshima University, Japan, ²Japan Aerospace Exploration Agency (JAXA), Japan
- WPP91 [Automated Design Optimization for CMOS Rectifier Using Deep Neural Network \(DNN\)](#)
Heng Wah Ho¹, Wendy W.Y. Lau²
¹GLOBALFOUNDRIES Singapore Pte. Ltd., Singapore, ²Nanyang Technological University, Singapore
- WPP92 [2x2 Circularly Polarized Antenna Array with Equal Phases for RF Energy Harvesting in IoT System](#)
Osama M. Dardeer¹, Hala A. Elsadek², Esmat A. Abdallah², Hadia M. Elhennawy¹
¹Ain Shams University, Egypt, ²Electronics Research Institute, Egypt

PROGRAM: WIRELESS POWER WEEK 2019

- WPP93 [1 MHz band rectenna with several rectifier devices in nW operation](#)
Nobuhiko Yasumaru¹, Kanto Nakanishi¹, Kenji Itoh¹, Shunya Tsuchimoto¹, Takuya Yamada¹,
Takayuki Mori¹, Jiro Ida¹
¹Kanazawa Institute of Technology, Japan

15:05 – 17:00 Poster Session II – WoW

Chair: Sam Aldhafer

WoW-P5 – Dynamic IPT

Maxwell Libaray

- WoP18 [Coupling Coefficient Estimation for Wireless Power Transfer System at Constant Input Power Operation](#)
Haruko Nawada¹, Yoshiaki Takahashi¹, Katsuhiro Hata¹, Takehiro Imura¹, Hiroshi Fujimoto¹,
Yoichi Hori¹, Takuya Yabumoto²
¹University of Tokyo, Japan, ²Mitsubishi Electric Corporation, Japan
- WoP19 [A Dynamic Wireless Charging System with a Robust Output Voltage Respect To Misalignment](#)
Ali Ramezani¹, Mehdi Narimani¹
¹McMaster University, Canada
- WoP20 [A Dynamic Model for Contactless Energy Transfer Systems](#)
Jannis Noeren¹, Nejila Parspour¹
¹University of Stuttgart, Germany
- WoP21 [Feasibility Study on In-motion Wireless Power Transfer System Before Traffic Lights Section](#)
Dasiuke Gunji¹, Katsuhiro Hata², Osamu Shimizu², Takehiro Imura², Hiroshi Fujimoto²
¹NSK Ltd., Japan, ²University of Tokyo, Japan
- WoP22 [Dual-phase IPT Track Primary Evaluation Using Normalized Coupling Factor](#)
Weitong Chen¹, Feiyang Lin¹, Grant Covic¹, John Boys¹
¹Auckland University, New Zealand
- WoP23 [An Alternate Arrangement of Active and Repeater Coils for Quasi-Constant Power Wireless EV Charging](#)
Chunsheng Wang^{1,2}, Pengcheng Wang^{1,2}, Qi Zhu^{1,2}, Mei Su^{1,2}
¹Central South University, China, ²Human Provincial Key Laboratory of Power Electronics Equipment and Grid, China
- WoP24 [A Modular and Distributed Grid Interface for Transformer-less Power Supply to Road-side Coil Sections of Dynamic Inductive Charging Systems](#)
Giuseppe Guidi¹, Salvatore D'Arco¹, Jon Are Suul^{1,2}
¹SINTEF Energy Research, Norway, ²Norwegian University of Science and Technology, Norway

PROGRAM: WIRELESS POWER WEEK 2019

WoW-P6 – High Frequency WPT

Maxwell Library

- WoP25 [Load Adaptation of Capacitive Power Transfer System with a Four-Plate Compact Capacitive Coupler](#)
Xueying Wu¹, Yugang Su¹, Xinyu Hou¹, Xiaodong Qing¹, Wanting Zhu¹
¹Chongqing University, China
- WoP26 [Impacts of Coupling Plates on Single-Switch Capacitive-Coupled WPT Systems](#)
Yashwanth Bezawada¹, Ruiyun Fu², Yucheng Zhang¹
¹Old Dominion University, United States of America, ²Mercer University, United States of America
- WoP27 [A 13.56 MHz Inductive Power Transfer System Operating with Corroded Coils](#)
Epameinondas Skountzos¹, Juan M. Arteaga¹, Eftychios Hadjittofis¹, David C. Yates¹
Kyra L. Sedransk-Campbell¹, Paul D. Mitcheson¹
¹Imperial College London, United Kingdom
- WoP28 [A High-Performance Double-Sided LC Compensated CPT System with Load-Independent Constant Current Output](#)
Jing Lian¹, Xiaohui Qu¹
¹Southeast University, China
- WoP29 [A High Power WPT System for Through the Wall Applications](#)
Tiefeng Shi¹, Paul Wiener¹
¹GaN Systems Inc., Canada

WoW-P7 – Converter Design & Control

Siemens Boardroom

- WoP30 [Triple Subdivision Cell-to-Cell Mapping Method for Global Analysis of WPT System](#)
Chunsen Tang¹, Chunyan Yang¹, Yingjun Fei¹, Zhihui Wang¹, Zhiping Zuo¹, Zhenpeng Zhang²
¹Chongqing University, China, ²China Electronic Power Research Institute, China
- WoP31 [Full Duplex Communication Based on Partial Power Coil in Inductive Coupling Power Transfer System](#)
Cheng Li¹, Zhi-Hui Wang¹, Yue Sun¹, Xin Dai¹
¹Chongqing University, China
- WoP32 [High-Power WPT Systems: Step-up Transformer vs. Partial-Series Tuning](#)
Wenwei Victor Wang¹, Duleepa J. Thrimawithana¹
¹University of Auckland, New Zealand
- WoP33 [Efficiency Maximization in Wireless Power Transfer Systems for Resonance Frequency Mismatch](#)
Helanka Weerasekara¹, Katsuhiro Hata¹, Takehiro Imura¹, Hiroshi Fujimoto¹, Yoichi Hori¹
¹University of Tokyo, Japan
- WoP34 [Advantages and Tuning of Zero Voltage Switching in a Wireless Power Transfer System](#)
Francesca Grazian¹, Peter van Duijsen¹, Thiago B. Soeiro¹, Pavol Bauer¹
¹Delft University of Technology, The Netherlands

PROGRAM: WIRELESS POWER WEEK 2019

- WoP35 [Surge Current Analysis of EV Wireless Charging System during Short-circuit Decoupling Process](#)
Ke Shi¹, Chunsen Tang¹, Zhihui Wang¹, Zhiping Zuo¹
¹Chongqing University, China
- WoP36 [Multiple-Receiver Wireless Power Transfer with Efficient Power Control Strategy](#)
Weikun Cai¹, Houjun Tang¹, Xiaoyang Lai¹, Longzhao Sun¹
¹Shanghai Jiao Tong University, China
- WoP37 [Inductive Power Transfer System with Automatic Control](#)
Chenlei Liu¹, Xin Liu²
¹Shanghai Electric Power Research Institute, China, ²Shanghai Jiao Tong University, China
- WoP38 [Output Voltage Range of a Resonant Inductive WPT Link Operating in Load Independent Regime](#)
Yotam Frechter¹, Yegal Darhovsky¹, Alon Kuperman¹
¹Ben-Gurion University of the Negev, Israel
- WoP39 [Dynamic Modeling and Analysis of Multi-Receiver Wireless Power Transfer System](#)
Tian Tan¹, Kainan Chen¹, Ye Jiang¹, Zhengming Zhao¹, Liqiang Yuan¹
¹Tsinghua University, China
- WoP40 [Adaptive Capacitance Impedance Matching \(ACIM\) of WPT Systems by Voltage Controlled Capacitors](#)
Stanislav Tishechkin¹, Shmuel (Sam) Ben-Yaakov¹
¹Ben-Gurion University, Israel
- WoP41 [A Wireless Power Transfer System Powering Multiple Gate Drivers in a Modular Multilevel Converter](#)
Zhe Zhou¹, Weiguo Li^{1,2}, Chenweng Cheng³, Chao Wang², Zhanfeng Deng¹, Chris Mi³
¹Global Energy Interconnection Research Institute, China, ²State Grid Corporation of China, China, ³San Diego State University, United States of America

18:00 – 22:00 Banquet

“Tesla’s Secret London Laboratory”

PROGRAM: WIRELESS POWER WEEK 2019

Friday 21 June

Registration

08:00 Registration & Coffee

WPTC & WoW Joint Session I – High Power and Ultrasonic WPT

Kelvin Lecture Theatre

Chairs: Grant Covic, Mario Ferreira

08:25 [Development of a 10 kW Wireless Power Transfer System](#)

Alex Ridge¹, Ku Ku Ahamad¹, Richard McMahon¹, John Miles²

¹University of Warwick, United Kingdom, ²University of Cambridge, United Kingdom

08:40 [Thin, Light & Flexible Magnetic Materials for 7.7 kW Wireless Power Transfer System](#)

Zohaib Hameed¹, Milo Oien-Rochat¹, Charles Bruzzzone¹, Ian Cummings¹, Jeff Keeney¹, Michael Benson¹

¹3M Company, United States of America

08:55 [High Efficiency Wireless Power Transfer System using a Two-stack Hybrid Metamaterial Slab](#)

Seongsoo Lee¹, Yeonje Cho², Seungtaek Jeong¹, Seokwoo Hong¹, Boogyo Sim¹, Hongseok Kim³, Joungho Kim¹

¹Korea Advanced Institute of Science and Technology (KAIST), South Korea, ²Samsung, South Korea, ³Missouri University of Science and Technology(MST), United States of America

09:10 [Resistive Matching using an AC Boost Converter for Efficient Ultrasonic Wireless Power Transfer](#)

Marc Bisschop¹, Wouter A. Serdijn¹

¹Delft University of Technology, The Netherlands

09:25 [Mutual Inductance Modeling of In-wheel Arc-shaped Coil for In-motion WPT](#)

Osamu Shimizu¹, Takehiro Imura¹, Hiroshi Fujimoto¹, Daisuke Gunji², Keizo Akutagawa³, Giuseppe Guidi⁴

¹University of Tokyo, Japan, ²NSK Ltd., Japan, ³Bridgestone Corporation, Japan, ⁴Sintef Energy, Norway

09:40 [Transit](#)

Plenary Talk 4

Kelvin Lecture Theatre

Chairs: Udaya Madawala, Huib Visser

09:45 [Large-area Wireless Charging Enabled by Metamaterials](#)

Irina Khromova

Metaboards, United Kingdom

Coffee Break

10:30 Coffee Break

PROGRAM: WIRELESS POWER WEEK 2019

WPTC & WoW Joint Session 2 – Moving WPT Systems

Kelvin Lecture Theatre

Chairs: David Yates, Djuradj Budimir

11:00 **Joint Invited Talk 2**

[Wireless power market set to evolve beyond mobile phones – Market overview](#)

Dinesh Kithany

IHS Markit, United Kingdom

11:25 [1D-MV Position Detection Method for Wireless Power Transfer System of Electric Vehicle](#)

Huan Zhang¹, Shihui Xu¹, Chen Yao¹, Houjun Tang¹

¹Shanghai Jiao Tong University, China

11:40 [Separated Circular Capacitive Couplers for Rotational Misalignment of Drones](#)

Chanjun Park¹, Jaehyoung Park¹, Yujun Shin¹, Sungryul Huh¹, Jongwook Kim¹, Seungyoung Ahn¹

¹KAIST, South Korea

11:55 [Coil Design for High Coupling Performance for Two-phase Receiver of Dynamic Wireless Charging System](#)

Zhiyuan Wang¹, Jiantao Zhang¹, Tianhao Huang¹, Shumei Cui¹

¹Harbin Institute of Technology, China

12:10 – 12:45 [WPW 2020 Announcement and Closing Ceremony](#)

Kelvin Lecture Theatre

WPW2019 Sponsors

Platinum sponsors:



Gold sponsors:



Silver sponsors:



Bronze sponsors:



Other sponsors:



Prize sponsors:





Wireless Power Transfer Coils

www.we-online.com






GaN Systems

POWER SEMICONDUCTORS
WIRELESS POWER

GANSYSTEMS.COM

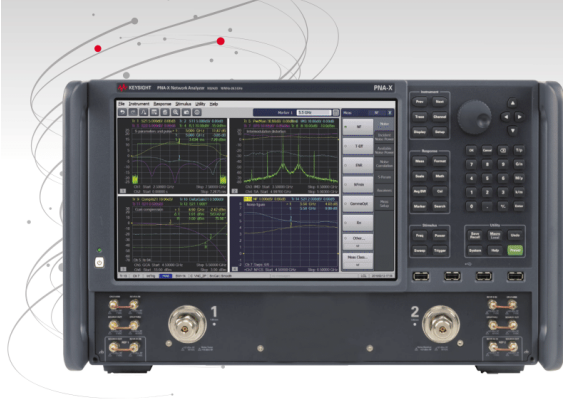


CATAPULT
Compound Semiconductor Applications

Accelerating the adoption
of compound semiconductors
for the applications of the future

Tel: +44 (0)1633 373121
Web: csa.catapult.org.uk
Twitter: @CSACatapult
LinkedIn: [linkedin.com/company/csacatapult](https://www.linkedin.com/company/csacatapult)

Network analysis just got better. Keysight PNA-B vector network analysis



- Latest evolution of industry's premier VNA family, same excellent RF performance as A models
- Faster time-to-results with new intuitive user interface
- Measure S-parameters, gain compression and conversion gain down to 900 Hz
- Optimize software investment with transportable and time-based licenses

For more information, visit:
www.keysight.com/find/PNA



RF Amplifier Power/Frequency Chart



E&I supports the vast and exciting developments in wireless power transfer. We have a proven track record of manufacturing robust RF amplifiers; known throughout the industry for their ruggedness and reliability
www.eandiltd.com sales@eandiltd.com



We can work with you from *Research to Production, Benchtop to Module.*
Please contact us to learn more about our OEM Solutions.

