

Transportation Systems Committee (TSC) Meeting

ECCE 2018

Portland, Oregon
September 25, 2018

Agenda

- Introduction
- 2018-2019 TSC Committee
- Committee Update
- Transactions Paper Review
- TSC Prize Papers
- Conference Activities
- Future Conferences

Committee Officers – 2018/19

Chair:

Mohammad Islam
Halla Mechatronics

Vice Chair (Papers):

Bulent Sarlioglu
University of Wisconsin-Madison

Vice Chair (Conferences):

Mohammad Anwar
General Motors

Secretary:

Mithat Kisacikoglu
University of Alabama

Past Chair:

Burak Ozpineci
Oak Ridge National Laboratory

Committee Update

- IEEE IAS TSC has a new active website at <http://sites.ieee.org/ias-tcs/>
- This is a new website and we will keep this website updated with information on our committee meetings and related committee news.
 - If you have suggestions for the content, please let us know.
- We sent out around 10 e-mails annually to our members to keep them updated regarding our society/committee related activities.
- Total members as of 2018 is ~230.
- If you want to be a member, please send your contact information to Dr. Mithat Kisacikoglu at mkisacik@ua.edu

Transaction Paper Review

- TSC started reviewing papers for IA transactions/magazines since 2012
- TCPRC: Dr. Bulent Sarlioglu – Vice Chair (Papers)
- Associate Editors:
 - Dr. Bilal Akin, University of Texas, Dallas, TX
 - Dr. Mithat Kisacikoglu, University of Alabama, Tuscaloosa, AL
 - Dr. Veda Galigekere, Oak Ridge National Lab, TN
 - Dr. Rakib Islam, Dura Automotive, MI
 - Dr. Jagadeesh Tangadu, UTRC, CT
 - Dr. Yingjie Li, Hyperloop One, CA
- Reviewers/members database is evolving
- Decision is based on at least 2 reviews

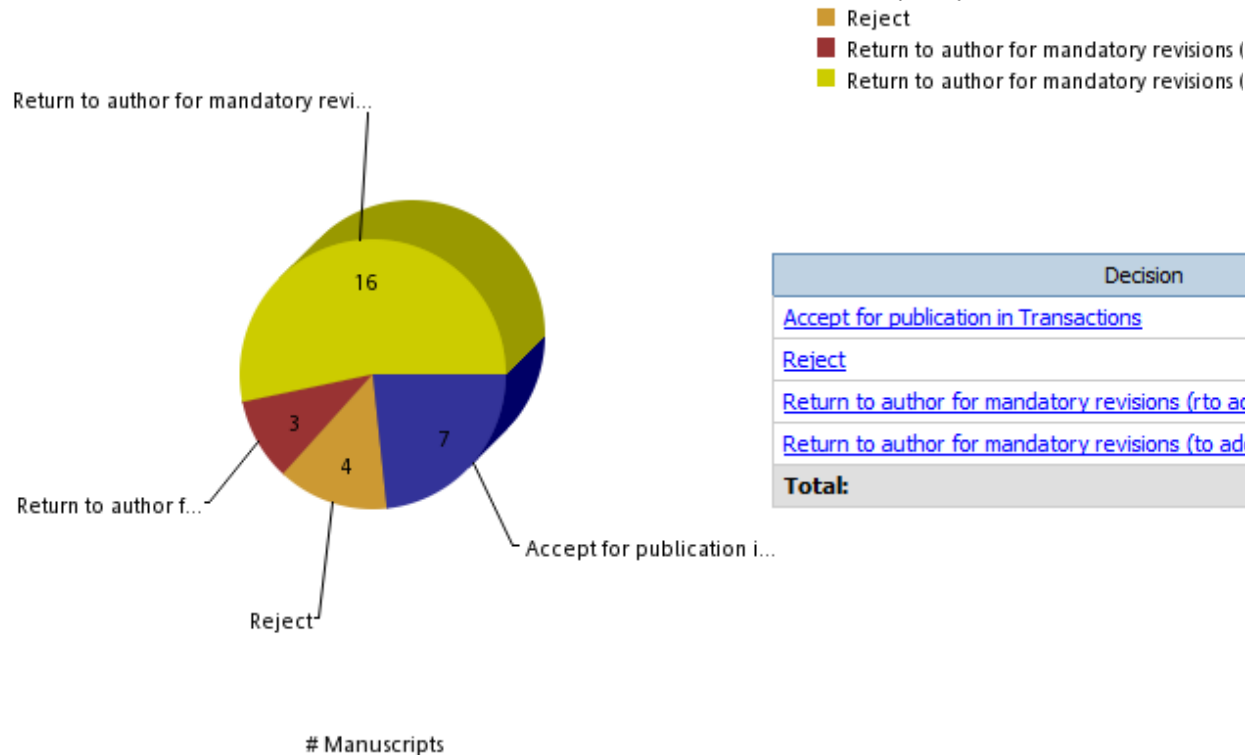
Transaction Paper Review

Transactions Papers (01/01/2017-Present):

- 37 Manuscripts submitted for review
- 7 Accepted for publication
- 19 Returned for mandatory revisions
- 4 Rejected
- 7 Under review process

Transaction Paper Review

Final Decisions Received (01/01/2017-Present)

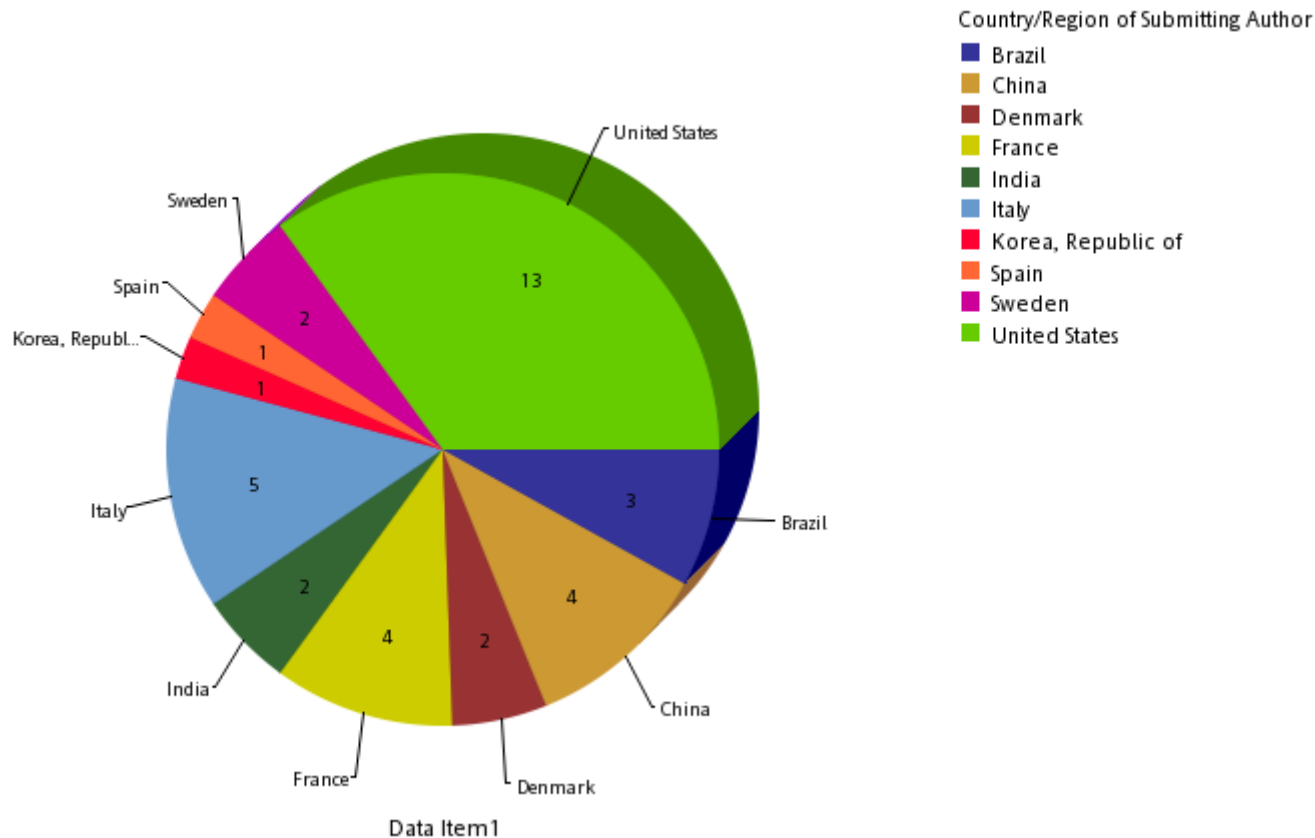


Decision	# Manuscripts	Percentage
Accept for publication in Transactions	7	23.33%
Reject	4	13.33%
Return to author for mandatory revisions (rto address reviewer comments)	3	10.00%
Return to author for mandatory revisions (to address reviewer comments)	16	53.33%
Total:	30	100.00%

Transaction Paper Review

Global Submission (01/01/2017 - Present)

Number of Manuscripts by Country/Region



AE Appreciation

- TCPRC: Dr. Bulent Sarlioglu
 - Associate Editors:
 - Dr. Bilal Akin, University of Texas, Dallas, TX
 - Dr. Mithat Kisacikoglu, University of Alabama, Tuscaloosa, AL
 - Dr. Veda Galigekere, ORNL, TN
 - Dr. Rakib Islam, Dura Automotive, MI
 - Dr. Jagadeesh Tangadu, UTRC, CT
 - Dr. Yingjie Li, Hyperloop One, CA

TSC Prize Paper Award - 2018

Award Committee:

Chair – Bulent Sarlioglu

Committee Members:

- Manuel Arias Perez de Azpeitia
- Wencong Su
- Dong Cao
- Antonio J Marques Cardoso
- Mahshid Amirabadi
- Ali Bazzi

The award committee evaluated 6 top ranked digests from ECCE 2017 Track D- Transportation System Applications

TSC Prize Paper Award - 2018

1st Prize

Title:

An Analytical Method to Calculate Winding Resistance for Planar Coil with Ferrite Plate and Litz Wire in Inductive Power Transfer

Authors:

Ming Lu and Khai D. T. Ngo

TSC Prize Paper Award - 2018

2nd Prize

Title:

Maximum Efficiency Control Strategy of PM Traction Machine Drives in GM Hybrid and Electric Vehicles

Authors:

Brian Gallert, Gilsu Choi, Kibok Lee, Xin Jing, and Yochan Son

TSC Prize Paper Award - 2018

3rd Prize

Title:

A Compact Unified Methodology via a Recurrent Neural Network for Accurate Modeling of Lithium-Ion Battery Voltage and State-of-Charge

Authors:

Ruxio Zhao, Phillip J. Kollmeyer, Robert D. Lorenz, and Thomas M. Jahns

ECCE 2018 – Transportation Applications

- 99 digest submitted
- Significant increase in digest submission than past years
- Acceptance rate 73.7%
- 25 papers are distributed in 6 oral sessions
- 48 papers are presented in poster sessions

ECCE 2018 – Transportation Applications

<u>ID</u>	<u>Session Name</u>	<u>Count</u>	
ORAL		#papers	
D1	Inductive power transfer	4	Completed
D2	Batteries modelling and management 1	4	
D3	Batteries modelling and management 2	4	Completed
D4	Electric Drivetrains	4	
D5	Applications of electric propulsion	4	
D6	Transportation electrification applications	5	Completed
		25	
POSTER		acceptance=	25%
DP1	Inductive Power Transfer & Charging Techniques	15	
DP2	Batteries Management & Infrastructures	16	
DP3	app.	17	
		48	
		acceptance=	48%

ITEC Global Series

ITEC North America (60% PELS, 20% IAS, 20% PES)

- ITEC'12: June 18-20, 2012, Dearborn, MI, USA
- ITEC'13: June 16-19, 2013, Dearborn, MI, USA
- ITEC'14: June 15-18, 2014, Dearborn, MI, USA
- ITEC'15: June 14-17, 2015, Dearborn, MI, USA
- ITEC'16: June 27-29, 2016, Dearborn, MI, USA
- ITEC'17: June 22-24, 2017, Navy Pier, Chicago, IL, USA
- ITEC'18: June 13-15, 2018, Long Beach, CA, USA
- ITEC'19: June 19-21, 2019, Metro Detroit, MI, USA
- **ITEC Asia & Pacific (36% IAS, 12% PELS, 12% PES, 40% Others) – Led by IAS**
 - August 31 – September 3, 2014, Beijing, China
 - June 1-4, 2016, Busan, Korea
 - August 2-5, 2017, Harbin, China
 - June 6-9, 2018, BITEC, Bangkok, Thailand
- **ITEC India & Middle East – Led by IAS in Partnership with SAEINDIA**
 - August 27 – 29, 2015, Chennai, India
 - December 13-15, 2017, Pune, India
- **ESARS-ITEC Europe**
 - November 2-4, 2016, Toulouse, France
 - November 7-9, 2018, Nottingham, UK

ITEC 2018

- General Chair: Bulent Sarlioglu, University of Wisconsin-Madison
- General Co-Chairs:
 - Tom Stricker, Toyota Motor North America, Inc.
 - Nick Nagel, Triumph Aerospace, USA
 - Gary Parker, Cummins Inc, USA
 - Kent Wanner, John Deere, USA
- Program Co-Chairs:
 - Sanjaka Wirasingha, Valeo
 - Ryan Ahmed, General Motors

ITEC 2018

- Co-Sponsored by IEEE-PELS (60%), IAS (20%), and PES (20%)
- June 13-15, 2018
- Long Beach, CA
- Conference/Exhibition Coordinator: RNA Associates, Inc.
- Registration: IEEE Meeting & Conference Management (IEEE MCM)
- Account: IEEE Concentration Banking

ITEC 2018

- 435 paid registrations
- 301 Author/non-author registration
- 75 Exhibitors
- 35 One day pass
- 75 keynote speakers/short-course and tutorial organizers/panel organizers-moderators-panelists/exhibitors
- ~15 student volunteers
- 39/40 Booth sold
- ~250k revenue

ITEC 2018

12 Keynote speaks:

Frede Blaabjerg

Professor, Villum Investigator at
Aalborg University, Denmark

Sean Clarke

X-57 Principal Investigator,
NASA Armstrong
Flight Research Center

Rachael Nealer

Program Manager at
US Department of Energy

Dan Ludois

CSO, C-Motive Technologies
and WEMPEC

Ali Emadi

President and CEO, Enedym, Inc
Professor, McMaster University

Alireza Khaligh

Professor at University of Maryland
and Expert at National Science
Foundation

Evgeni Ganev

Chief Engineer,
Honeywell

Peter Savagian

Senior Vice President,
Product Development,
Faraday Future



ITEC 2018 – Short Courses

1. **“Power Semiconductors for Vehicle Traction Inverters: From Discrete to Power Modules, from Silicon to Wide Band Gap Devices ,”** Andrea Christmann, Infineon
2. **“Developing Battery Models for System Level Simulation and Control Design,”** Javier Gazarri, MathWorks
3. **“Trade-Off Analysis Including Motor Type, Winding Type, Material and Cooling Type Selection,”** James Goss and David Alan Staton, Motor-Design Ltd.
4. **“Hardware in the Loop (HIL) Utilization for Power Electronics control development,”** Long Wu, Sumit Dutta, and Scott Johnson, John Deere Electronic Solutions
5. **“Impact of Electrification to Passenger Vehicles on Traditional Mechanical Design and Integration,”** Joe Palazzolo, GKN Driveline

ITEC 2018 - Tutorials

1. **“Highly reliable System Level Design and Simulation Platform for (H)EV,”** Emmanuel Rutovic, Powersys
2. **“Fundamental Criteria for E-motor Testing Process,”** Lucia Arcaleni, and Vincenzo Luca Fiengo, Khalifa University of Science and Technology, Loccioni
3. **“Experimental Study and Performance Evaluation of Energy Management Strategies for FCHEVs Using Power Hardware-in-the-Loop Platform,”** Ahmed Al Durra, and Imad Matraji, Khalifa University of Science and Technology
4. **“Thermal Design of Power Electronics,”** Lauren Boteler, U.S. Army Research Laboratory
5. **“Primer on Magnetically Suspended Motor Shafts for Transportation Applications,”** Eric Severson, University of Wisconsin-Madison

ITEC 2018 – Panel Sessions

1. **“Power Electronics – Application of Si, SiC, GaN,”** Elie Naim, AVL Electronics
2. **“Electrification Opportunities and Challenges for Off the Road and Heavy Duty Vehicle Industry,”** Long Wu, John Deere Electronic Solutions
3. **“Multiphase Machines for Traction Drive Systems,”** Omid Beik, Magna Powertrain
4. **“E-motor - Rotational Elements, Bearings for Bell start Generator,”** Hossein Dadkhah & Beijing Wang, Fiat Chrysler Automobiles
5. **“Architecture of Electric Driveline Systems for Future Automotive: Low Voltage (36~48Vdc) Versus High Voltage (400~850Vdc) ,”** Joe Palazzolo & Dhafar Al-Ani, Fiat Chrysler Automobiles
6. **“Flying Cars and Electric Aircraft,”** Kaushik Rajashekara, University of Houston
7. **“Electro-Mechanical Automotive Accessory Systems – Current Challenges”**
Bruno Lequesne, E-Motors Consulting

ITEC Asia Pacific - 2018

- Sponsored - IAS, PELS, PES, & Electric Vehicle Association of Thailand (EVAT) June 6-9, 2018, BITEC, Bangkok, Thailand
- Expo had 35 EV exhibitors presenting EV chargers, electric tuk-tuks and other products
- The expo itself saw over 25,000 visitors from 40 countries
- 90 participants for the iTEC main track
- 50 technical presentations from 12 countries
- 200 people for the tutorials
- Keynote speeches - Prof. Hori (Japan), Prof. Pickert (UK), Mr. Mckerracher (UK), and Dr. Wongpiromsarn (Singapore)
- Next ITEC Asia-Pacific, to be held on Jeju island, Korea, May 8-10, 2019.

ITEC India - 2017

- Led by IAS in Partnership with SAE-INDIA
 - December 13–15, 2017, Pune, India
- Total no. of Delegates 800+
- Organized 19 Keynote Speeches and 14 Plenary Sessions
- No. of papers submitted 318
- No. of track chairs 48
- No. of reviewers 300
- No. of accepted/presented papers 120 (38%)
- The next ITEC India 2019 will take place in Bangalore, India

ITEC 2019

June 19-21, 2019, Detroit, MI, USA

- General Chair:
Jin Ye, University of Georgia
- Program Chair:
Babak Nahid-Mobarakeh, Université de Lorraine
- Program Co-Chair:
Srdjan Lukic, North Carolina State University
- Assistant Program Chair:
Fei Gao, University of Technology of Belfort-Montbéliard
- Publication Chair:
Phillip Kollmeyer, McMaster University
- Panels Chair:
Long Wu, John Deere
- Panels Co-Chair:
Liang Du, Temple University
- Short Courses/Tutorials Chair:
Babak Nahid-Mobarakeh, Université de Lorraine

ITEC 2019

June 19-21, 2019, Detroit, MI, USA

- General Chair:
Jin Ye, University of Georgia
- Program Chair:
Babak Nahid-Mobarakeh, Université de Lorraine
- Program Co-Chair:
Srdjan Lukic, North Carolina State University
- Assistant Program Chair:
Fei Gao, University of Technology of Belfort-Montbéliard
- Publication Chair:
Phillip Kollmeyer, McMaster University
- Panels Chair:
Long Wu, John Deere
- Panels Co-Chair:
Liang Du, Temple University
- Short Courses/Tutorials Chair:
Babak Nahid-Mobarakeh, Université de Lorraine

ECCE 2019

IEMDC 2019

APEC 2019

IAS Awards

**It is an exciting time for
transportation electrification**

Please join TSC