2019 IEEE Wireless Power Transfer Conference (WPTC 2019)

London, United Kingdom
18-21 June 2019

IEEE Catalog Number: CFP19WPT-POD
ISBN: 978-1-7281-0706-6

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP19WPT-POD
ISBN (Print-On-Demand):	978-1-7281-0706-6
ISBN (Online):	978-1-7281-0705-9
ISSN:	2474-0225

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

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 1
Kelvin Lecture Theatre
Chairs: Bart Smolders, Grant Covic

08:55 Wireless Charging: Driving EV Adoption and the Autonomous Future N/A
Alex Gruzen
WiTricity, United States of America

09:40 Transit

WPTC Session 1 – 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 1
Junghoon Kim[1], Bruno Clerckx[1], Paul D. Mitcheson[1]
[1]Imperial College London, United Kingdom

10:00 Experimental Characterization of Narrowband Power Optimized Waveforms 6
Takashi Ikeuchi[1], Yoshihiro Kawahara[1], Joshua R. Smith[2]
[1]University of Tokyo, Japan, [2]University of Washington, United States of America

10:15 Power Allocation Method Using Pilot Signal for Simultaneous Transmission of Power and Information 12
Nam-I Kim[1], Dae geun Yang[1], Ju Yong Lee[1], Dong-Ho Cho[1]
[1]KAIST, South Korea

10:30 A New Wireless Power and Data Transmission Circuit for Cochlear Implants 16
Iman Abdali Mashhadi[1], Behzad Poorali[1], Majid Pahlevani[1]
[1]University of Calgary, Canada

10:45 Receiving ASK-OFDM in Low Power SWIPT Nodes without Local Oscillators 20
Steven Claessens[1], Ya Ting Chang[1], Dominique Schreurs[1], Sofie Pollin[1]
[1]University of Leuven, Belgium

11:00 A Wideband Efficient Rectifier Design for SWIPT 26
Ya Ting Chang[1], Steven Claessens[1], Sofie Pollin[1], Dominique Schreurs[1]
[1]University of Leuven, Belgium

WoW Session 1 – 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 N/A
Matthew G.S. Pearce[1], Michael J. O'Sullivan[1], Claudio Carretero[2], Grant A. Covic[1], John T, Boys[1]
[1]University of Auckland, New Zealand, [2]University of Zaragoza, Spain

10:00 Evaluation of Soft Magnetic Composites for Inductive Wireless Power Transfer N/A
Daniel Barth[1], Giuseppe Cortese[2], Thomas Leibfried[1]
[1]Karlsruhe Institute of Technology, Germany, [2]Daimler AG, Germany

10:15 Avoiding Null Power Point in DD coils N/A
Manuele Bertoluzzo[1], Giuseppe Buja[1], Hemant Dashora[1]
[1]University of Padova, Italy

10:30 A Dead-Angle-Free Omnidirectional Wireless Power Transfer N/A
Bowen Zhang[1], Zhen Zhang[1], Hongliang Pang[1], Cong Xie[1], Xingyu Li[1], Lin Yang[1]
[1]Tianjin University, China

10:45 Misalignment Influence on Resonance Shielding in Wireless Power Transfer for Electric Vehicles N/A
Myrel Alsayegh[1], Markus Clemens[1], Benedikt Schmuelling[1]
[1]University of Wuppertal, Germany

11:00 Reduction of the Shielding Effect on the Coupling Factor of an EV WPT System N/A
Karim Kadem[1], Yann Le Bihan[1], Mohamed Bensetti[1], Éric Laboure[1], Antoine Diet[1], Mustapha Debbou[2]
[1]Sorbonne Université, France, [2]Vedecom, France

Coffee Break

11:15 Coffee Break

Plenary Talk 2 N/A
Kelvin Lecture Theatre
Chairs: Alessandra Costanzo, David Yates

11:40 Market & Future of Global Wireless Power Transfer Industry N/A
Alexander Gerfer
Würth Elektronik, Germany

Lunch

12:25 Lunch

Joint Invited Talk 1 N/A
Kelvin Lecture Theatre
Chairs: Ron Hui, Nuno Carvalho

13:45 Moving to a World without Wires N/A
Paul Wiener
GaN Systems, United States of America

14:10 Transit

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 30
Hubregt Visser[1], Hans Pflug[2], Shady Keyrouz[3]
[1]imec, Netherlands, [2]GTX Medical, Netherlands, [3]Antenna Company, Netherlands

14:30 GaN Schottky Barrier Diode for Sub-Terahertz Rectenna 36
Sei Mizojiri[1], Kengo Takagi[1], Kohei Shimamura[1], Shigeru Yokota[1], Masafunari Fukunari[2], Yoshinori Tatematsu[2], Teruo Saito[2]
[1]University of Tsukuba, Japan, [2]University of Fukui, Japan

14:45 Design of High Voltage Output for CMOS Voltage Rectifier for Energy Harvesting Design 40
Jefferson A. Hora[1], Eryk Dutkiewicz[1], Xi Zhu[1]
[1]University of Technology Sydney, Australia

15:00 Wide Dynamic Range Rectifier Circuit with Varactor Tuning Technique 45
Ayako Suzuki[1], Koshi Hamano[1], Hayato Shimizu[1], Hiroshi Okazaki[2], Yasunori Suzuki[2], Kunihiro Kawai[2], Atushi Fukuda[2], Kenjiro Nishikawa[1]
[1]Kagoshima University, Japan, [2]NTT Docomo, Inc., Japan

15:15 2.4 GHz CMOS Design RF-to-DC Energy harvesting with Charge Control System for WSN Application 49
Jefferson A. Hora[1], Eryk Dutkiewicz[1], Xi Zhu[1]
[1]University 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 N/A
Prasad Jayathurathnage[1], Fu Liu[1]
[1]Aalto University, Finland

14:30 Loss Shifted Design of Transcutaneous Energy Transfer Systems N/A
Alexander Enssle[1], Lukas Elbracht[1], Nejila Parspour[1], Marco Zimmer[1], Joerg Heinrich[1]
[1]University of Stuttgart, Germany

14:45 Measuring the Q-factor of IPT Magnetic Couplers N/A
Gaurav R. Kalra[1], Matthew G. S. Pearce[1], Seho Kim[1], Duleepa J. Thrimawithana[1], Grant A. Covic[1]
[1]University of Auckland, New Zealand

15:00 Impedance Measurement on Inductive Power Transfer Systems N/A
Marius Hassler[1], Oguz Atasoy[2], Morris Kesler[2], Karl Twelker[2], Tobias Achatz[3], Markus Jetz[3], Josef Krammer[1]
[1]BMW Group, Germany, [2]WiTricity Corporation, United States of America, [3]Zollner Elektronik AG, Germany

15:15 A Reflected Impedance Estimation Technique for Inductive Power Transfer N/A
Lingxin Lan[1], Juan M. Arteaga[1], David C. Yates[1], Paul D. Mitcheson[1]
[1]Imperial College London, United Kingdom

Poster Session 1 and Coffee Break

15:30 – 17:00 Poster Session 1 – WPTC
Chair: Diego Masotti

WPTC-P1- Near-Field Links
Maxwell Library

WPP1 Design of Coil Turn Ratios to Achieve Extensive Load Range and High Efficiency in Wireless Power Transfer System N/A
Heng-Ming Hsu[1], Yu-Fu Liu[1], Jian-Kai Liao[1], Pang Yu Liu[1]
[1]National Chung Hsing University, Taiwan

WPP2 Using Metallic Coil to Optimize the Heating Efficiency for Tumor Hyperthermia 55
Guoxiong Chen[1], Chenxi Wang[1], Yuhua Cheng[1], Gaofeng Wang[1]
[1]Hangzhou Dianzi University, China

WPP3 Virtual Impedance Control for Efficient Power Transfer in Electromagnetic Levitation Melting System 59
Moria Elkayam[1], Yotam Frechter[1], Idan Sassonker[1], Alon Kuperman[1]
[1]Ben-Gurion University of the Negev, Israel

WPP4 High Q-factor Coil with Transistorized Negative Impedance Converter for Mobile Applications 63
Tae-Hyung Kim[1], Gi-Ho Yun[2], Jong-Gwan Yook[1]
[1]Yonsei University, South Korea, [2]Sungkyul University, South Korea

WPP5 Global Optimization Design of Inductively Coupled Power Transfer System Parameter 67
Qiang Bo[1,2], Lifang Wang[1,3], Tao Chengxuan[1]
[1]Institute of Electrical Engineering Chinese Academy of Sciences, China, [2]University of Chinese Academy of Sciences, China, [3]Beijing Co-Innovation Center for Electric Vehicles, China

WPP6 Modeling of Magnetic Coupled Coil for Wireless Power Transfer in Conductive Medium 72
Jongwook Kim[1], Haerim Kim[1], Dongwook Kim[1], Yujun Shin[1], Chanjun Park[1], Seungyoung Ahn[1]
[1]KAIST, South Korea

WPP7 A Design Procedure for CPT System with LCL Resonant Network 76
Hongfei Xia[1], Huanhuan Wu[1], Yuhua Cheng[1], Gaofeng Wang[1]
[1]Hangzhou Dianzi University, China

WPP8 85-kHz band 450-W Inductive Power Transfer for Unmanned Aerial Vehicle Wireless Charging Port 80
Shuichi Obayashi[1], Yasuhiro Kanekiyo[1], Kouju Nishizawa[2], Hiroaki Kusada[2]
[1]Toshiba Corporation, Japan, [2]Tepco Research Institute, Japan

WPP9 Design of Free-Positioning Wireless Power Transfer using A Half-Rectangular Prism Transmitting Coil 85
Nam Ha-Van[1], Hoang Le-Huu[1], Chulhun Seo[1]
[1]Soongsil University, South Korea

WPP10 Wireless Power Transfer System Using Sub-Wavelength Toroidal Magnetic Metamaterials 89
Yuqian Wang[1], Xu Chen[1], Yewen Zhang[1], Kai Fang[1], Yong Sun[1], Yunhui Li[1], Hong Chen[1]
[1]TongJi University, China

WPTC-P2 -Materials
Siemens Board Room

WPP34 Designment of Wireless Power Transmitting System with Magnetic Megahertz Metamaterials 197
Guo Li[1], Lifang Lang[1], Jie Ren[1], Kai Fang[1], Yong Sun[1], Yewen Zhang[1], Yunhui Li[1], Hong Chen[1]
[1]Tongji University, China

WPP35 An Efficient Metamaterial Based Design of Wireless Power Transfer System N/A
Pratim Dasmahapatra[1], Tarakeswar Shaw[1], Soumyadeep Kal[1], Debasis Mitra[1]
[1]Indian Institute of Engineering Science and Technology, India

WPP36 Qi Compliant Wireless Charger with PCB Integrated Magnetic Material 203
Gerald Weis[1], Ivan Salkovic[1], Gerald Weidinger[1], Mario Schober[1], Johannes Stahr[1], Ronald Sekavcnik[1]
[1]AT & 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 208
Masaki Ishii[1], Kosuke Yamanaka[1], Masahiro Sasaki[1]
[1]Shibaura Institute of Technology, Japan

WPP38 A Novel Simultaneous Wireless Information and Power Transfer System 212
Xin Liu[1], Xijun Yang[1], Dianguang Ma[1], Nan Jin[2], Xiaoyang Lai[1], Houjun Tang[1]
[1]Shanghai Jia Tong University, China, [2]Zhengzhou University of Light Industry, China

WPP39 125 kHz Wireless Energy and 25 kbps Data Transfer for Wearable Device 216
Diyang Gao[1], Rongpeng Zhai[1], Peter Baltus[1], Huib Visser[1], Hao Gao[1]
[1]Eindhoven University of Technology, The Netherlands

WPP40 Data Communication over a Novel Capacitive Resonant Wireless Power Transmission System 220
Semion Belau[1], Susanna Vital de Campos de Freitas[1], Fabiano Cezar Domingos[1], Rashid Mirzavand[1], Pedram Mousavi[1]
[1]University of Alberta, Canada

WPP41 Impact of 5G Waveforms on Energy Harvesting Rectifier Performance 224
Oludotun Olukoya[1], Boris Malcic[2], Djuradj Budimir[1], Djuradj Budimir[3]
[1]Westminster University, United Kingdom, [2]University of Banja Luka, Bosnia and Herzegovina, [3]University of Belgrade, Serbia

WPP42 Mixed-Time Scale Based Adaptive Mode Switching for Dual Mode SWIPT 228
Jong Jin Park[1], Jong Ho Moon[1], Kang-Yoon Lee[1], Dong In Kim[1]
[1]Sungkyunkwan University, Korea

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 N/A
Geng Yuyu[1], Wang Yi[1], Yang Zhongping[1], Lin Fei[1]
[1]Beijing Jiaotong University, China

WoP2 Inductive Power Transfer Charging Infrastructure for Electric Vehicles: A New Zealand Case Study N/A
Mingyue (Selena) Sheng[1], Ajith Viswanath Sreenivasan[1], Grant A. Covic[1], Douglas Wilson[1], Basil Sharp[1]
[1]University of Auckland, New Zealand

WoP3 Data-Driven Design and Assessment of Dynamic Wireless Charging Systems N/A
Diala Haddad[1], Theodora Konstantinou[1], Akhil Prasad[1], Zhanxiang Hua[1], Dionysios Aliprantis[1], Konstantina Gkritza[1], Steven Pekarek[1]
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 N/A
Timo Lämmle[1], Nejila Parspour[2], Christian Fuchs[2]
[1]MAHLE International GmbH, Germany, [2]University of Stuttgart, Germany

WoP5 Statistical Model of Foreign Object Detection for Wireless EV Charger N/A
Kaiwen Gan[1], Huan Zhang[1], Chen Yao[1], Xiaoyang Lai[1], Nan Jin[2], Houjun Tang[1]
[1]Shanghai Jiao Tong University, China, [2]Zhengzhou 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 N/A
Michal Košík[1], Jiří Lettl[1]
[1]Czech Technical University in Prague, Czech Republic

WoP7 Quadrature Demodulator based Output Voltage and Load Estimation of a Resonant Inductive WPT Link N/A
O. Trachtenberg[1], A. Shoihet[1], E. Beer[1], E. Fux[2], N. Tiktin[2], S. Kolesnik[2], A. Kuperman[2]
[1]Nuclear Research Center of the Negev, Israel, [2]Ben-Gurion University of the Negev, Israel

WoP8 Maximum Efficiency Control of a Wireless EV Charger with On-Line Parameter Calculation N/A
Ali Zakerian[1], Sadegh Vaez-Zadeh[1], Amir Babaki[1]
[1]University of Tehran, Iran

WoP9 Power Transfer Profile Boosting in DWC Systems by Two-Element Compensation Network N/A
Manuele Bertoluzzo[1], Rupesh Jha[2], Giuseppe Buja[1]
[1]University of Padova, Italy, [2]Zeal College of Engineering and Research, India

WoP10 Analysis of Electromagnetic Force on Metal Objects in Vertical Direction of Wireless Power Transfer N/A
Xian Zhang[1], Xuejing Ni[1], Qingxin Yang[1], Bin Wei[2], Songcen Wang[2]
[1]Tianjin Polytechnic University, China, [2]China Electric Power Research Institute, China

WoP11 Wireless Power At-A-Distance Technology – A Strategy for Nurturing Ecosystem Development N/A
Philip Swan[1]
[1]Ossia Inc, United States of America

WoW-P4 – Industrial Design and Applications
Siemens Boardroom

WoP12 MPPT Control for PV based Wireless Power Transfer System in Lunar Rover by Secondary Side Converter N/A
Bingcheng Ji[1], Katsuhiro Hata[1], Takehiro Imura[1], Yoichi Hori[1], Shuhei Shimada[2], Osamu Kawasaki[2]
[1]University of Tokyo, Japan, [2]Japan Aerospace Exploration Agency, Japan

WoP13 Strategy for Design of Misalignment Tolerant Inductive Powering System for Medical Implants N/A
Arseny Danilov[1], Eduard Mindubaev[1], Rafael Aubakirov[1], Konstantin Gurov[1], Oleg Surkov[1], Sergey Selishchev[1]
[1]JSC ZITC, Russia

WoP14 A Wide-Range IPT System for Body Worn Sensors N/A
Stephen G. Burrow[1], Lindsay R. Clare[1]
[1]University of Bristol, United Kingdom

WoP15 Approaching the Power Limit of an Electrodynamic WPTS with Nearly Coupling-Independent Operation N/A
Binh Duc Truong[1], Shad Roundy[1]
[1]University of Utah, United States of America

WoP16 Wireless Motor Drives with a Single Inverter in Primary Side of Power Transfer Systems N/A
Amir Babaki[1], Sadegh Vaez-Zadeh[1], Mohammad Jahanpour-Dehkordi[1], Ali Zakerian[1]
[1]University of Tehran, Iran

WoP17 Design of a 30 kW-85 kHz Wireless Power Transfer System for Charging Electric Vehicles N/A
Leyla Arioua[1], Hadi Alawieh[1], Salim Guerroudj[1]
[1]VEDECOM 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 232
José Antonio Estrada[1], Eric Kwiatkowski[1], Ana López-Yela[2], Mónica Borgoñós-Garcia[2], Daniel Segovia-Vargas[2], Taylor Barton, and Zoya Popović[1]
[1]University of Colorado, United States of America, [2]Universidad Carlos III de Madrid, Spain

08:40 A Wearable Passive Microwave Fluid Sensor Wirelessly Activated 236
Francesca Benassi[1], Nicola Zincarelli[1], Diego Masotti[1], Alessandra Costanzo[1]
[1]University of Bologna, Italy

08:55 Wireless Power Receiver with Wide Dynamic Range for Biomedical Implants 241
Hankyu Lee[1], Seungchul Jung[1], Yeunhee Huh[1], Sang Joon Kim[1]
[1]Samsung Advanced Institute of Technology, South Korea

09:10 Millimeter-Wave Textile Antenna for On-Body RF Energy Harvesting in Future 5G Networks 245
Mahmoud Wagih[1], Alex S. Weddell[1], Steve Beeby[1]
[1]University of Southampton, United Kingdom

09:25 Energy Harvesting of a NFC Flexible Patch for Medical Applications 249
Madjda Bouklachi[1], Marc Biancheri-Astier[1], Antoine Diet[1], Yann Le Bihan[1]
[1]Sorbonne Université, France

09:40 Feasibility Study of a Wireless Power Transfer System Applied to a Left Ventricular Assist Device 253
T. Campi[1], S. Cruciani[1], F. Orlando[1], F. Maradei[2], M. Feliziani[1]
[1]University 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 N/A
Benny J. Varghese[1], Abhilash Kamineni[1], Regan A. Zane[1]
[1]Utah State University, United States of America

08:40 Analysis of Intermediate Resonant Couplers for High Displacement Inductive Power Transfer N/A
Ahmad Bilal[1], Grant Covic[1], John Boys[1], Seho Kim[1]
[1]University of Auckland, New Zealand

08:55 Magnetic Design of a Q-Coil for a 10 kW DDQ System for Inductive Power Transfer N/A
Denis Kraus[1], Hans-Georg Herzog[1]
[1]Technical University of Munich, Germany

09:10 Reduced Switch Operation of the Tripolar for Interoperability in Inductive Power Transfer N/A
Kaiquan Sun[1], Grant A. Covic[1], Duleepa Thrimawithana[1], Seho Kim[1]
[1]University of Auckland, New Zealand

09:25 A Three-Phase Inductive Power Transfer Coil with SAE J2954 WPT3 Magnetic Interoperability N/A
Thorsten Kurpat[1], Lutz Eckstein[1]
[1]RWTH Aachen University, Germany

09:40 Power Transferability Analysis of I-SS-Buck Dynamic Wireless Charging System N/A
Shuangcheng Song[1], Zhihao He[1], Chao Cui[1], Qianfan Zhang[1]
[1]Harbin Institute of Technology, China

09:55 Transit

Plenary Talk 3 N/A
Kelvin Lecture Theatre
Chairs: Grant Covic, Alessandra Costanzo

10:00 Advances in Wireless Power Transfer Technology & Implanted Medical Devices **N/A**
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 257
Hans W. Pflug[1], Hubregt J. Visser[2]
[1]GTX Medical BV, The Netherlands, [2]imec / Holst Centre, The Netherlands

11:30 Investigation of a GaN-Based Bidirectional Wireless Power Converter Using Resonant Inductive Coupling 263
Haimeng Wu[1], Xiang Wang[1], Bowen Gu[1], Volker Pickert[1]
[1]Newcastle University, United Kingdom

11:45 Comparisons of MOSFET and Relay Switches in Impedance Matching Networks for Wireless Power Transfer 269
Cristina A. Alexandru[1], Dibin Zhu[1]
[1]University 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 274
Veselin Manev[1], Huib Visser[1], Peter Baltus[1], Hao Gao[1]
[1]Eindhoven University of Technology, The Netherlands

12:15 High Sensitive 2.4 GHz Band Rectenna with Direct Matching Topology 278
Shunya Tsuchimoto[1], Kenji Itoh[1], Keisuke Noguchi[1], Jiro Ida[1]
[1]Kanazawa 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 N/A
Nunzio Pucci[1], Paul D. Mitcheson[1], Christopher H. Kwan[1], David C. Yates[1]
[1]Imperial College London, United Kingdom

11:30 Conducted Emission in an 85 kHz, 50 kW WPT System with Opposite-Phase Transfer and Spread Spectrum
Masatoshi Suzuki[1], Kenichirou Ogawa[1], Tetsu Shijo[1], Yasuhiro Kanekiyo[1], Kazuhiro Inoue[1], Koji Ogura[1], Shuichi Obayashi[1], Masaaki Ishida[1]
[1]Toshiba Corporation, Japan

11:45 Omnidirectional Vehicle Sensing for Wireless Power Transfer Applications N/A
Charles A. Robinson[1], Hao Lu[1], C. W. Van Neste[1]
[1]Tenessee Technological University, United States of America

12:00 Wireless Charging in Electric Vehicles: EMI/EMC Risk Mitigation in Pacemakers by Active Coils N/A
S. Cruciani[1], T. Campi[1], F. Maradei[2], M. Feliziani[1]
[1]University of L'Aquila, Italy, [2]Sapienza University of Rome, Italy

12:15 Eigenvector Lookup Position Detection Method for Wireless Power Transfer of Electric Vehicles N/A
Shihui Xu[1], Huan Zhang[1], Chen Yao[1], Dianguang Ma[1], Nan Jin[2], Houjun Tang[1]
[1]Shanghai Jiao Tong University, China, [2]Zhengzhou 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 282
Hooman Kazemi
Raytheon, United States of America

14:10 Harvesting for Scattering Modulated RF-Signals Receivable by Mobile Telephones 287
Matthias Schütz[1]
[1]IDP Invent AG, Switzerland

14:25 Study on Antennas for Wireless Power Transfer to In-Line Inspection Robots 292
Isami Sato[1], Naoki Shinohara[1]
[1]Kyoto University, Japan

14:40 A New Circularly Polarized Antenna Suppressing Surface Wave for Microwave Power Transmission 297
Seishiro Kojima[1], Naoki Shinohara[1]
[1]Kyoto University, Japan

14:55 An RF-Powered IoT Node for Environment Sensoring 301
John Nicot[1], Ludivine Fadel[1], Thierry Taris[1]
[1]University of Bordeaux, France

15:10 Compact Dual-Band Rectenna on a New Paper Substrate Based on Air-Filled Technology 307
E. Vandelle[1], G. Ardila[1], S. Hemour[2], K. Wu[3], T.P. Vuong[1]
[1]Université Grenoble Alpes, France, [2]Université de Bordeaux, France, [3]Polytechnique 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 N/A
Jürgen Meins
University of Braunschweig, Germany

14:10 Thermal Characterisation of a Double-D Pad N/A
Seho Kim[1], Maedeh Amirpour[1], Grant Covic[1], Simon Bickerton[1]
[1]University of Auckland, New Zealand

14:25 Design and Construction of a 100 W Wireless Charger for an E-Scooter at 6.78 MHz N/A
Christopher H. Kwan[1], Juan M. Arteaga[1], David C. Yates[1], Paul D. Mitcheson[1]
[1]Imperial College London, United Kingdom

14:40 Contactless Energy Transfer for Inductive Electrically Excited Synchronous Machines N/A
David Maier[1], Nejila Paspour[1], Jonas Kurz[1]
[1]University of Stuttgart, Germany

14:55 Performance of Inductive Power Transfer-based Pavements of Electrified Roads N/A
Ahmed Marghani[1], Douglas Wilson[1], Tam Larkin[1]
[1]University of Auckland, New Zealand

15:10 Inductive Power Delivery with Acoustic Distribution to Wireless Sensors N/A
David E. Boyle[1], Steven W. Wright[1], Michail E. Kiziroglou[1], Akshayaa Pandiyan[1], Eric M. Yeatman[1]
[1]Imperial 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 312
Diego Masotti[1], Mazen Shanawani[1], Alessandra Costanzo[1]
[1]University of Bologna, Italy

08:40 Implementation of a High-Efficient and Simple CPW Rectenna at the 2.45 GHz ISM Radio Band 316
Mohamed Mansour[1], Haruichi Kanaya[1]
[1]Kyushu University, Japan

08:55 An Efficient RF Power Transfer Scheme using Location-based Phase-controlled Array Antenna 325
Eui Bum Lee[1], Wonshil Kang[1], Hyunchul Ku[1]
[1]Konkuk University, South Korea

09:10 Study on Multipath Retrodirective for Efficient and Safe Indoor Microwave Power Transmission 329
Taichi Sasaki[1], Naoki Shinohara[1]
[1]Kyoto University, Japan

09:25 Efficiency of Wireless Power transfer with a Multi-sine Source Optimized for the Propagation Channel 334
Regis Rousseau[1], Guillaume Villemaud[1], Florin Hutu[1]
[1]University of Lyon, France

09:40 Beaming Efficiency of 1-D Frequency-Scanned Based Radiative WPT System for Wireless Sensor Networks 338
Miguel Poveda-García[1], José Luis Gómez-Tornero[1]
[1]Technical University of Cartagena, Spain, [2]University 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 N/A
Katsuhiro Hata[1], Takehiro Imura[1], Hiroshi Fujimoto[1], Yoichi Hori1, Daisuke Gunji[2]
[1]University of Tokyo, Japan, 2NSK Ltd., Japan

08:40 Push-pull driven Low-cost Coupler Array for Dynamic IPT systems N/A
Vahid Zahiri Barsari[1], Duleepa J Thrimawithana[1], Grant A. Covic[1]
[1]University of Auckland, New Zealand

08:88 Sensorless Automatic Stop Control of Electric Vehicle in Semi-dynamic Wireless Charging System N/A
Jirawat Sithinamsuwan[1], Kensuke Hanajiri[1], Katsuhiro Hata[1], Takehiro Imura[1], Hiroshi Fujimoto[1], Yoichi Hori[1]
[1]University of Tokyo, Japan

09:10 Comparison of Single and Three phase Dynamic Charging Systems for Electric Vehicles N/A
Van-Binh Vu[1], Mohamed Dahidah[1], Volker Pickert[1], Van-Tung Phan[1]
[1]Newcastle University, United Kingdom

09:25 One-Sided Magnetic Field Halbach Pad for EV Wireless Charging N/A
Mei Su[1,2], Tao Ling[1,2], Qi Zhu[1,2], and Pengcheng Wang[1,2]
[1]Central 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 N/A
Van-Binh Vu[1], Mohamed Dahidah[1], Volker Pickert[1], Van-Tung Phan[1]
[1]Newcastle 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 343
Ryosuke Hasaba[1], Katsuya Okamoto[1], Tatsuo Yagi[1], Souichi Kawata[1], Kazuhiro Eguchi[1], Yoshio Koyanagi[1]
[1]Panasonic Corporation, Japan

10:40 Capacitive Resonant System to Charge Devices with Metallic Embodiments 347
Susanna Vital de Campos de Freitas[1], Fabiano Cezar Domingos[1], Rashid Mirzavand[1], Pedram Mousavi[1]
[1]University of Alberta, Canada

10:55 Optimizing the Power Output for a Capacitive Wireless Power Transfer System with N receivers 351
Ben Minnaert[1], Franco Mastri[2], Alessandra Costanzo[2], Mauro Mongiardo[3] and Nobby Stevens[4]
[1]Odisee University College of Applied Sciences, Belgium, [2]University of Bologna, Italy, [3]University of Perugia, Italy, [4]KU Leuven, Belgium

11:10 Multifactorial Rig for Study of Inductive Powering Systems with Arbitrary Orientation of the Coils 355
Arseny A. Danilov[1], Eduard A. Mindubaev[1], Konstantin O. Gurov[1]
[1]JSC ZITC, Russia

11:25 Determination of the Optimal Resonant Condition for Multi-receiver Wireless Power Transfer Systems 361
Seung Beop Lee[1], Mingi Kim[2], In Gwun Jang[2]
[1]Chonbuk National University, South Korea, [2]KAIST, South Korea

11:40 A Wireless Charging Coil in Printed Circuit Board with Partially Split Conductors for Low Resistance 366
Yujun Shin[1], Jaehyoung Park[1], Haerim Kim[1], Bumjin Park[1], Jongwook Kim[1], Chanjun Park[1], Seungyoung Ahn[1]
[1]KAIST, 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 N/A
Donald Chaney[1], Charles A. Robinson[1], C. W. Van Neste[1]
[1]Tennessee Technological University, United States of America

10:40 A Phase-controlled Stacked-transmitter Wireless Power Transfer System for Magnetic Field Beamforming N/A
Ning Kang[1], Ming Liu[2], Chengbin Ma[1]
[1]Shanghai Jiao Tong University, China, [2]Princeton University, United States of America

10:55 High Power Density Stacked-Coils Based Power Receiver for MHz Wireless Power Transfer N/A
Jibin Song[1], Ming Liu[2], Minfan Fu[3], Chengbin Ma[1]
[1]Shanghai Jiao Tong University, China, [2]Princeton University, United States of America, [3]ShanghaiTech University, China

11:10 Design of a Switchable Driving Coil for Magnetic Resonance Wireless Power Transfer N/A
Yelzhas Zhaksylyk[1], Ulrik Hanke[1], Mehdi Azadmehr[1]
[1]University of South-Eastern Norway, Norway

11:25 E-Field Analysis of a 3D Capacitive Power Transfer Configuration with Single Source Excitation N/A
Qi Zhu[1,2], Lixiang Jackie Zou[3], Mei Su[1,2], Aiguo Patrick Hu[3]
[1]Central South University, China, [2]Human Provincial Key laboratory of power Electronics Equipment and Grid, China, [3]University of Auckland, New Zealand

11:40 Compactly Assembled Transmitting and Receiving Modules with Shield for Capacitive Coupling Power Transfer System N/A
Aam Muharam[1,3], Mitsuru Masuda[2], Reiji Hattori[1], Abdul Hapid[3]
[1]Kyushu University, Japan, [2]Furukawa Electric Co., Japan, [3]Indonesian Institute of Sciences, Indonesia

Lunch

11:55 Lunch

WPTC Session 8 – Novel Transmitter Architectures

Kelvin Lecture Theatre
Chairs: Bart Smolders, Simon Hemour

13:20 **Invited Talk**
WPT: from μW/cm² harvesting to kW capacitive powering N/A
Zoya Popovic
University of Colorado, United States of America

13:45 2.45-GHz Wireless Power Transmitter with Dual-Polarization-Switching Cantenna for LED Accessories 371
Kosuke Yoshida[1], Norifumi Kashiyama[1], Miho Kanemoto[1], Shogo Umemoto[1], Hisashi Nishikawa[1], Ami Tanaka[1], Takakuni Douseki[1]
[1]Ritsumeikan University, Japan

14:00 Thermal Performance of Class-FF Converter Used for Wireless Power Transfer in Retinal Implants 375
Iman Abdali Mashhadi[1], Behzad Poorali[1], Majid Pahlevani[1]
[1]University of Calgary, Canada

14:15 Development of an Automatic Bidirectional Wireless Charging System for Mobile Devices 380
James Washak[1], Cristina Alexandru[1], Dibin Zhu[1]
[1]University of Exeter, United Kingdom

14:30 Implementation of Constant Current Performance of 13.56MHz Wireless Power Transfer System 385
Heng-Ming Hsu[1] , Yan-Kai Huang[1], Tung-Lin Wu[1]
[1]National Chung Hsing University, Taiwan

14:45 A Distributed, Phase-locked, Class-E, RF Generator with Automatic Zero-Voltage Switching 390
Robert A. Moffatt[1], Trevor Howarth[1], Connor Gafner[1], Jeffrey J. Yen[1], Feng-Kai Chen[1], Josh Yu[1]
[1]Etherdyne 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 N/A
Burak Ozpineci
Oak Ridge National Laboratory, United States of America

13:45 500W 13.56MHz Class EF Push-pull Inverter for Advanced Dynamic Wireless Power Applications N/A
Samer Aldhaher[1], Paul D. Mitcheson[1]
[1]Imperial College London, United Kingdom

14:00 Design Method for Resonant Inductive Power Transfer Systems Using a Resistor Ladder Prototype N/A
Aaron D. Scher[1], Bogdan Z. Savic[1], Kalena L. Ching[1], Irvin H. Nguyen[1], William Garibo[1], Mohamud Hussein[1]
[1]Oregon Institute of Technology, United States of America

14:15 Misalignment Tolerant Control of an Inductive Charger for Electric Vehicles with V2G Possibilities N/A
Wiljan Vermeer[1], Soumya Bandyopadhyay[1], Pavol Bauer[1]
[1]Delft University of Technology, The Netherlands

14:30 Design of the Primary Side LCC Compensation Network Based on ZVS for Wireless Power Transfer Systems N/A
Yuwang Zhang[1,2], Yanjie Guo[1,3], Lifang Wang[1,3]
[1]Key Laboratory of Power Electronics and Electric Drives Institute of Electrical Engineering Chinese Academy of Sciences, China, [2]University of Chinese Academy of Sciences, China, [3]Beijing Co-Innovation Center for Electric Vehicles

14:45 A Wireless Power Transfer System with a Primary-Side Process Variable for Maximum Efficiency Control N/A
Aaron D. Scher[1]
[1]Oregon Institute of Technology, United States of America

Poster Session 11 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 395
Xiaoqiang Gu[1], Simon Hemour[2], Ke Wu[1]
[1]Polytechnique Montreal, Canada, 2University of Bordeaux, France

WPP44 DIY Electromagnetic Phantoms for Biomedical Wireless Power Transfer Experiments 399
Tom van Nunen[1], Esmee Huismans[1], Rob Mestrom[1], Mark Bentum[1], Hubregt Visser[1]
[1]Eindhoven University of Technology, The Netherlands

WPP45 Voltage Multiplier Rectifier with Second Harmonic Resonance for Wireless Power Transfer System 405
Juwan Kim[1], Wonshil Kang[1], Hyunchul Ku[1]
[1]Konkuk University, South Korea

WPP46 Demonstration of Sub-Terahertz Coplanar Rectenna using 265 GHz Gyrotron 409
Sei Mizojiri[1], Kengo Takagi[1], Kohei Shimamura[1], Shigeru Yokota[1], Masafumi Fukunari[2], Yoshinori Tatematsu[2], Teruo Saito[2]
[1]University of Tsukuba, Japan, 2University of Fukui, Japan

WPP47 The Logistics System by Rotary Wing Unmanned Aerial Vehicle with 28GHz Microwave Power Transmission 413
Satoru Suganuma[1], Duc Hung Nguyen[2], Yuma Nishioka[1], Kohei Shimamura[1], Koichi Mori[2], Shigeru Yokota[1]
[1]University of Tsukuba, Japan, [2]Nagoya University, Japan

WPTC-P5– Rectifiers and Converters
Siemens Board Room

WPP93 1 MHz band rectenna with several rectifier devices in nW operation 608
Nobuhiko Yasumaru[1], Kanto Nakanishi[1], Kenji Itoh[1],Shunya Tsuchimoto[1], Takuya Yamada[1], Takayuki Mori[1], Jiro Ida[1]
[1]Kanazawa Institute of Technology, Japan

15:05 – 17:00 Poster Session II – WoW
Chair: Sam Aldhaher

WoW-P5 – Dynamic IPT
Maxwell Libaray

WoP18 Coupling Coefficient Estimation for Wireless Power Transfer System at Constant Input Power Operation N/A
Haruko Nawada[1], Yoshiaki Takahashi[1], Katsuhiro Hata[1], Takehiro Imura[1], Hiroshi Fujimoto[1], Yoichi Hori[1], Takuya Yabumoto[2]
[1]University of Tokyo, Japan, [2]Mitsubishi Electric Corporation, Japan

WoP19 A Dynamic Wireless Charging System with a Robust Output Voltage Respect To Misalignment N/A
Ali Ramezani[1], Mehdi Narimani[1]
[1]McMaster University, Canada

WoP20 A Dynamic Model for Contactless Energy Transfer Systems N/A
Jannis Noeren[1], Nejila Parspour[1]
[1]University of Stuttgart, Germany

WoP21 Feasibility Study on In-motion Wireless Power Transfer System Before Traffic Lights Section N/A
Dasiuke Gunji[1], Katsuhiro Hata[2], Osamu Shimizu[2], Takehiro Imura[2], Hiroshi Fujimoto[2]
[1]NSK Ltd., Japan, [2]University of Tokyo, Japan

WoP22 Dual-phase IPT Track Primary Evaluation Using Normalized Coupling Factor N/A
Weitong Chen[1], Feiyang Lin[1], Grant Covic[1], John Boys[1]
[1]Auckland University, New Zealand

WoP23 An Alternate Arrangement of Active and Repeater Coils for Quasi-Constant Power Wireless EV Charging N/A
Chunsheng Wang[1,2], Pengcheng Wang[1,2], Qi Zhu[1,2], Mei Su[1,2]
[1]Central South University, China, [2]Human 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 N/A
Giuseppe Guidi[1], Salvatore D'Arco[1], Jon Are Suul[1,2]
[1]SINTEF Energy Research, Norway, [2]Norwegian University of Science and Technology, Norway

WoW-P6 – High Frequency WPT
Maxwell Library

WoP25 Load Adaptation of Capacitive Power Transfer System with a Four-Plate Compact Capacitive Coupler N/A
Xueying Wu[1], Yugang Su[1], Xinyu Hou[1], Xiaodong Qing[1], Wanting Zhu[1]
[1]Chongqing University, China

WoP26 Impacts of Coupling Plates on Single-Switch Capacitive-Coupled WPT Systems N/A
Yashwanth Bezawada[1], Ruiyun Fu[2], Yucheng Zhang[1]
[1]Old Dominion University, United States of America, [2]Mercer University, United States of America

WoP27 A 13.56 MHz Inductive Power Transfer System Operating with Corroded Coils N/A
Epameinondas Skountzos[1], Juan M. Arteaga[1], Eftychios Hadjittofis[1], David C. Yates[1]
Kyra L. Sedransk-Campbell[1], Paul D. Mitcheson[1]
[1]Imperial College London, United Kingdom

WoP28 A High-Performance Double-Sided LC Compensated CPT System with Load-Independent Constant Current Output N/A
Jing Lian[1], Xiaohui Qu[1]
[1]Southeast University, China

WoP29 A High Power WPT System for Through the Wall Applications 321
Tiefeng Shi[1], Paul Wiener[1]
[1]GaN Systems Inc., Canada

WoW-P7 – Converter Design & Control
Siemens Boardroom

WoP30 Triple Subdivision Cell-to-Cell Mapping Method for Global Analysis of WPT System N/A
Chunsen Tang[1], Chunyan Yang[1], Yingjun Fei[1], Zhihui Wang[1], Zhiping Zuo[1], Zhenpeng Zhang[2]
[1]Chongqing University, China, [2]China Electronic Power Research Institute, China

WoP31 Full Duplex Communication Based on Partial Power Coil in Inductive Coupling Power Transfer System N/A
Cheng Li[1], Zhi-Hui Wang[1], Yue Sun[1], Xin Dai[1]
[1]Chongqing University, China

WoP32 High-Power WPT Systems: Step-up Transformer vs. Partial-Series Tuning N/A
Wenwei Victor Wang[1], Duleepa J. Thrimawithana[1]
[1]University of Auckland, New Zealand

WoP33 Efficiency Maximization in Wireless Power Transfer Systems for Resonance Frequency Mismatch N/A
Helanka Weerasekara[1], Katsuhiro Hata[1], Takehiro Imura[1], Hiroshi Fujimoto[1], Yoichi Hori[1]
[1]University of Tokyo, Japan

WoP34 Advantages and Tuning of Zero Voltage Switching in a Wireless Power Transfer System N/A
Francesca Grazian[1], Peter van Duijsen[1], Thiago B. Soeiro[1], Pavol Bauer[1]
[1]Delft University of Technology, The Netherlands

WoP35 Surge Current Analysis of EV Wireless Charging System during Short-circuit Decoupling Process N/A
Ke Shi[1], Chunsen Tang[1], Zhihui Wang[1], Zhiping Zuo[1]
[1]Chongqing University, China

WoP36 Multiple-Receiver Wireless Power Transfer with Efficient Power Control Strategy N/A
Weikun Cai[1], Houjun Tang[1], Xiaoyang Lai[1], Longzhao Sun[1]
[1]Shanghai Jiao Tong University, China

WoP37 Inductive Power Transfer System with Automatic Control N/A
Chenlei Liu[1], Xin Liu[2]
[1]Shanghai Electric Power Research Institute, China, [2]Shanghai Jiao Tong University, China

WoP38 Output Voltage Range of a Resonant Inductive WPT Link Operating in Load Independent Regime N/A
Yotam Frechter[1], Yegal Darhovsky[1], Alon Kuperman[1]
[1]Ben-Gurion University of the Negev, Israel

WoP39 Dynamic Modeling and Analysis of Multi-Receiver Wireless Power Transfer System N/A
Tian Tan[1], Kainan Chen[1], Ye Jiang[1], Zhengming Zhao[1], Liqiang Yuan[1]
[1]Tsinghua University, China

WoP40 Adaptive Capacitance Impedance Matching (ACIM) of WPT Systems by Voltage Controlled Capacitors N/A
Stanislav Tishechkin[1], Shmuel (Sam) Ben-Yaakov[1]
[1]Ben-Gurion University, Israel

WoP41 A Wireless Power Transfer System Powering Multiple Gate Drivers in a Modular Multilevel Converter N/A
Zhe Zhou[1], Weiguo Li[1,2], Chenweng Cheng[3], Chao Wang[2], Zhanfeng Deng[1], Chris Mi[3]
[1]Global Energy Interconnection Research Institute, China, [2]State Grid Corporation of China, China, [3]San 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 1 – High Power and Ultrasonic WPT

Kelvin Lecture Theatre
Chairs: Grant Covic, Mario Ferreira

08:25 Development of a 10 kW Wireless Power Transfer System N/A
Alex Ridge[1], Ku Ku Ahamad[1], Richard McMahon[1], John Miles[2]
[1]University of Warwick, United Kingdom, [2]University of Cambridge, United Kingdom

08:40 Thin, Light & Flexible Magnetic Materials for 7.7 kW Wireless Power Transfer System 612
Zohaib Hameed[1], Milo Oien-Rochat[1], Charles Bruzzone[1], Ian Cummings[1], Jeff Keeney[1], Michael Benson[1]
[1]3M Company, United States of America

08:55 High Efficiency Wireless Power Transfer System using a Two-stack Hybrid Metamaterial Slab 616
Seongsoo Lee[1], Yeonje Cho[2], Seungtaek Jeong[1], Seokwoo Hong[1], Boogyo Sim[1], Hongseok Kim[3], Joungho Kim[1]
[1]Korea Advanced Institute of Science and Technology (KAIST), South Korea, [2]Samsung, South Korea, [3]Missouri 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 620
Marc Bisschop[1], Wouter A. Serdijn[1]
[1]Delft University of Technology, The Netherlands

09:25 Mutual Inductance Modeling of In-wheel Arc-shaped Coil for In-motion WPT 624
Osamu Shimizu[1], Takehiro Imura[1], Hiroshi Fujimoto[1], Daisuke Gunji[2], Keizo Akutagawa[3], Giuseppe Guidi[4]
[1]University of Tokyo, Japan, [2]NSK Ltd., Japan, [3]Bridgestone Corporation, Japan, [4]Sintef Energy, Norway

09:40 Transit

Plenary Talk 4 N/A

Kelvin Lecture Theatre
Chairs: Udaya Madawala, Huib Visser

09:45 Large-area Wireless Charging Enabled by Metamaterials N/A
Irina Khromova
Metaboards, United Kingdom

Coffee Break

10:30 Coffee Break

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 N/A
Dinesh Kithany
IHS Markit, United Kingdom

11:25 1D-MV Position Detection Method for Wireless Power Transfer System of Electric Vehicle 629
Huan Zhang[1], Shihui Xu[1], Chen Yao[1], Houjun Tang[1]
[1]Shanghai Jiao Tong University, China

11:40 Separated Circular Capacitive Couplers for Rotational Misalignment of Drones 635
Chanjun Park[1], Jaehyoung Park[1], Yujun Shin[1], Sungryul Huh[1], Jongwook Kim[1], Seungyoung Ahn[1]
[1]KAIST, South Korea

11:55 Coil Design for High Coupling Performance for Two-phase Receiver of Dynamic Wireless Charging System 639
Zhiyuan Wang[1], Jiantao Zhang[1], Tianhao Huang[1], Shumei Cui[1]
[1]Harbin Institute of Technology, China

12:10 – 12:45 WPW 2020 Announcement and Closing Ceremony

Kelvin Lecture Theatre