Newcastle University | WEMDCD 2023 | IEEE IES

6TH IEEE WORKSHOP ON ELECTRICAL MACHINES DESIGN, CONTROL AND DIAGNOSIS – WEMDCD 2023 13TH – 14TH APRIL 2023, NEWCASTLE UPON TYNE, UK

EVENT PROGRAMME

Newcastle University | WEMDCD 2023 | IEEE

6TH IEEE WORKSHOP ON ELECTRICAL MACHINES DESIGN, CONTROL AND DIAGNOSIS – WEMDCD 2023 13TH – 14TH APRIL 2023, NEWCASTLE UPON TYNE, UK

EVENT PROGRAMME AT A GLANCE

Wednesday 12 April 2023	
14:00 – 16:00	Tour to the Northeast DER Industrialisation Centre ①
18:00 – 20:00	Welcome drinks reception (The Boiler House) ②
Thursday 13 April 2023	
8:00 – 9:00	Registration (Catalyst Building) ③
9:00 – 9:30	**Rafal Wrobel** and **Barrie Mecrow**, **Newcastle University**, 6th IEEE WEMDCD 2023 opening
9:30 – 10:10	**Philippa Oldham**, **Advanced Propulsion Centre**, How do Future E-machines Support a Net-Zero Ambition?
Session chairs:	**Francisco J. Márquez-Fernández**, **Lund University** and **Shafiq Odhano**, **Newcastle University**
10:10 – 10:40	**Ganesh Chandramouli, Alstom,** Railways in a Seamless Electrified Mobility Landscape – Challenges and Opportunities in Implementing Innovation
10:40 – 11:10	**Gianmario Pellegrino, Politecnico di Torino,** High-speed IPM Motors with Rotor Sleeve: Structural Design and Performance Evaluation
11:10 – 11:20	**Coffee break**
11:20 – 11:50	**Florian Bruder-Mandler**, **Bender**, Insulation Monitoring Devices for Aerospace Applications
11:50 – 12:20	**Tadashi Sawata, Collins Aerospace,** Challenges in Design and Manufacture of High-Power Density Motors for Aircraft Propulsion Applications
12:20 – 14:10	Lunch, poster session 1 and industrial exposition ④
14:10 – 14:50	**Daniel Smith**, **Dyson**, Dyson High Speed Motors – A Design Evolution
Session chairs:	**Antonio Griffo, University of Sheffield and Giulio De Donato, Sapienza Università di Roma**
14:50 – 15:20	**Pär Ingelström, Infimotion,** Development of Electric Traction Drives for Cars and Heavy Vehicles – Past and Present

15:20 – 15:50	**Giacomo Scelba**, **Università degli Studi di Catania**, Resolution of Rotor Position Measurement: Modelling and Impact on Speed Estimation
15:50 – 16:00	**Coffee break**
16:00 – 16:30	**Fernando Ferreira**, **University of Coimbra,** Smart Rewinding of Induction Motors
16:30 – 17:00	**Rajesh Deodhar**, **HiSpeed Ltd.,** Innovative Electric Machine Topologies for Sustainable Mobility Applications
18:00 – 19:00	Drinks reception (Discovery Museum) ⑤
19:00 – 21:00	Gala dinner (Discovery Museum) ⑤
Friday 14 April 2023	
8:30 – 9:30	Registration (Catalyst Building) ③
9:30 – 10:10	**Lloyd Tinkler**, **University of Sheffield Advanced Manufacturing Research Centre (AMRC),** Future Electrical Machines Manufacture
Session chairs:	**Shafiq Odhano, Newcastle University** and **Antonio Griffo, University of Sheffield**
10:10 – 10:40	**Mikael Bergquist, Scania**, Overview of Scania's HEV Powertrain for Heavy Vehicles
10:40 – 11:10	**Radu Bojoi**, **Politecnico di Torino**, Overview of Sensorless Control Strategies for Electric Vehicle Traction IPMSM
11:10 – 11:20	**Coffee break**
11:20 – 11:50	**Kais Atallah**, **University of Sheffield**, Ferrite Traction Machines
11:50 – 12:20	**Annette Muetze**, **TU Graz**, From Backstage to Centre Stage: Auxiliary Automotive Drives
12:20 – 14:10	Lunch, poster session 2 and industrial exposition ④
Session chairs:	**Giulio De Donato, Sapienza Università di Roma** and **Francisco J. Márquez-Fernández, Lund University**
14:10 – 14:40	**Babak Fahimi, UTDallas**, A Comparative Study on Performance of Various Sensorless Controlled PMSM Drives in High Speed Compressor Applications
14:40 – 15:10	**Antonio Griffo**, **University of Sheffield**, Voltage Stress in Inverter-Fed Electrical Machines
15:10 – 15:20	**Coffee break**

15:20 – 15:50	**Antonio Cardoso**, **University of Beira Interior**, An Integrated Strategy for the Real-Time Detection and Discrimination of Stator Inter-Turn Short-Circuits and Converter Faults in Asymmetrical Six-Phase Induction Motors
15:50 – 16:20	**Julien Cordier**, **TU Munich**, Predictive Control for Electric Drives – New Horizons and Challenges
16:20 – 16:50	**Rafal Wrobel** and **Barrie Mecrow**, **Newcastle University**, Student paper awards and 6th IEEE WEMDCD 2023 closing

Poster session 1 – Thursday 13 April 2023 (12:20 – 14:10)	
Session chairs:	**Andreas Lindner, Schaeffler, Stefano Nuzzo, University of Modena and Reggio Emilia, Xu Deng, Newcastle University**
Paper no. 01	**Maximilian Lauerburg**, **Polkrit Toraktrakul**, **Kay Hameyer**, Design Morphology for High-Speed Rotors in Electrical Machines Based on Analytical Models, **Institute of Electrical Machines (IEM), RWTH Aachen University**
Paper no. 02	**Bharti Srivastava**, **Christopher R. Lines**, Effect of Slot Leakage Flux on Winding Inductance and AC Resistance in an Axial Flux Machine with Distributed Winding, **Saietta Group Plc**
Paper no. 04	**Vincenzo Madonna**, **Cesare Meano**, **Roberto Cossu**, **Michele Pensato**, **Ken Hansen**, Investigating the Impact of Material Cost Fluctuations on the Total Manufacturing Cost of EV Traction Machines, **PUNCH Torino S.p.A.**
Paper no. 07	**Yang Teng**, **Reza Yazdanpanah**, **Seyed A. Mortazavizadeh**, **Olimpo Anaya-Lara**, **David Campos-Gaona**, Design and Analysis of a 100kW Rotary Transformer for XROTOR Wind Generators, **University of Strathclyde**
Paper no. 08	**Ramdane Lateb**, **Andre de Andrade**, **Lakdar S. Haddad**, **Joaquim Da Silva**, Comparison of Different Sampled PWM Strategies Applied to High-Speed Drives: A Predictive Time-Frequency Analysis, **SKF Magnetic Mechatronics**
Paper no. 09	**Asier B. Mugarra Flores,** Advances in Frequency Response Techniques for Diagnosing Inter-Turn Faults in Salient Poles, **Universidad Politécnica de Madrid**
Paper no. 10	**Alessandro Guiducci**, **Stefano Nuzzo**, **Davide Barater**, **Stefano Fontanesi**, **Saverio G. Barbieri**, **Giovanni Franceschini**, **Fabio Berni**, **Giuseppe Cicalese**, Refined Structural Design and Thermal Analyses of a High-Speed Wound-Field Generator for the More Electrical Aircraft, **University of Modena and Reggio Emilia**, **RED CFD**
Paper no. 11	**Liguo Yang**, **Shimin Zhang**, **Xiaolu Tong**, **Kay Hameyer**, Assessment of Experimental Approaches for the Evaluation of Material Compatibility of E-fluids With the Insulation System of Low Voltage Rotating Electrical Machines, **Institute of Electrical Machines (IEM), RWTH Aachen University**, **Fuel & Lubricant Division, TotalEnergies One Tech**

Paper no. 12	**Abdelli Abdenour**, Combination of 2D and 3D Finite Element models in the design of axial flux permanent magnet machines for electric vehicle application, **IFPEN**
Paper no. 13	**Mahmoud Masoud**, **Walid Issa**, **Wilfred Yates**, A Tutorial on Double Pulse Test of Silicon and Silicon Carbide MOSFETs, **University of Sheffield**
Paper no. 14	**Yatai Ji**, **Paolo Giangrande**, **Weiduo Zhao**, **Vincenzo Madonna**, **He Zhang, Michael Galea**, Lifetime estimation of corona-resistance wire for electrical machines operating under the partial discharge regime, **University of Nottingham Ningbo**, **University of Bergamo**, **PUNCH Torino S.p.A.**, **Università ta' Malta**
Paper no. 16	**Hannes A. Weiss**, Manufacturing-oriented magnetic analysis of segmented stator lamination stacks, **Lifa AG**
Paper no. 17	**Taiwo Ajayi**, Determination of an Asymmetrical Nine Phase Induction Machine Stator and Rotor Inductances Using Winding Function Approach, **University of Strathclyde**
Paper no. 18	**Nail Tosun**, **Ozan Keysan**, **Özgür Bayer**, **Deniz A. Yılmaz**, **Görkem Gülletutan**, **Muhammet S. Yakut**, Winding Type Alternation of a Refurbished Old Generator, **Middle East Technical University**
Paper no. 20	**Federico Marcolini**, **Giulio De Donato**, **Fabio G. Capponi**, **Maurizio Incurvati, Federico Caricchi**, On Winding Manufacturing Technologies for Coreless Axial-Flux Permanent-Magnet Machines, **Sapienza-University of Rome**, **Management Center Innsbruck MCI**
Paper no. 23	**Joshua Hoole**, **Dominic North**, **Nick Simpson**, **Philip Mellor**, Verifying Strand Transposition in Stator Windings via X-ray Computed Tomography derived Three-Dimensional Models, **University of Bristol**

Poster session 2 – Friday 14 April 2023 (12:20 – 14:10)	
Session chairs:	**Andreas Lindner**, **Schaeffler, Stefano Nuzzo**, **University of Modena and Reggio Emilia**, **Xu Deng, Newcastle University**
Paper no. 24	**Matias F. Troncoso C.**, **Fausto Stella**, **Gianmario Pellegrino**, A Novel Two-Phase Permanent Magnet Rotor Machine for Automotive Applications, **Politecnico di Torino**
Paper no. 25	**Muhammad U. Naseer**, **Ants Kallaste**, **Bilal Asad**, **Toomas Vaimann**, **Anton Rassõlkin**, Design Procedure and Preliminary Analysis for the Introduction of Axial Asymmetry in the Synchronous Reluctance Machines, **Tallinn University of Technology**
Paper no. 26	**Nejat Saed**, **Shahin Asgari**, **Annette Muetze**, On the Effect of Position Signal Error on the Performance of Single-Phase BLDC Drives, **Graz University of Technology**

Paper no. 28 **Riccardo Notari**, **Giampaolo Devito**, **Fabio Bernardi**, **Marco Pastura, Davide Barater, Stefano Nuzzo**, Sizing of Hairpin Conductors in highway operation considering PWM power supply, **University of Modena and Reggio Emilia**

Paper no. 29 **Martin Sarap**, **Ants Kallaste**, **Payam S. Ghahfarokhi**, **Toomas Vaimann**, Analysis of Advanced Passive Heatsinks For Electrical Machines Enabled by Additive Manufacturing, **Tallinn University of Technology**, **Riga Technical University**

Paper no. 30 **Ludovico Ortombina**, **Fabio Bernardi**, **Luigi Alberti**, **Davide Barater**, Injectionless Full Range Speed Sensorless Control for Synchronous Reluctance Motors based on PWM Current Ripple, **University of Padova**, **University of Modena and Reggio Emilia**

Paper no. 31 **Mohammad Soltani**, **Stefano Nuzzo**, **Davide Barater**, **Mauro Di Nardo**, Performance Analysis of a Permanent Magnet Motor with Continuous Hairpin Winding, **University of Modena and Reggio Emilia**, **University of Nottingham**

Paper no. 33 **Leonardo Colombo**, **Sima Soltanipour**, **Alexandra Tokat**, **Torbjörn Thiringer, Francisco Marquez-Fernandez**, **Joachim Lindström**, **Mats Alaküla**, Statistical Assessment of Core Loss Measurements Techniques for Laminated Steel, **Lund University**, **Chalmers University of Technology**, **Volvo Cars**

Paper no. 34 **Paolo Ragazzo**, **Simone Ferrari**, **Gaetano Dilevrano**, **Lorenzo Beatrici**, **Christian Girardi**, **Gianmario Pellegrino,** Scaling of Ferrite-assisted Synchronous Reluctance Machines for Lifting Systems, **Politecnico di Torino**, **ITG Tecnologie S.r.l.**

Paper no. 35 **Simon Bernier**, Stray flux and air gap flux analysis in larges hydro generators, **Institut de recherche d'Hydro-Québec**

Paper no. 36 **Tomasz Wolnik**, **Tomasz Jarek**, **Jan Golec**, **Rafal Topolewski**, **Artus Aircraft**, **Dominik Jastrzebski**, High Power Density Motor for Light Electric Aircraft – Design Study and Lab Tests, **Łukasiewicz Research Network – Upper Silesian Institute of Technology**, **Artus Aircraft**

Paper no. 37 **Andreas Carlsson**, **Viktor Josefsson**, **Shafigh Nategh**, **Fredrik Furufors**, **David Ekholm**, **Noel Kleen,** An Investigation on DC-Link Voltage Influence on E-Drive Efficiency for E-mobility Application, **Polestar**

Paper no. 38 **Waruna Maddumage**, **Amin Paykani**, Numerical Study of Oil Jet Cooling in Electric Traction Motors with Hairpin Windings, **University of Hertfordshire**

Paper no. 39 **Gabriele Puccio**, **Shafigh Nategh**, **Davide Barater**, **Daniel Ericsson**, **Andreas Carlsson**, **Michelangelo Raimondo**, An Advanced Thermal Modeling Method for Directly Oil-cooled Traction Motors, **Polestar**, **University of Modena and Reggio Emilia**, **Deflexional**

Paper no. 40 **Yinka Leo Ogundiran**, **Antonio Griffo**, A Novel Modified Archimedes Spiral Antenna for Partial Discharge Detection in Inverter-Fed Electrical Machines, **The University of Sheffield**

Paper no. 41 **Yinka Leo Ogundiran**, **Antonio Griffo**, **Jiabin Wang**, **Shubham Sundeep**, **Florian Bruder-Mandler**, **Tobias Groh**, Insulation Monitoring in Ungrounded Electrical System for More Electric Aircrafts, **The University of Sheffield**, **Bender GmbH & Co. KG**

Invited keynote speakers

Philippa Oldham, **Stakeholder Engagement Director, Advanced Propulsion Centre, UK**

A Chartered Engineer who is experienced and knowledgeable on the UK's transport modes and infrastructure, she works to support the development of strategies that incubate collaborations. The Advanced Propulsion Centre has committed over £1.3bn investment into net-zero and low carbon automotive innovation, with the resulting products reducing carbon emissions and providing lasting economic benefits from jobs and inward investment. Key external roles include being a Board Member of Zemo Partnership, as Chair of Members Council and the Co-Chair of Industry Advisory Group for Driving the Electric Revolution Challenge.

Daniel Smith, Principal Motor Drives Engineer, **Dyson, UK**

After completing a PhD in high-speed high power machines Daniel joined Dyson as a magnetics engineer, after 10 years with the company and working on systems from 1W to 1MW Daniel now runs the blue skies future power systems office in partnership with Newcastle university.

Lloyd Tinkler, **Senior Technical Fellow – Electrical Machines Manufacture**, **AMRC (Advanced Manufacturing Research Centre), UK**

Dr Lloyd Tinkler has an MEng (Hons) degree in electronic engineering from the University of Hull, in 2016 he gained a PhD from the University of Sheffield for his experimental work on optical nonlinearities in semiconductors and is a chartered engineer with Institute of Engineering and Technology. Lloyd has worked at the University of Sheffield's Advanced Manufacturing Research Centre for eight years and now leads a multifunctional a team of engineers developing novel manufacturing technologies for high-performance electrical machines through a portfolio of collaborative R&D projects and the EPSRC Future Electrical Machines Manufacturing Hub.

Invited speakers

Ganesh Chandramouli, Head of Innovation, Alstom, Sweden

Ganesh Chandramouli is Head of Innovation, Strategy and Portfolio at Alstom's R&D Center for railway powertrains in Västerås, Sweden. He holds a Master of Science in Electrical Engineering from the Royal Institute of Technology in Stockholm, KTH. During his 25-year career at Alstom he has led R&D programs, shaped product and innovation strategies for traction systems, including Alstom's new MITRAC TC1500 range offering some of the first industrialized applications of Silicon Carbide based solutions in railways.

Gianmario Pellegrino, Full Professor, **Politecnico di Torino, Italy**

Gianmario Pellegrino is Professor of Power Converters, Electrical Machines and Drives at Politecnico di Torino, Turin, Italy. He was a visiting fellow at Aalborg University, the University of Nottingham, and the University of Wisconsin-Madison. Dr. Pellegrino is author of the open-source platform SyR-e for the design of electrical motors and drives, constantly developed and validated in the context of collaborations with the industry, and widely adopted world-wide. Dr. Pellegrino is an IEEE Fellow, an Associate Editor for the IEEE Transactions on Industry Applications and the recipient of the 8th Grand Nagamori Award. The research impact is summarized by 60+ IEEE journal papers, eight patents and nine Best Paper Awards. He is a member of the Power Electronics Interdepartmental Laboratory (PEIC) of Politecnico di Torino, a member of the Advisory Board of PCIM Europe, and the Rector's Advisor for Interdepartmental Centres of Politecnico di Torino.

Florian Bruder-Mandler, Developer, Bender GmbH & Co. KG, Germany

M. Sc. Physic, Mayor: Atom-, Plasma, and Space Physics
Employed at Bender since June 2021 as Developer for the IMITAES Project and standardization manager.

Tadashi Sawata, Chief Engineer – Electromagnetics, Collins Aerospace, UK

Tadashi is the Chief engineer in electromagnetics at Collins Aerospace. He has developed various aircraft actuation motor drives including Airbus A350/A380, Boeing 787 and Embraer KC390. Recently, he has been involved in development of aircraft electric propulsion motors. He has a PhD degree from University of Glasgow. He is a Fellow of IEEE and IET.

Pär Ingelström, Electric Drive Hardware Expert, InfiMotion Technology Europe, Sweden

After doctoral studies in computational electromagnetics, Pär has been working with electric traction and electric machine development at ABB Corporate Research (´06-´11), Volvo Group Trucks Technology (´11-´19), Polestar (´19-´20) and, currently, with newly formed InfiMotion Technology (Geely-owned) who are developing Electric Drive Units (EDUs) for performance cars. Specific interests include physics, simulation and system optimization.

Giacomo Scelba, Associate Professor, University of Catania, Italy

Giacomo Scelba is currently an Associate Professor with the Department of Electrical Electronic and Computer Engineering (DIEEI), University of Catania. His current research interests include ac drive control technologies, fault-tolerant motor drives, modeling and control of power converters and advanced technologies for power electronics applications.
Prof. Scelba is a Member of the IEEE IAS Industrial Drives Committee, the IAS Electric Machines Committee, the IAS Industrial Power Converters Committee, Drives and Automation and the IES Electrical Machines Committee. He is secretary of PELS Technical Committee on Electrical Machines, Drives and Automation. He was a recipient of Prize Paper Awards from the IAS Industrial Drives Committee and IES Electrical Machine Technical Committee. He is currently serving as an Associate Editor for the IEEE Transactions on Industry Applications.

Fernando J. T. E. Ferreira, Associate Professor, University of Coimbra & Institute of Systems and Robotics, Portugal

Fernando J. T. E. Ferreira (SM' 09) received a Ph.D. in electrical engineering from the University of Coimbra, Portugal, in 2009. He is currently an Associate Professor at the Department of Electrical and Computer Engineering of the University of Coimbra, and a Senior Researcher at the Institute of Systems and Robotics of Coimbra. He has participated in several EU projects dealing with electric motors and drives. He is the author/co-author of more than 150 papers published in international journals and conference records, with more than 4000 citations. He received the Best Paper Award at the IEEE/IAS ICPS'2001 and the Best Poster Award at the ICEM'2010.

Rajesh Deodhar, Technical Specialist Electric Motors, HiSpeed Ltd., UK

Rajesh has 30+ years of global industrial r&d experience, having worked at Crompton Greaves in India, Hitachi in Japan, SPEED Lab in Scotland, and IMRA Europe S.A.S. in the UK. He has been involved in developing a variety of electrical machine topologies for automotive traction and accessory motors ranging from 100W to 70kW. He has been a co-author and a co-inventor for 100+ journal publications, conference papers, & patent applications, including 20+ granted patents. He is a Fellow of the IET UK, and a Senior Member of the IEEE USA. His research interests continue to be electric machines and drives.

Mikael Bergquist, Senior Engineer, Scania, Sweden

B.sc Mechanical Engineering Senior Engineer at Scania transmission development 23 years in transmission development at Scania. The last 12 years with focus on electrification.

Radu Bojoi, Professor, Politecnico di Torino, Italy

Radu Bojoi received the MSc degree in Electrical Engineering from Technical University of Iasi, Romania, in 1993, and the PhD in Electrical Engineering from Politecnico di Torino, Italy, in 2002. He is a Full Professor of Power electronics and Electrical Drives in the Energy Department "G. Ferraris" and Chairman of the Power Electronics Innovation Center at Politecnico di Torino, Italy. Dr. Bojoi is a past Co-Editor-In-Chief of the IEEE Transactions on Industrial Electronics. Dr. Bojoi is IEEE Fellow from 2019 and published more than 180 papers covering electrical drives and power electronics for industrial applications, transportation electrification, power quality, and home appliances. He was the recipient of 6 IEEE paper awards. Dr. Bojoi is involved in many research projects with industry for direct new technology transfer aiming at obtaining new products.

Kais Atallah, Professor of Electrical Engineering,
The University of Sheffield, UK

Kais Atallah received the degree of Ingenieur d'Etat in Electrical Engineering from Ecole Nationale Polytechnique, Algeria, 1988, and the PhD from the University of Sheffield, England, in 1993. He is currently a Professor in Electrical Engineering at the University of Sheffield, and his research interests embrace fault-tolerant permanent magnet drives for safety-critical applications, magnetic transmission systems and rare-earth free electrical machines for electric and hybrid vehicles.

Annette Mütze, Professor, Graz University of Technology, Austria

Annette Muetze studied both at Darmstadt University of Technology, Darmstadt, Germany and Ecole Centrale de Lyon, Ecully, France, before embarking on her academic career that led her to the University of Wisconsin-Madison, Madison, WI, USA, and the University of Warwick, in the U.K.; prior to taking up her position as full professor at Graz University of Technology in Austria.

Babak Fahimi, Professor of Electrical and Computer Engineering, University of Texas at Dallas, USA

Babak Fahimi (F'2015) has received his B.S. and M.S. degrees in electrical engineering from the University of Tehran with the highest distinction, Iran in 1991 and 1993 respectively. He also received a PhD in electrical engineering from Texas A&M University in 1999. He has been active in research on electric machines and drives over the past 30 years. He has co-authored over 375 peer-reviewed articles and holds 22 US patents. He has been the advisor for 36 PhD students and 30 M.S. students. Dr. Fahimi is a fellow of IEEE for his contributions to the modeling of adjustable speed motor drives. He has won multiple international awards among which the 2003 IEEE Richard M. Bass young power electronic investigator award, 2008 SAE Ralph Teetor Educational award, and 2015 IEEE Cyril Veinott electromechanical energy conversion award stand out.

Antonio Griffo, Professor of Power Electronics and Electric Drives, The University of Sheffield, UK

Antonio Griffo received the M.Sc. degree in electronic engineering and the Ph.D. degree in electrical engineering from the University of Naples, Italy. From 2007 to 2013, he was a Research Associate with The University of Sheffield, and the University of Bristol. He is currently a Professor of power electronics and electric drives with the Department of Electronic and Electrical Engineering, The University of Sheffield. His research interests include modeling, control, and condition monitoring of electric power systems, power electronics converters, and electrical motor drives for renewable energy, automotive, and aerospace applications.

Antonio J. Marques Cardoso, Full Professor at UBI, Director of CISE, University of Beira Interior (UBI), Portugal

Antonio J. Marques Cardoso received the Dipl. Eng., Dr. Eng., and Habilitation degrees from the University of Coimbra, Coimbra, Portugal, in 1985, 1995, and 2008, respectively, all in Electrical Engineering. From 1985 until 2011 he was with the University of Coimbra, Coimbra, Portugal. Since 2011, he has been with the University of Beira Interior (UBI), Covilhã, Portugal, where he is Full Professor and Director of CISE – Electromechatronic Systems Research Centre (https://cise.ubi.pt). He was Vice-Rector of UBI (2013-2014). His current research interests lie in fault diagnosis and fault tolerance in electrical machines, power electronics, and drives.

Julien Cordier, Research Associate, Technical University of Munich, Germany

Julien Cordier was born in Paris, France, in 1985. Following undergraduate studies in mathematics and theoretical physics in Paris, he was admitted to the Ecole Centrale de Lille, France, in 2006. From 2008 to 2010, he studied electrical engineering at the Technical University of Munich, Germany, and graduated from both institutions in 2010. Since 2011, he has been a research associate at the Technical University of Munich, from which he received a doctoral degree in 2020. His current research interests include mathematical approaches to the modelling of ac machines as well as encoderless control of electric drives.

①

Coaches to the Northeast DER Industrialisation Centre will be leaving from the WEMDCD 2023 venue, **Catalyst Building, 3 Science Square, Newcastle Helix, Newcastle, NE4 5TG**, https://www.thecatalystnewcastle.co.uk/

Please arrive at Catalyst Building 15 minutes before the departure time (14:00), to check-in. There will be members of our local organising team to help you if require any assistance.

Multiple minibuses will take all attendees of WEMDCD 2023 who registered for tour to the North East Driving the Electrical Revolution (DER) Industrialisation Centre, **Skills Academy for Sustainable Manufacturing and Innovation (SASMI), Washington Rd, Sunderland SR5 3HE.**

If you registered to the event past the registration deadline (31 March 2023) and would like to take part in the tour, please contact the local organising committee for the minibus sit availability.

I will take approximately 30 minutes to reach the centre. The tour is scheduled for up to 1 hour, with departure time from the centre at 15:30 and arrival to Catalyst Building 16: 00.

② WEMDCD 2023 welcome drink reception will be held at **The Boiler House, Newcastle University, Newcastle upon Tyne NE1 7RU.**

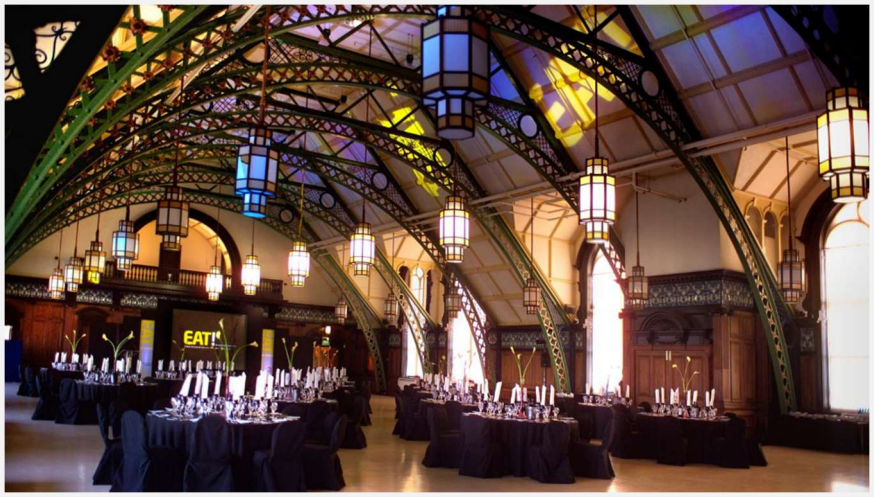
The welcome drink reception will take place in The Boiler House. A perfect opportunity to meet other attendees of WEMDCD 2023 in atmospheric surroundings of the Newcastle University old College Buildings.

③ The event will be held at **Catalyst Building, 3 Science Square, Newcastle Helix, Newcastle, NE4 5TG**, https://www.thecatalystnewcastle.co.uk/

The oral sessions will be held in the state of the conference theatre, which offers easy access, comfortable siting and the high-end audio-visual facilities.

④ Lunch and refreshments will be provided at the WEMDCD 2023 venue in parallel to the poster presentations and industrial expositions.

⑤ Drink reception and gala dinner will be held at **Discovery Museum, Blandford Square, Newcastle upon Tyne NE1 4JA**, https://discoverymuseum.org.uk/



A perfect opportunity to learn a bit about Newcastle engineering heritage with plenty of networking time in the magnificent historical surrounding.

Authors' information

Oral presentations:

- All invited keynote and technical talks have been scheduled for presentation in four sessions, please see WEMDCD 2023 programme for more details. All presentations will be uploaded into the audio-visual system prior to the event.
- Please check your presentation 20 minutes before your session with the event audio-visual team. If you would like to update your presentation, please bring an updated copy of your files on an USB dongle and contact a member of the local organising team.
- When/if coping your files directly to the presentation laptop, please make sure to use your designated folder and file naming, e.g. morning session 13 April at 9:30, folder: 13 April Morning Session, file name: 09_30_YourName.
- The keynote presentations are scheduled for 40 minutes in length, e.g. 30 minutes talk, followed by 10 minutes Q&A, and the technical presentations time slots are 30 minutes in length, e.g. 20 minutes, followed by 10 minutes Q&A.
- The authors are free to use their own/institutional presentation template.

Poster presentations:

- All regular papers have been scheduled for presentation in two poster sessions, please see WEMDCD 2023 programme for more details. All authors should bring their printed posters and hang them on the designated poster boards.
- All poster boards will be marked with the paper numbers, so the authors can easily identify their presentation space. A set of suitable Velcro stickers will be provided to secure the posters on the display boards. If you need any assistance with hanging your poster, please contact a member of the local organising team.

- Please hang your poster the first thing in the morning before the start of oral sessions. The poster sessions are scheduled in parallel to the industrial exposition during the lunch break. Please be available by your poster for discussion during the lunch break.
- The authors are free to use their own/institutional poster template, with the poster format limited to A0 in portrait orientation. Please take your poster of the display board by the end of oral sessions.

WiFi access:

- Please contact a member of the local organising team for details.

Post conference journal publications:

- All full papers registered to and presented at WEMDCD 2023 will be included in the IEEE Xplore digital library. WEMDCD 2023 received technical co-sponsoring from multiple IEEE societies including Industrial Electronics Society (IES), Industry Applications Society (IAS) and Power and Energy Society (PES). All authors are eligible to submit their post conference journal contributions to one of the IEEE journals, e.g. IEEE Transactions of Industrial Electronics, IEEE Transactions of Industry Applications, IEEE Transactions on Energy Conversion, following guidelines associated with the specific IEEE journal.

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