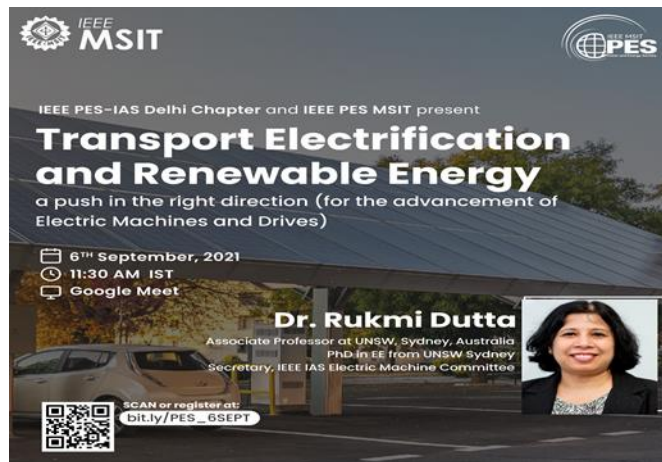


Region 10
IEEE PES –IAS Delhi Chapter & IEEE PES MSIT Student branch Chapter

Expert lecture / webinar report on topic

“Transport Electrification and Renewable Energy Conversions- a push in the right direction (for the advancement of Electric Machines and Drives)”

Chapter Advisor	Chairperson	Vice Chairperson	General Secretary	Treasurer	Webmaster
Dr. Jyoti Jain	Parul Diwakar	Ashmita Chadha	Anshul	Soumya Chaudhary	Pulkit Mittal



POSTER OF THE EVENT

Date: 6th September 2021

Time: 11:00 AM IST

Platform: GoogleMeet

IEEE MSIT PES Chapter with the aim to enhance knowledge in the field of Electrical Machine / new technology a Guest Lecture has been conducted in association with IEEE PES-IAS Delhi Chapter, IEEE PES MSIT and EEE department of MSIT. An expert talk on “Transport Electrification and Renewable Energy Conversions- a push in the right direction (for the advancement of Electric Machines and Drives)” by ‘**RUKMI DUTTA**’ Associate Professor at UNSW, Sydney, Australia. Before joining UNSW, she worked as an Electrical Engineer at CMG Pty Ltd (now Regal Beloit Australia), as a Research Associate at the Institute of Industrial Science (IIS) of Tokyo University, Japan and as an Assistant Manager at Reliance Industry Ltd, India. Her research interests are the Design and Control of Permanent Magnet Machines, Electrical Drive Systems, Renewable Energy generation and distribution.

The webinar started with a brief introduction of the speaker for the session. It covered the advancements and the novel solutions that are being proposed in the field of electric machines and drive systems giving particular focus to the permanent magnet motor and drive technologies.

She has focused on design of permanent Magnet motor using intelligent optimization Techniques to improve efficiency of motor and reduce the cost of motor.

The interactive webinar was a great success and was attended by 80+ people, the students put forward their questions to the speaker enthusiastically and got them all answered. The webinar / Guest lecture was ended with the Vote of thanks by Dr. Jyoti Jain, Chapter Advisor of IEEE PES MSIT and Treasurer of IEEE PES- IAS DELHI Chapter. The webinar proved to be a huge benefit for the students and was highly appreciated by everyone.

Organizing Committee:

Dr. Jyoti Jain

Parul Diwakar

Ashmita Chadha

Anshul

Soumya Choudhary

Pulkit Mittal

Photographs of the webinar:

SPM rotor topologies

15

12:19 | isz-pjdp-kiw

DW and CW UNSW IPM machine comparisons

18

12:27 | isz-pjdp-kiw

- Higher power
- Wider CPSR
- Very low

IPM rotor topologies

16

12:22 | isz-pjdp-kiw

Performance Evaluation and Optimization Algorithm

20

12:31 | isz-pjdp-kiw

Size reduction with increasing speed

28

12:40 | isz-pjdp-kiw

High-speed Machines

Benefits

- Compact size = High power (or torque) density (i.e. kW/m³ or kW/kg).
- High iron and mechanical losses.
- High mechanical stress on the rotor.

Challenges

- High torque per rotor volume (TRV) = high shear stress
- High centrifugal force ($m v^2 / r$ or $m \omega^2 r$) = high rotor stress
- Compact size = reduced area of heat dissipation

Tip-speed $v = \omega r$ is more holistic to define high-speed class of motors.
























































































































































$k_w \sqrt{rpm}$ index for difficulty in design

27

12:39 | isz-pjdp-kiw

ATTENDANCE:

The interactive webinar had a great turn over with more than 80 attendees (IEEE Members-13; non IEEE members-60) and nullified all their queries.

 Bhumit Dabas			 Rishabh Sharma			 Siddharth kumar Choudh...		
 BRIJESH HANSA			 Rishika Arya			 Smile Jandyal		
 chitrak kala			 Rukmi Dutta			 Soumya Chaudhary		
 Gopal Gupta			 Rukmi Dutta Presentation			 Suman Kumar		
 Harsh Narwal			 Sachit Rathee			 Sunesh Kumar		
 Himanshu Misra			 Sakshi Jaiswal			 Vaibhav Malhotra		
 Jagriti Krishnan			 Samarth Kumar			 Vanshika Gaur		
 Jatin Dabas			 Sarvagya Mishra			 vipra gahlot		
 Jatin Yadav			 Manav Pachnanda			 IEEE PES MSIT (You) Meeting host		
 Anirudh Solanki			 Mansi Sharma			 Abhijeet Singh		
 Anirudh Venkatesh			 MG Moinuddin			 Abhishek Nair		
 Anmol Jain			 Mohd Arif Raza saqibi			 Adil		
 Arpita Trivedi			 nanak gill			 Aditya Kumar Srivastava		
 Aryan Mahajan			 Nidhi Kumari			 Akansha		
 Aryan Yadav			 Palash Gandhi			 Akshat Sharma		
 Ashutosh			 Pankaj Kumar			 Aman Tiwari		
 Ayush Aggarwal			 Pankaj Periwal					
 Ayush Ashank	