



IEEE IAS Industrial Drives Committee Minutes of the 2021 Annual Committee Meeting

Virtual Meeting

Vancouver, Canada | Oct. 10-14, 2021

Friday, October 15, 2021, 10:00 am – 11:30 am, EST

The following committee officers were present:

Mahesh Swamy, Chair of the IAS Industrial Drives Committee (IDC)

Luca Zarri, IDC Vice-chair Papers

Jul-Ki Seok, IDC Vice-chair Programs

Kevin Lee, IDC Secretary

Fernando Briz, Past Chair IDC

1. Approvals of the Agenda and 2020 Meeting Minutes:

(<https://site.ieee.org/ias-idc/resources/>)

The approvals of the agenda and 2020 meeting minutes were moved by Dr. Mahesh Swamy, seconded by Prof. Fernando Briz, and unanimously approved.

2. Old Business and Reports

a. Vice-Chair Paper Review Report on Transactions Papers

Prof. Luca Zarri presented the vice-chair papers report summarizing the statistics of the papers submitted to the IDC for publication in IEEE Transactions on Industry Applications.

■ Total Number of Papers Submitted

During October 9, 2020 - October 9, 2021, 95 original papers had been submitted for review, as compared to 68 one year ago, and 98 two years ago.

■ Time Distribution of the Submissions

From October, 2020 to October, 2021, there are 95 original papers, 64 revised papers and a total of 159 papers.

■ Papers Received based on Country of Origin

According to the submission statistics from October, 2020 to October, 2021, the submitting countries were India (30 papers), China (12 papers), Spain (10 papers each), United Kingdom of Great Britain (9 papers), USA (7 papers each), Italy (6 papers), Japan (4 papers), Australia (3 papers) followed by many others (in total, 95 papers from 19 countries all over the world).

■ Papers Submitted from Conferences Originally Presented

There are 26 papers from ECCE 2020, 9 papers respectively from PESGRE and IEEEIC/I&CPS Europe, 7 papers each from ICEM and PEDES, 6 papers from ICEMS, 5 papers each from IEMDC and PIICON, followed by 1-3 papers each from other 25 conferences.

■ Accept/Reject Ratio and Days to Final Decision

Between October 9, 2020 and October 9, 2021, the acceptance ratio is 50% with 33 accepted papers, and 33 rejected papers. This ratio was 36% in 2020, 45% in 2019 and 51% in 2018. The median time taken from submission to the final decision is 89 days, with 70 days to first decision and 105 days to final decision.

■ Revisions Necessary for the Final Decision

Between October 9, 2020 and October 9, 2021, for those 33 accepted papers, the decisions are 0 (0%), 22 (67%), 11 (30%) and 1 (3%) in R0, R1, R2 and R3. In the case of the 33 rejected papers, the decisions are 28 (85%), 4 (12%), and 1 (3%) in R0, R1, and R2.

■ How to Submit Papers to IEEE Transaction on Industry Applications

In order to be considered for publication in Transactions or the Magazine, authors must first present their work at an IAS sponsored conference and then request an invitation to submit a paper. To request an invitation please send an email to the Publications Chair:

Prof. Luca Zarri (luca.zarri@ieee.org) in 2021.

Prof. Jul-Ki Seok (doljk@ynu.ac.kr) in 2022 and 2023.

Detailed instructions can be found on the section “Publications” in the IDC website:

<https://site.ieee.org/ias-idc/> .

c. Review Report by the Vice-Chair for Programs

Prof. Jul-Ki Seok presented the vice-chair programs report on the results at ECCE 2021.

■ Topic Chairs

13 Topic Chairs, who had managed the review process, were Brij Singh, David D. Reigosa, Di Pan, Giacomo Scelba, Jinia Roy, Juan M. Guerrero, Michele Mengoni, Pescetto Paolo, Peng Han, Roberto Petrella, Sandro Rubino, Yang Xu, and Zhenbin Zhang.

■ Session Chairs

There was no live “Session and Duty” in 2021, and there was one session chair assigned to each session. 13 Session Chairs served at ECCE2021: Peng Han, Roberto Petrella, Jul-Ki Seok, Yang Xu, Mahesh Swamy, Pan Di, Pinjia Zhang, Luca Zarri, Paolo Pescetto, Giacomo Scelba, and Kevin Lee.

Prof. Jul-Ki Seok thanked Topic Chairs and Session Chairs for their contribution.

■ IDC Digest Submissions

A total of 162 papers had been received under Electric Drives (13 sub-tracks) as compared to 164 papers in 2020. The sub-tracks are reorganized from 2020's 15 to 13 in 2021, which include:

1. General
2. Induction motor drives
3. PM motor drives
4. Control of electric drives
5. Drive applications & Drive utility interface
6. Sensor-less drives
7. Monitoring, diagnostics, reliability and EMI
8. High speeds and direct drives
9. Energy efficient motor drives
10. Medium voltage drives and high-power drives
11. New technologies and integrated drives and standards
12. Electrical drives for aerospace and traction applications
13. Electrical drives for wind & other renewable integration

Control of electric drives had the highest submission number of 31, followed by PM motor drives with 22, and Monitoring, diagnostics, reliability and EMI with 21, as the top three sub-tracks.

■ Yearly Submission Trends

There were 1587 ECCE submissions, down 5.7% as compared to 2020 with 20 special session papers and 46 tutorial papers. At IDC, 162 digests were submitted, down 1.2% from 2020.

■ 2021 Overall Statistics

Number of digests: 162

Number of papers withdrawn: 10

Number of papers accepted: 88

Number of papers rejected: 64

The acceptance ratio is 57.8% for 152 reviewed papers.

88 accepted papers were distributed into 16 technical sessions.

Review Quality:

All papers with at least 4 reviews

The average number of reviews per paper was around 4.7 (4.2 in 2020).

■ Submission by Country based on the First Author

There were 162 digests from 25 different countries. The submitted digests distribution by country based on the first author placed United States first (36), and the China (20), followed by Korea (18), Italy (15), India (11), Canada (8), UK (8) and Spain (8).

■ Distribution of the Accepted Papers for the First Author

About 77% of the accepted papers come from United States (17), China (12), Korea (11), and Italy (11), UK (7), Spain (5), and Japan (5).

■ Relevant Statistics

The number of student papers in 2021 is 98 as compared to 91 in 2020, 80 in 2019, 107 in 2018, and 50 in 2017. While the student papers are trending upwards, the papers from industry in 2021 also increased to 19 from 17 in 2020. The number was 24 in 2019, 32 in 2018 and 13 in 2017.

d. IDC Standards Activity Update by the Subcommittee Chair

Dr. Kevin Lee presented IEEE IAS IDC standards subcommittee activity updates.

The Subcommittee has a monthly conference call to discuss IDC standards development.

■ Mission Statement of IDC Standards Sub-Committee

1. The goal of the Standards Sub-committee of the IEEE Industrial Drives group is to participate in the development of Standards and/or Practices pertaining to electric drive systems. Electric drive systems include but are not limited to all types of electrical motors and drives that are used for controlling torque and speed of said electrical motors.
2. Participation is not limited to co-operating with other Standards groups or organizations within the IEEE and/or other technical bodies of the world but also includes taking a leading role in formulating new standards to facilitate meaningful applications of said standards in the industrial and commercial workplace.

■ IDC P2943 working group is currently in step 3 of Drafting the standard in overall 6-step Standards Development Lifecycle:

1. Initiating the project;
2. Mobilizing the working group;
3. Drafting the standard;
4. Balloting the standard;
5. Gaining final approval;
6. Maintaining the standards.

■ Timeline of IDC Standards Subcommittee P2943 Working Group Project:

1. Project Title: P2943-Energy Efficiency Test Methods for Three-Phase Variable Frequency Drive Systems;
2. Scope Statement: This standard defines a common test protocol for determination of energy efficiency for motor drive systems, for an AC motor and a combination of a Variable Frequency Drive (VFD), AC motor, and ancillary equipment. Performance classifications for the said motor drive systems are also defined;
3. Project Status: On September 24, 2020, the IEEE SA Standards Board approved the project;
4. Project Timing: Until December 31, 2024.

■ Active Subcommittee Working Group Members include:

Eric Armando, Politecnico di Torino, Italy
Joseba Arza, Ingeteam Group, Spain
Fernando Briz, University of Oviedo, Spain
Hassan H. Eldeeb, BorgWarner Inc, USA
Jiangbiao He (Secretary), University of Kentucky, USA
Jiangang Hu, Rockwell, USA
Lei Hao, GM, USA
Fang Luo, Stony Brook University, USA
Kevin Lee (Chair), Eaton, USA
Di Pan, GE Global Research, USA
Luis Rodriguez: BCM INGENIERÍA, C.A., Venezuela
Mahesh Swamy, Milwaukee Tool, USA
Zheyu Zhang, Clemson University, USA

Dr. Kevin Lee thanked working group members for their contribution, and welcomed new volunteers who would like to participate in the Standards Subcommittee.

3. Awards and Recognitions

Dr. Milijana Odavic from University of Sheffield, UK, is the Chair of the IDC Awards Subcommittee. Prof. Luca Zarri presented the conference paper awards.

■ Awards Subcommittee

Milijana Odavic, University of Sheffield, UK, (Chair)
Kais Atallah, University of Sheffield, UK, (Vice-Chair)
Davide Barater, University of Modena and Reggio Emilia, Italy
Judith Apsley, University of Manchester, UK
Pinjia Zhang, Tsinghua University, China
Yuan Wu, Siemens Gamesa Renewable Energy, UK
David Diaz Reigosa, University of Oviedo, Spain
Nuno Miguel Amaral Freire, Siemens Gamesa Renewable Energy, Denmark
Prerit Pramod, Nexteer Automotive, US
Obrad Dordevic, Liverpool John Moores University, UK
Ramakrishnan Raja, Halla Mechatronics, US

■ Review Criteria for Selecting Transaction Paper Nomination and ECCE 2020 Paper Awards

The review criteria included 6 specific quality indicators. A score from 0 to 5 was given for each of the below parameters.

- A. Readability (Is the paper easy to read, do the conclusions follow from the data?).
- B. Use of Figures and Graphics (Do the figures and graphics clearly illustrate the data?).
- C. Education (Does the paper leads to a deeper understanding of the paper's subject?).
- D. Broad Interest (Is the paper's topic of interest outside of a narrowly targeted audience?).
- E. Significance (Is the paper's subject matter of significance in the paper's defined field

of interest?).

F. Impact (Will the paper have an impact on future research and development?).

The selection was based on the highest total scores. The highest scored papers had to satisfy a threshold set for combined scores of the Significance and Impact parameters.

■ Procedure for Selecting Transaction Paper Nomination

The total of 50 papers recommended by IDC were published in the IEEE Transactions on Industry Applications in 2020 (Volume 56).

The review process rules included:

- Two members of the Sub-Committee (one coming from University, one coming from Industry) were assigned to review 10 papers.
- The reviewers were assigned considering their nationality (the papers assigned to a reviewer were authored by people with different nationality).
- Reviewers had to declare no conflict of interest for the papers assigned to them.
- Papers authored by the same author were assigned to different groups of reviewers.

One paper with the highest total scores and the highest combined scores for the Significance and Impact parameters was nominated for the Transactions Paper Awards.

■ Procedure for Selecting Conference Paper Awards

The eligibility criteria for the IDC Prize Paper Awards included papers that were:

- Presented at ECCE 2020,
- Submitted to IEEE Transactions on Industry Applications (IDC), and
- Passed the first round of reviews.

There were only six papers fulfilling the criteria.

The task of the IDC Awards Sub-Committee was to rank the best three papers.

Reviewers associated with the University of Sheffield (including the chair) and the University of Oviedo were excluded from the review process to avoid the potential conflict of interest, as two papers were from the University of Sheffield and one paper from University of Oviedo.

Each paper was reviewed by six reviewers (as four reviewers were excluded from the process to avoid the conflict of interest and one reviewer was not available).

Three papers with the highest total scores were selected. All the three papers satisfied a threshold set for the combined scores of the Significance and Impact parameters.

■ 2020 IEEE ECCE Conference Paper Awards

The three Conference Paper Awards are:

- 1) First Prize Paper Award: “A Novel Method for Measuring High Frequency DQ-axis and Cross-coupling Inductances in Interior Permanent Magnet Synchronous Machines.”
Authors: B. Shuang and Z. Q. Zhu
- 2) Second Prize Paper Award: “Prediction of Transient Voltage Distribution in Inverter-fed Stator Winding, Considering Mutual Couplings in Time Domain.”
Authors: S. Sundeeep, J. Wang and A. Griffo
- 3) Third Prize Paper Award: “Four-module three-phase permanent-magnet synchronous motor based on a PWM modulation strategy for suppressing vibrations and common mode current.”
Authors: K. Liu, Z. Liu, D. Jiang, Q. Wang and Z. He

The IDC Committee congratulated the winners and members of the Awards Subcommittee for their excellent work.

■ Associate Editors

Daive Barater, University of Parma, Italy
Roberto Petrella, University of Udine, Italy
Prerit Pramod, Nexteer Automotive Corporation, USA
Marcello Pucci, ISSIA-CNR, Italy
Ramakrishna Raja, Halla mechatronics, USA
David Díaz-Reigosa, University of Oviedo, SPAIN
Giacomo Scelba, University of Catania, Italy
Wei Xu, Huazhong University of Science and Technology (HUST), China
Pinjia Zhang, Tsinghua University, China

Prof. Luca Zarri thanked all Associate Editors for their help.

■ Nagamori Awards Introduction by Yasushi Nishimura from Nagamori Foundation:

Nagamori Foundation Mission Statement: Support research and development engineers in the technical fields of motor, power generator, actuator, and other related technologies.

Nagamori Awards:

- Commend those who have made innovative technological development in the motor related technical fields.
- Applicants must be entry to mid-career researchers and engineers.
- Will be given to approximately six people. The Grand Nagamori Award winner will receive a prize of 5 million yen, and each of the Nagamori Award winners will receive 2 million yen.

Application Guideline for the 8th Nagamori Awards:

- Fields covered: Technical fields related to motors, actuators and power generators, and their control methods, application technologies, etc.
- Applicant eligibility: Applicants must be entry to mid-career researchers or development engineers who have made an outstanding achievement in the fields

covered by the Nagamori Awards. Entry to mid-career – normally defined as no more than 30 years of research after obtaining the Bachelor's degree.

- Application method: Self-nomination or nomination from academic institution are accepted. A recommendation letter by an expert in the field covered by the Awards, or a senior member of your Academic Society, organization, research department, etc. must be submitted.
- Application period: November 01, 2021-January 31, 2022. Applications must be postmarked on, or before, January 31, 2022.
- Application condition: Documents must be submitted in either English or Japanese.
- Awards & prizes: Nagamori Awards will be given to approximately six people. The winner of The Grand Nagamori Award will be announced during the Awards ceremony. The Grand Nagamori Award winner will receive a prize of 5 million yen, and each of the Nagamori Award winners will receive 2 million yen.

*The 8th Nagamori Awards Ceremony will be held on September 4, 2022

Winners of The 7th Nagamori Awards:

Tobias Geyer: R&D Platform Manager, ABB System Drives.

Tom Oomen: Full Professor, Department of Mechanical Engineering, Eindhoven University of Technology - Grand winner.

Leila Parsa: Professor, Department of Electrical and Computer Engineering, University of California, Santa Cruz.

Ronghai Qu: Professor, School of Electrical and Electronic Engineering, Huazhong University of Science & Technology.

Akshay Kumar Rathore: Associate Professor, Graduate Program Director and Chair of Graduate Awards, Department of Electrical and Computer Engineering, Gina Cody School of Engineering and Computer Science, Concordia University.

Jun Ueda: Professor, George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology.

4. New Business

Past IDC Chair: Prof. Fernando Briz presented the nomination of 2021 IDC slate of officers:

■ New IDC Secretary: Dr. Di Pan

- Di Pan was born in Kunming, China. He received his B.S. degree from Zhejiang University, Hangzhou, China in 2007

- M.S. and Ph.D. degrees from the University of Wisconsin, Madison, all in electrical engineering

- Currently with Electric Power at GE Global Research, Niskayuna, NY, USA

- Research interests: machine drive systems and power electronics, especially for traction and hybrid electric propulsion applications

- Senior member of IEEE and a member of Industry Application Society

- Served in organizing committees, and as topic and session chairs for various international conferences

- He is a member of IEEE Standard Working Group for Energy Efficiency Test Methods for Three-Phase Variable Frequency Drive Systems

■ IDC Slate of Officers

Chair: Prof. Luca Zarri, University of Bologna, Italy
Vice Chair: Papers-Prof. Jul-Ki Seok, Yeungnam University, Korea
Vice Chair: Programs-Dr. Kevin Lee, Eaton Corporation, USA
Secretary: Secretary-Dr. Di Pan, GE, USA
Past Chair: Dr. Mahesh Swamy, Milwaukee Tool, USA

Prof. Fernando Briz moved the motion first, which was then seconded by ?. The motion was unanimously approved.

■ 2021 IEEE ECCE Conference Paper Awards

Vice chair Prof. Luca Zarri provided the guideline to submit your papers to TIA!

The papers that are eligible for the IDC prize paper awards are those satisfying the following three requirements:

- The papers must be presented at ECCE 2021.
- The papers must be submitted to IEEE Transactions on Industry Applications.
- The papers must receive a non-negative decision (acceptance or major revision) by March 31, 2022.

■ Recruitment of Associate Editors

IDC is looking for candidates: Send an email to Prof. Jul-Ki Seok and Prof. Luca Zarri at doljk@ynu.ac.kr and luca.zarri@ieee.org.

■ Recruitment of ECCE 2022 Topic Chairs

IDC is looking for candidates: Send an email to Prof. Jul-Ki Seok and Dr. Kevin Lee (by Nov. 30 2021) – doljk@ynu.ac.kr and kevin_lee@ieee.org.

■ Introduction to ECCE 2022

The details of ECCE 2022 were presented by Dr. Navid Zargari, which will take place in Detroit, MI, USA, October 9-13, 2022. General Chair: Prof. Emmanuel Agamloh. The conference website is <https://www.ieee-ecce.org/2022/>.

■ Introduction to ICEM 2022

The details of ICEM 2022 were presented by Prof. Luca Zarri, which will take place in Valencia, Spain, September 5-8, 2022. The conference website is <https://www.icem.cc/2022/>.



5. Adjournment

A call to adjourn the meeting was moved by Dr. Mahesh Swamy, seconded by Prof. Fabio Giulii Capponi, and unanimously approved.

Submitted by Kevin Lee
October 26, 2021