

The 3rd Workshop on Electrical Machines Design, Control, and Diagnosis WEMDCD'2017: Continuing the success, ensuring the quality

The third Workshop on Electrical Machines Design, Control, and Diagnosis (WEMDCD), held in Nottingham on the 20th and 21st of April, 2017, was organized by the University of Nottingham, UK. The event was organized and managed between the University's Institute for Aerospace Technology (IAT) and the University's Power Electronics, Machine and Control (PEMC) Research group.

The general chair of the event was Prof. Chris Gerada (University of Nottingham), while the technical program co-chairs were Dr. Michael Galea (University of Nottingham), Dr. Rafal Wrobel (University of Bristol), Prof. Radu Bojoi (Politecnico di Torino), Prof. Humberto Henao (Université de Picardie) and Prof. Pascal Maussion (Université de Toulouse - Laplace). The team was mentored and aided by Prof. Gerard-André Capolino (Université de Picardie) and Prof. Aldo Boglietti (Politecnico di Torino).

The workshop was developed and organized under the sponsorship of the IEEE Industrial Electronics Society (IES), the Industrial Applications Society (IAS) and the local sponsorships of the IAT and the PEMC groups of the University of Nottingham.



Figure 1 WEMDCD'2017: The venue

Electrical machines have been a field of research for more than a century and a half, however the unprecedented increase in interest over the last two or three decades (enabled by advances in power electronics, computational resources and new materials) have made them an area of high academic and industrial impact. Also, the industrial pull towards electrification in transport and general greening activities needs higher performance, reliable and advanced new electrical machines.

In this context, WEMDCD'2017 was organised around the three main areas of interest including 1) electrical machine design, 2) electrical machine control and 3) electrical machine diagnosis. The whole concept of WEMDCD is built around quality (both for the papers and the presentations), so for each topic mentioned above, the most renowned speakers / authors in the field were invited to submit and present papers. All the papers, including the regular ones were subjected to a masked review process involving at least three reviewers per submission, with the majority of papers being reviewed by even more than three reviewers.

WEMDCD'2017 was organised over two days with each day being structured as follows

- A keynote speech from a leading industrialist in the field of electrical machines
- One session on electrical machine design with three oral presentations
- One session on electrical machine control with three oral presentations
- One session on electrical machine diagnosis with three oral presentations
- A daylong poster exhibition of a suite of papers related to all the above.

The key note speaker of the first day was Mr. Mark Husband, who is the Lead Engineer for the Electrical Capability Research and Technology section of Rolls-Royce (Derby, UK). Mark is a well-known expert in the UK, famous for his work related to hybrid and electrified propulsion in aerospace. Mark gave a fantastic key note speech, highlighting the role that electrical machines have in the aerospace industry, especially in the context of hybrid and electrified propulsion for the aircraft of the future.

On the second day, an intriguing key note speech highlighting the role that the most important of electrical machines, i.e. the wound field synchronous generator, has in the field, was delivered by Dr. Neil Brown, who is the Chief Engineer of Cummins Generator Technologies (Stamford, UK). Neil gave a superb overview of the history of this machine, highlighted its importance as the main electrical energy source in the whole world and then went on to describe how new advances and technologies available today can be used to improve this often-overlooked machine and project it to new and exciting futures of research and development.

During the two days, apart from the poster sessions, there was a permanent exhibition in place, shown in Figure 2, with involvement and sponsorships from local industrial organisations such as PEM Ltd and MDL Technologies and also international industries such as Infolytica and HBM. A formal dinner in the majestic Nottingham Castle was held on the evening of the 20th April and was attended by almost all the delegates.



Figure 2 WEMDCD'2017: Exhibition

WEMDCD'2017 was attended by more than eighty people that included industrialists, academics and also students. This edition can boast attendance from all-over the world with delegates hailing from the US, Australia, China, South Africa, Japan and many European countries. The feedback during and after the event was excellent with the quality of the presentations, the posters and the exhibition receiving high praise.

With all this in mind, the conference organisers would like to thank all the delegates and all the people involved in the organization of such a successful event. We really hope to see you in the next edition of WEMDCD and we are sure that it will continue on the success of the past three editions of WEMDCD.

Michael Galea & Chris Gerada



Figure 3 WEMDCD'2017: Sponsors