

IEEE IAS

Electric Machines Committee

2019 Committee Meeting

4.30pm-6pm, Tuesday October 1, 2019

Room **B113** Baltimore Convention Center

Baltimore, Maryland

Chair: Emmanuel Agamloh



Agenda

1. Review and Approval of 2018 Committee Meeting Minutes
2. Chairman's Report
 - a. Transactions Papers Status Review
 - b. ECCE2019 Technical Program Vice-Chairs Report
3. Old Business
4. Subcommittee Reports:
 - a. Prize Paper Awards Presentation,
 - b. Standards
5. ECCE Session Chair Reports (2019 ECCE sessions completed as of meeting time)
6. New Business:
 - 2020 Officers – *EMC Past Chair Nominates Slate of Officers*
 - Publications Update and IAS Sponsored Conferences
 - ECCE 2019 Update
 - ECCE 2020 – Preparation for ECCE 2020
 - Other Upcoming Conferences
8. Other Business
9. Adjournment



Attendance

- Please update information on rosters
- NEW MEMBER SIGN-UP: Sign up for membership if you have not received any emails from this committee
- Note: Formally, **you must be an IAS member to vote on IAS committee business**. Please indicate if you are an IAS member!



Announcements



**IEEE IAS ELECTRIC MACHINES COMMITTEE
SENDS BEST WISHES TO:**

Prof. Tom LIPO

WISHING YOU A SPEEDY RECOVERY !

**GET WELL SOON AND JOIN US AT THE NEXT
EMC MEETING!**



2018 Minutes



Motion is invited to Accept 2018 Minutes for the Record!

- Minutes were distributed electronically. Corrections were requested and required corrections were made
- Minutes were re-circulated again 9/17/2019



Member Recognitions



- **Prof. Akira Chiba**
 - Nikola Tesla Award (2020), *“for contributions to bearingless and reluctance machines”*
- **Dr. Tomy Sebastian**
 - Nikola Tesla Award (2019), *“for contributions to the design and application of high-performance permanent magnet synchronous machines to electric power steering”*
- **Prof. Radu Bojoi**
 - Members Elevated to IEEE Fellow (class of 2020), *“for contributions to control of electrical drives and power electronics”*
- **Prof. David Dorrell**
 - Members Elevated to IEEE Fellow (class of 2020), *“for contributions to time efficient design methodology of rotating electrical machines”*
- **Prof. Silverio Bolognani**
 - Members Elevated to IEEE Fellow (class of 2020), *“for contributions to permanent magnet synchronous motor technology”*
- **Dr. David Torrey**
 - Members Elevated to IEEE Fellow (class of 2020), *“for contributions to modeling, design, and control of electric machines and drives”*



Transactions Paper Review Status



Current Associate Editors

- Antonio J. Marques Cardoso Portugal
- Akira Chiba Japan
- Giulio De Donato Italy
- Yao Duan USA
- Greg Heins Australia
- Rukmi Dutta Australia
- Haran Karmaker USA
- Gianmario Pellegrino Italy
- Alberto Tessarolo Italy
- Rajeev Vyas USA
- Katsumi Yamazaki Japan
- Luca Zarri Italy
- Ronghai Qu China
- Zhang Pinjia China
- Parsa Leila USA
- Silvio Vaschetto Italy
- Min-Fu Hsieh Taiwan
- Peter Wung USA

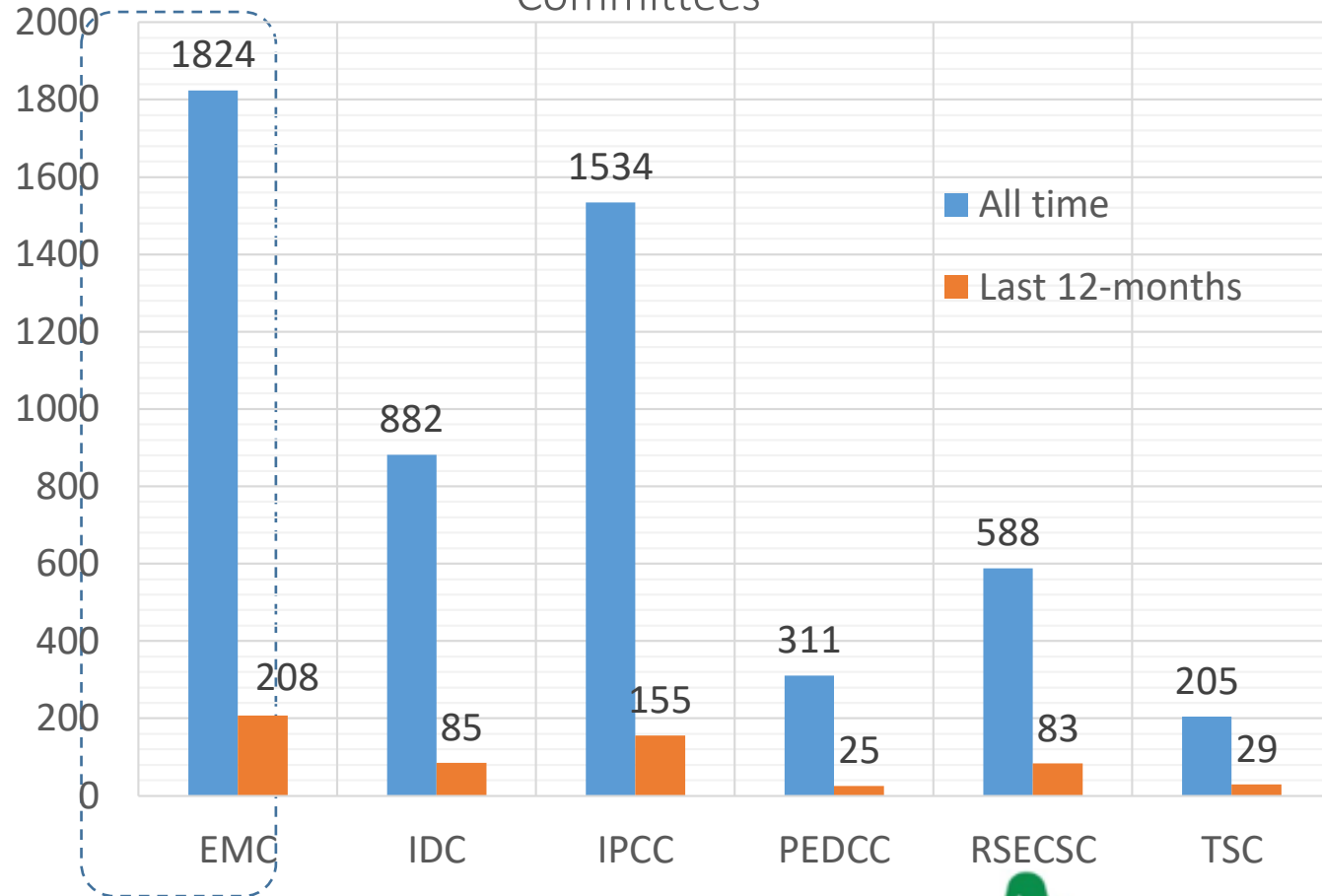
**Thank you to all
EMC AEs as well
as our TIA Paper
Reviewers !**



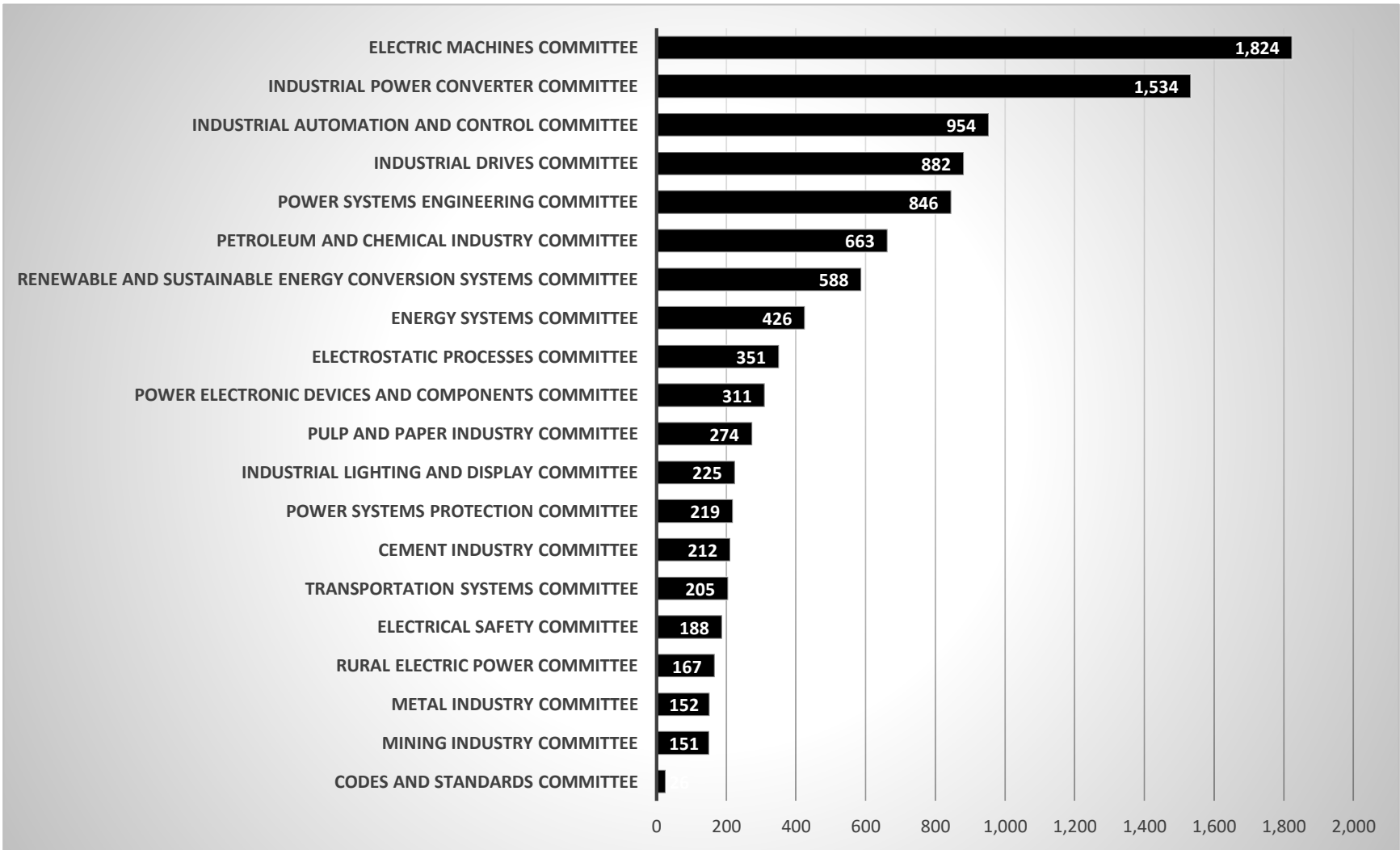
Submission Statistics

12-month Paper Submissions (**original**) IPCSD Committees

- **208** Original submissions
- Several invitations pending
- **EMC** has highest all-time paper submissions of any IAS committee

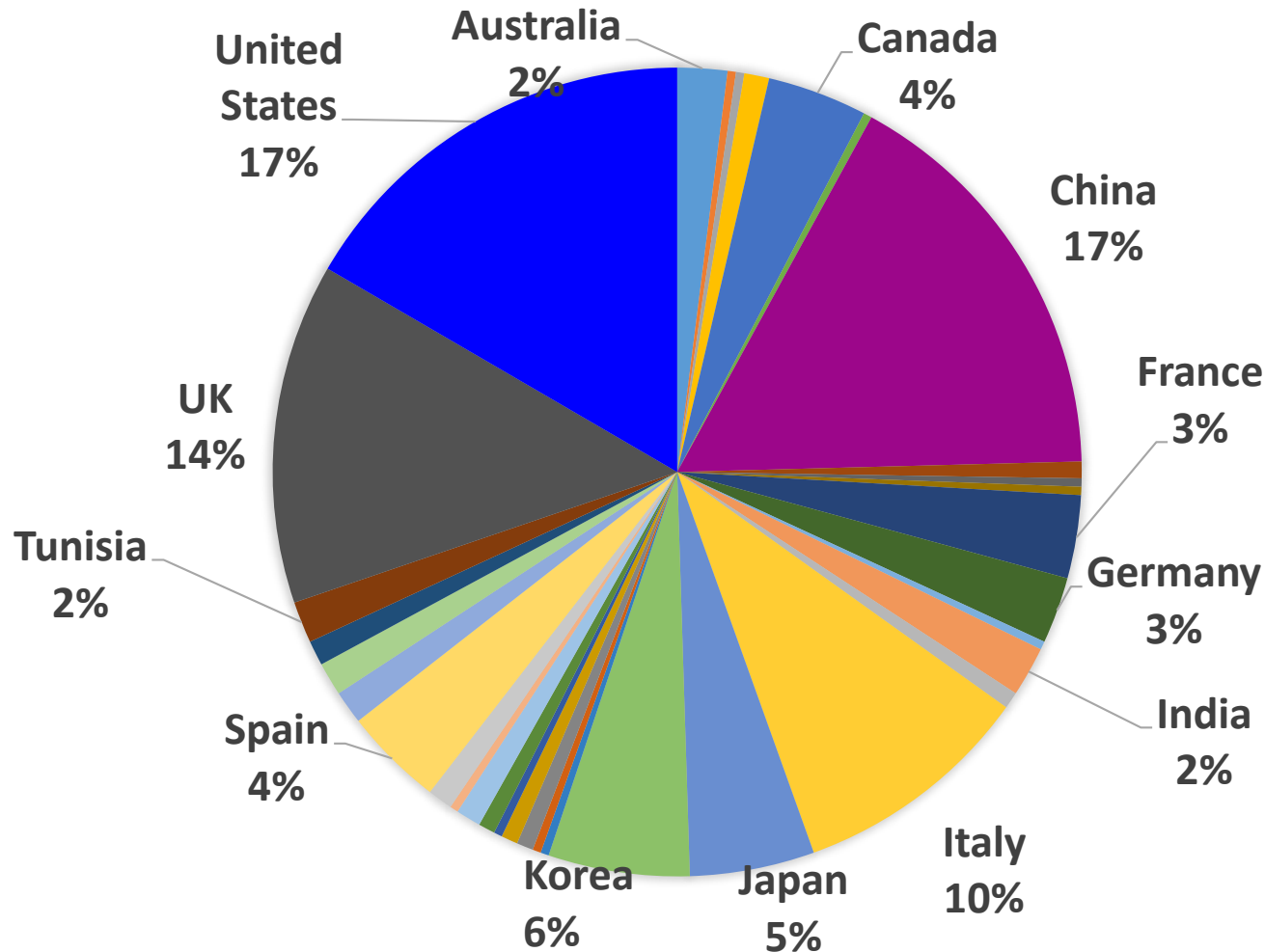


All Time Submission By Committee



EMC Submission Statistics

EMC Corresponding author location (past 12-month submissions)

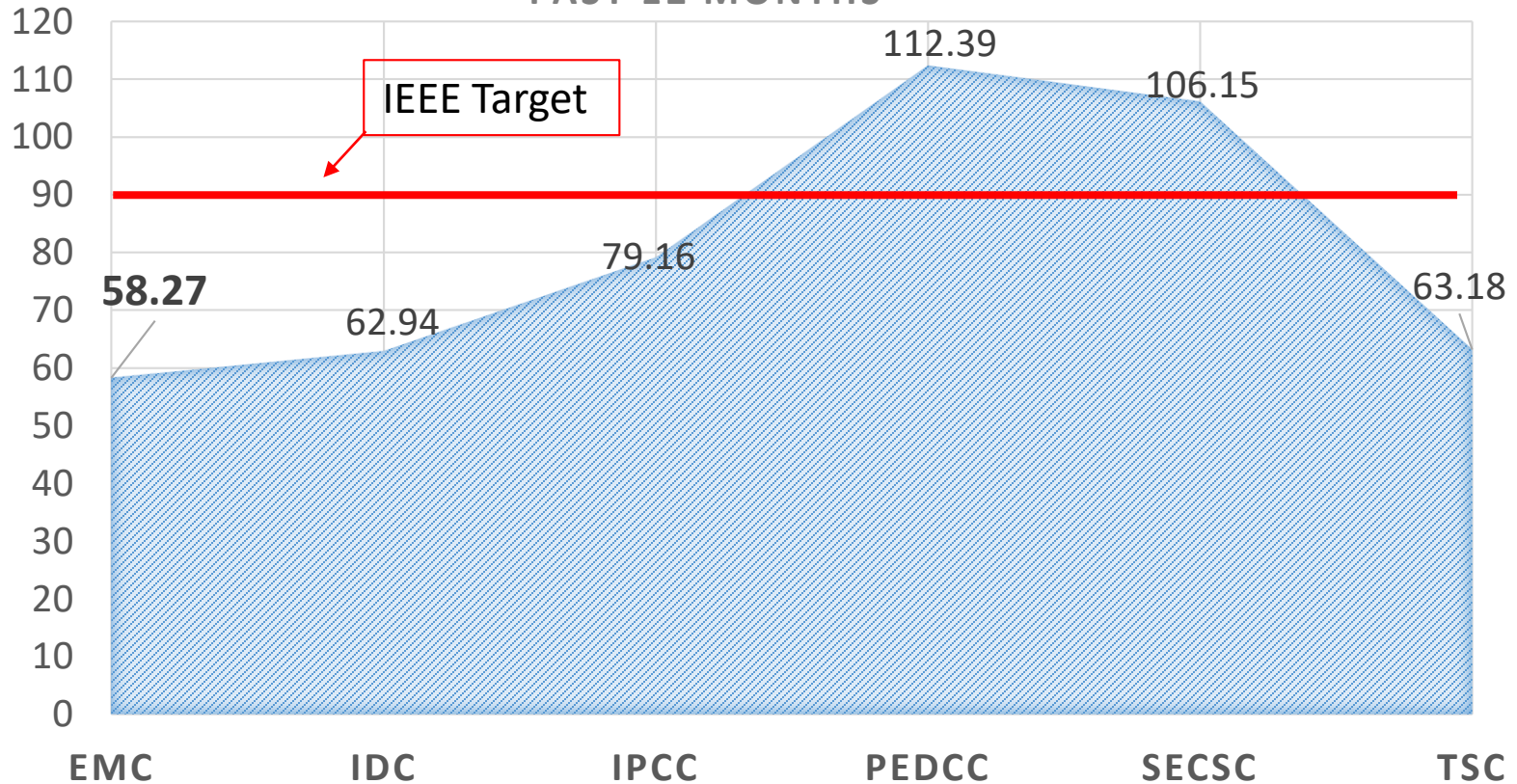


Top 10 (of 34 Countries)

USA	17%
China	17%
UK	14%
Italy	10%
Korea	6%
Japan	5%
Canada	4%
Spain	4%
France	3%
Germany	3%

Review Statistics

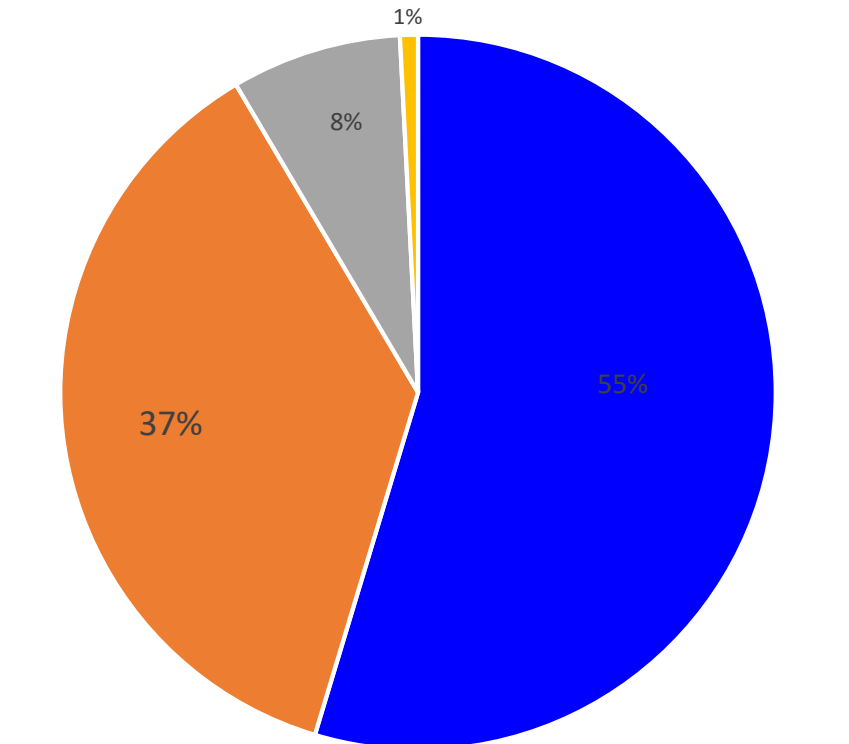
AVERAGE FIRST DECISION TIME (DAYS)
PAST 12 MONTHS



Decisions Statistics

- EMC Manuscripts submitted on or after Jan 1, 2018

EMC Paper Decisions



- Accept for publication in Transactions
- Reject
- Return to author for mandatory revisions (to address reviewer comments)



Process for Prospective Authors

- EMC Members who wish to submit papers presented at an IAS sponsored conference for transactions
- Send Email to
 - Current Chair of EMC (eagamloh@ieee.org) – up to Dec 31, 2019
 - Incoming Chair, Akira Chiba, (chiba@ee.e.titech.ac.jp) – from January 1, 2020
- Include in your email:
 - Details of their paper, including the following information:
 - Corresponding author's first name and Last name;
 - Corresponding author's email address (used for manuscript central account) and Affiliation
 - Title of manuscript
 - Conference name, and date of the conference where the paper was presented
- For more information visit EMC website :
<http://sites.ieee.org/ias-emc/publications/>



ECCE 2019 Vice-Chairs' Report

Prof. Akira Chiba



2018 ECCE EMC Topic Chairs

	18	19			
G01. General	10	6	Vyas, Rajeev	Wang, Yukai	
G02. Induction machines	12	19	Ma, Cong	Vaschetto, Silvio	
G03. IPMSM and Synchronous Reluctance Machines	30	29	Bianchi, Nicola	Dutta, Rukmi	Raminosoa, Tsarafidy
G04. Other Synchronous machines (PMSM and Wound Field)	22	29	Mese, Erkan	Rahman, Khwaja	Roggia, Sara
G05. Switched Reluctance and Flux Switching Machines	20	19	Deodhar, Rajesh	Kosaka, Takashi	
G06. Axial Flux Machines	5	9	De Donato, Giulio		
G07. Actuators, Linear, non-conventional, integrated machines and transformers	16	10	Antonino-Daviu, Jose	Ruddy, Bryan P.	
G08. Noise, Vibration, Reliability, Machine Diagnostics and Protection	19	27	Islam, Rakib	Foster, Shanelle	
G09. Materials, Losses, Efficiency, Thermal and Manufacturing, Converter issues	28	26	Bramerdorfer, Gerd	Leonardi, Franco	Munoz, Alfredo
G10. Modeling and Analysis Methods (including multi-physics)	20	20	Asama, Junichi	Husain, Tausif	Yamazaki, Katsumi
G11. Low Speed Direct Drive Machines, Magnetic Gearing	12	10	Qu, Ronghai	Lyra, Renato	
G12. High Speed Machines, Bearingless Machines, high frequency effects	17	16	Gruber, Wolfgang	Severson, Eric	
G13. Machines for Transportation (Automotive and Aerospace)	15	26	Andrea Cavagnio	Choi, Gilsu	Kato, Takashi
G14. Machines in Renewable Energy Applications	9	3	Arthur Wagner, J.		
total	235	249			

Thank you all Topic Chairs!!

- ECCE Group G Vice Chairs are generally Secretary and Vice Chair in EMC. In this year, Julia was nominated by ECCE Chairs and she joined as Group G Vice Chairs. In this year, new ECCE Chairs' policy is one Vice Chair for 100 digest submission.



Review Process

- Topic Chairs were selected from volunteers who gave name cards in last EMC meeting in ECCE. **They were contacted to find their preference of G01-G14.**
 - Each reviewer can modify his area in the web system. Based on their area, Topic Chairs selected these reviewers. Five reviewers for one digest.
 - Generally, at least 3 review evaluations were requested, however, **5 evaluations were requested for split cases**, for example, weak accept, accept, weak reject.
 - Some reviewers did not provide evaluations even after deadline. Their review assignments were cancelled and Topic Chairs and Vice Chairs worked on review evaluations. If one can not review digests, please let us know in advance.
 - One good practice: **If one is not well informed on topic of digest, please provide “Neutral” rather than “Reject”.**
-

Electric Machine Statistics

- **249** digests submitted.

(252 (2018), 186(2017), 245(2016), 203(2015), 201(2014)).

- **183** digests are accepted.

(189(2018), 140(2017), 151(2016), 141(2015), 137(2014))

- Acceptance ratio: **71%**

(75%(2018), 75%(2017), 62%(2016), 69%(2015))

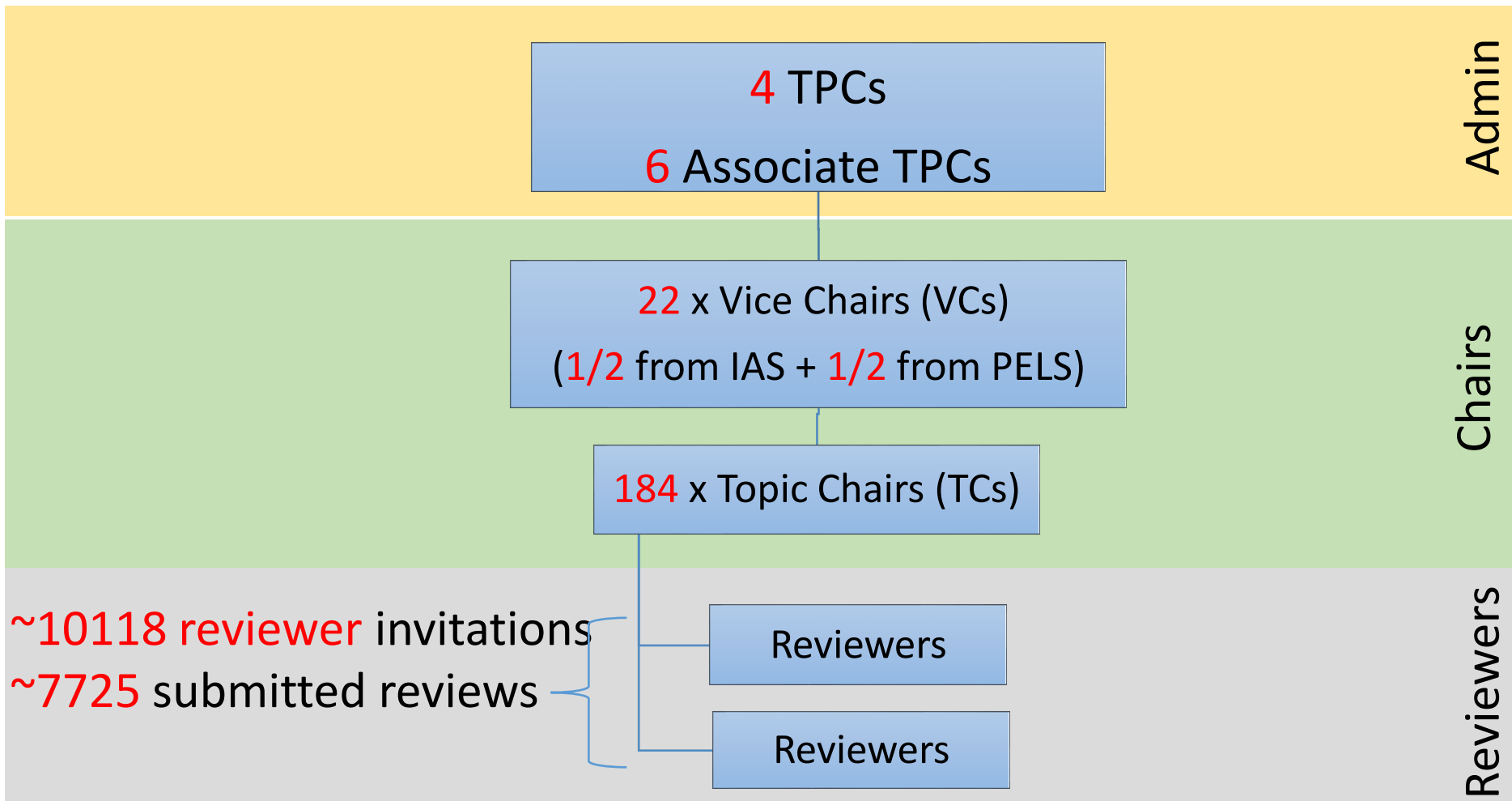
In even years, a number of digests is high because IEMDC is in odd years.

Electrical Machine Sessions

- 21 Oral Sessions(23 in 2018, 20 in 2017, 18, 19) 86 Papers
 - 4 sessions on Monday
 - 2 sessions Tuesday
 - 8 sessions Wednesday
 - 7 sessions Thursday
- 3 Poster Sessions 97 Papers (95in 2018)
 - 1 Session: Monday
 - 2 Sessions: Tuesday

2019 ECCE Paper Review

ECCE level



- We have total of 1779 digest submissions very similar to last year (1788)
- The number of Vice Chairs per track was set based on the on the number of digests
- Number of digests per Topic Chair (TC) limited to 10
- There were 22 vice chairs and 184 topic chairs serving for 12 Tracks
- The program includes 1069 technical papers presented in 15 parallel oral sessions and 28 poster sessions. Additionally, the program also includes 18 presentation-only special sessions that are scheduled throughout the week.



Old Business



Awards

- Andrew W. Smith Outstanding Young Member Achievement Award (Deadline: March 15):
 - Outstanding Young Member Service Award (Deadline: March 15)
 - Distinguished Service Award (Deadline: March 15)
 - Outstanding Achievement Award (Deadline: March 15)
 - Kliman Award (Deadline: June 1)
-
- IAS Distinguished Lecturers (Deadline: March 31)
 - IEEE Fellow (Deadline: March 1)

IAS members <35
years old

EMC Needs Awards Committee Volunteers !!

Please contact EMC Vice Chair for more information



Winners of 5th Nagamori Awards

- **Radu Bojoi** (Romania) Professor, Politecnico di Torino
- **Ayman M. EL-Refaie** (USA) Professor, Marquette University
- **Mohammad S. Islam** (USA) Chief Scientist –Halla Mechatronics
- **Takashi Kato** (Japan) Senior Manager, Nissan Motor Co., Ltd.
- **Jianxin Shen** (China) Professor, Zhejiang University
- **Bram Vanderborght** (Belgium) Professor, Vrije Universiteit Brussel and Flanders Make

Highlighted names are members of IAS EMC.

- Fields of motors, actuators and power generators, and their control methods, application technologies, etc.
- mid-career researchers or development engineers no more than 30 years after the Bachelor's degree.



2019 EMC Prize Paper Awards

(for Papers presented at ECCE 2018)



Selection Process

- **Seven (7)** top papers with highest ranking from digest review process selected for full review by panel
- **7-member committee** of distinguished reviewers
 - Good Mix of industry (3) and academia (4)
 - Previous committee chairs, paper award winners, subject matter Experts

- **Prof. Akira Chiba**
- **Dr. Bruno Lequesne**
- **Prof. Sang Bin Lee**
- **Dr. Mircea Popescu**
- **Prof. Z-Q Zhu**
- **Prof. Wen Soong**
- **Dr. Haran Karmaker**

Paper/Reviewer score	No. of Reviewers posting rank #1	No. of Reviewers posting rank #2
First Place Paper	4	1
Second Place Paper	2	3
Third Place Paper	1	3
Total # of Reviewers	7	7



First Prize

Paper Title:

"Estimation of PWM-Induced Iron Loss in IPM Machines Incorporating the Impact of Flux Ripple Waveshape and Nonlinear Magnetic Characteristics"

Authors:

Le Chang, Thomas Jahns and Rolf Blissenbach
University of Wisconsin, Madison; GM Global
Propulsion Systems



Second Prize

Paper Title:

“Investigation of Efficiency Enhancement of an Ultra-high-speed Bearingless Motor at 100,000 r/min by High Switching Frequency Using SiC-MOSFET”

Authors:

Yu Fu, Masatsugu Takemoto, Satoshi Ogasawara and
Koji Orikawa
Hokkaido University



Third Prize

Paper Title:

“Design of an Electric Machine for a 48-V Mild Hybrid Vehicle”

Authors:

Alireza Fatemi, Thomas Nehl, Xiaofeng Yang, Lei Hao, Suresh Gopalakrishnan, Avoki Omekanda and Chandra Namuduri

General Motors R&D



Standards Update



On-going Projects

Project #1: IEEE P-11

“IEEE Std. 11: IEEE Standard for Rotating Electric Machinery for Rail and Road Vehicles”

- WG Chair: Tim Burress
- Current Version: **2006**
- PAR Approved: **March 2015**
- On-going revision since **June 2015**

Project #2: IEEE P-1812

“IEEE Std. 1812: IEEE Guide for Testing Permanent Magnet Machines”

- WG Chair: Prof. Dan Ionel
- Trial-use guide published: **2015**
- On-going revision since **August 2016**

Co-SPONSORSHIP



Upcoming Stds. Projects

- **IEEE P252** – IEEE Standard Test Procedure for Polyphase Induction Motors Having Liquid in the Magnetic Gap
- **IEEE P620** – IEEE Guide for the Presentation of Thermal Limit Curves for Squirrel Cage Induction Machines
- PARs submitted August 31, 2018
- Membership Recruiting is Going on
- Interested Members contact:
 - Dr. Yao Duan yao.duan@ieee.org
 - Emmanuel Agamloh eagamloh@ieee.org

Co-SPONSORSHIP



ECCE 2019: Session Reports

Feedback from session chairs on EMC sessions completed as of time of this meeting



Monday Oral Sessions

S10

S11

S25

S26

Tuesday Oral Sessions

S51

S52

S85

**We thank all EMC Session
Chairs of ECCE 2019!**



New Business – 2020 EMC Officers



2019 Committee Officers

- **Chair:** Prof. Akira Chiba (chiba@ee.e.titech.ac.jp)
- **Vice Chair:** Dr. Greg Heins (greg.heins@regalbeloit.com)
- **Secretary:** TBD
- **Past Chair:** Prof. Emmanuel Agamloh (eagamloh@ieee.org)



Role Rotations



- EMC promotes positions every two years

New EMC Secretary

- Lots of very capable people, thanks for stepping and also nominating others
- Very difficult to choose



Rukmi Dutta

- Rukmi Dutta (S'03-M'08-SM'16) has received the PhD degree in electrical engineering from the UNSW Sydney, Australia, 2007 and the Bachelors of Engineering degree also in electrical engineering from Assam Engineering College of Guwahati University, India, 1996.
- She is a senior lecturer at UNSW, Sydney, Australia. Prior to this, she worked as an Electrical Engineer at CMG Pty Ltd (currently Regal Beloit Australia) and as an associate lecturer at UNSW, Australia. She also worked at Institute of Industrial Science (IIS) of Tokyo University, Japan and Reliance Industry Ltd, India. Her research interests are PM machine design and control, electromagnetic analysis of electric devices, renewable energy and distributed generation.



Motion to Approve Slate of Officers

- Secretary Rukmi Dutta
- Vice Chair Greg Heins
- Chair Akira Chiba
- Past Chair Emmanuel Agamloh



New Business – IAS Publications - OJIA Process

Prof. Andy Knight, IAS Publications Department Chair

[link](#)



New Business – ECCE 2019 Update

Prof. Yan-Fei Liu, ECCE 2019 General Chair



2020 Meetings – ECCE 2020



ECCE 2020

Oct 11, 2020 - Oct 15, 2020
Detroit, MI

[link](#)

- **EMC Vice Chairs: Dr. Greg Heins and EMC secretary**

Topic Chair Volunteers - hand in your business cards !!



ICEM 2020

Gottenburg, Sweden

[link](#)



ICEMS 2020

Hamamatsu, Japan

[link](#)



NAGAMORI AWARDS

[link](#)



Necrology



Robert "Bob" Donald Lorentz
January 27, 2019



Motion to Adjourn

