



Name of the Chapter: PES/PELS/IAS Joint Chapter, IEEE Hyderabad Section

Name of the Activity: Industry Lecture Series – Webinar on “Power Saving and THD Improvement in Sensor-less IPMSM Drive for PV Fed Pumps”

Event Date: Nov 22, 2024 (Friday)

Event Time: 6:30 PM – 8:00 PM

Organizer: IEEE PES/PELS/IAS Joint Chapter of IEEE Hyderabad Section

Title of the Talk:

Webinar on “Power Saving and THD Improvement in Sensor-less IPMSM Drive for PV Fed Pumps”

Speaker: Dr. Sagar Petkar, Senior Power Electronics Engineer, Ecozen Solutions Pvt. Ltd., Pune

Event Summary:

IEEE Hyderabad Section PES Joint Chapter in association with PES Student Branch Chapters of CVR College of Engineering, Vaagdevi College of Engineering, Geethanjali College of Engineering and Technology, National Institute of Technology Warangal, Maturi Venkata Subba Rao (MVSR) Engineering College, RVRJC CE, JBREC and PELS Student Branch Chapters of GPCET, GPREC, Vardhamaan College of Engineering, IAS Student Branch Chapter of Mohan Babu University has jointly organised an Industry Lecture Series – Webinar on “Power Saving and THD Improvement in Sensor-less IPMSM Drive for PV Fed Pumps” on 22nd November 2024.

Event Highlights:

1. Introduction and Welcome:

The event is started by Dr. D. Hari Krishna, Vice-Chairman, PES/IAS/PELS Joint Chapter, Hyderabad Section. He welcomed the distinguished speaker, Excom members and all the participants to this PES DLP and briefed about this event. Then Dr. G. Siva Kumar, Chair of the PES/IAS/PELS Joint Chapter, has delivered the welcome address and informed the participants about the importance of the topic and shared the IEEE Hyderabad Section PES Joint Chapter activities and upcoming events.

2. Speaker Introduction:

Dr. D. Hari Krishna, Vice-Chair of the PES/IAS/PELS Joint Chapter has introduced the distinguished speaker. Dr. Sagar Petkar was born in Nashik, India, in 1985. He received B.E. degree in Electrical Engineering from Pune University, in 2007, and the M.Tech degree in Electrical Engineering from the Indian Institute of Technology Bombay, in 2010. He received his Ph.D degree in Electrical Engineering from the National Institute of Technology Warangal, in 2022. From 2011 to 2018, he was an Assistant Professor with Pune University. He is presently working in Ecozen Solutions Pvt. Ltd as a Senior Power Electronics Engineer since 2022. His research interests include power electronics, sensor-less high-performance electrical drives, model predictive control, and design of the PMS motor.

3. Technical Presentation:

Dr. Sagar Petkar shared his Webinar on “Power Saving and THD Improvement in Sensor-less IPMSM Drive for PV Fed Pumps”. In his presentation, he started explaining the Ecotron (India’s leading solar pumping solution), submersible pump, IPMSM and inverter. He has covered the concepts of the sensor-less field oriented control (FOC) of IPMSM using LC filter, sensing of the motor currents, maximum torque per ampere of IPMSM, sensor-less position estimator, characteristics of a water pump, maximum power point tracking using P&O technique, control diagram for sensor-less FOC of IPMSM, flux weakening in IPMSM, combined flux weakening & MTPA in Ecotron, motor voltage and current after filter and power saving in Ecotron.

In his lecture he has explained about that the PV operated pump drive system using IPMS motor needs the knowledge of the exact rotor position. The rotor position in the IPMS motor can be sensed using the position encoder. He has presented a rotor position estimation method for the vector-controlled IPMS motor along with the harmonic filter eliminating the dependency on the position encoder. The invented scheme also integrates the MPPT of PV and position estimation of IPMSM into the closed loop vector control with output harmonic filter. The developed scheme improves the overall efficiency of the PV fed water pump drive. With this scheme, the water output from the pump per unit input DC power is increased.

4. Interactive Q & A Session:

Following the presentation, there was an interactive Q & A session handled by Dr. G. Siva Kumar, Chair, PES/IAS/PELS Jt. Chapter, where the participants from industry and academia had the opportunity to ask the questions to the speaker Dr. Sagar Petkar. His thoughtful facilitation helped all the participants to engage in meaningful dialogue with our esteemed speaker.

5. Participant Engagement:

The PES/PELS/IAS Joint Chapter Industry Lecture Series was well received with 53 participants (23 IEEE members and 30 Non-IEEE members). The participants include IEEE Members, students, academicians, industry professional and research scholars.

6. Closing Remarks:

Dr. D. Hari Krishna, Vice-Chair of the PES/IAS/PELS Joint Chapter has provided the closing remarks and vote of thanks. He thanked Dr. Sagar Petkar for his valuable insights in "Power Saving and THD Improvement in Sensor-less IPMSM Drive for PV Fed Pumps". He also thanked the excom members of IEEE PES/IAS/PELS Joint Chapter of Hyderabad Section along with all associated PES & PELS Student Branch Chapters and all the participants for their active involvement.

Event Feedback:

The PES Joint Chapter Industry Lecture Series received a positive feedback form the participants who appreciated the speaker for his insightful and informative lecture in this webinar.

Conclusion:

This Industry Lecture Series has provided valuable insights about "Power Saving and THD Improvement in Sensor-less IPMSM Drive for PV Fed Pumps". The PES/PELS/IAS Joint Chapter of Hyderabad Section is committed to continuing its efforts in providing high-quality educational events and looks forward to organizing more such insightful sessions in the future.



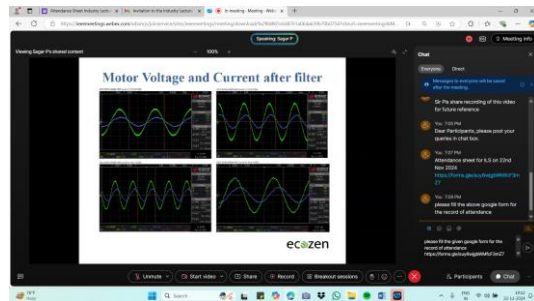
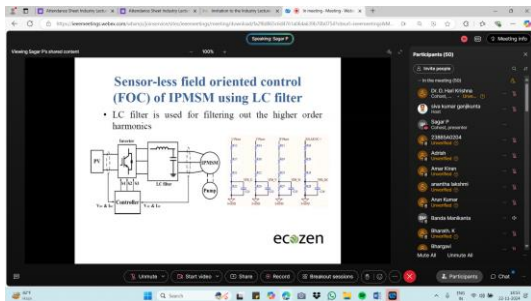
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in association with
PES SBCs – CVR CE, Vaagdevi CE, Geethanjali CET, NIT Warangal, MVSREC, RVRCCE, JBREC;
PELS SBCs – GPCET, GPREC, Vardhaman CE; IAS SBC- Mohan Babu University

Invitation
Industry Lecture Series
Webinar on
“Power Saving and THD Improvement in Sensor-Less IPMSM Drive for PV Fed Pumps”
by
Dr. Sagar Petkar
Senior Power Electronics Engineer
Ecozen solutions Pvt. Ltd, Pune

Date & Time:
22nd November 2024 (Friday)
6.30 PM to 8.00 PM (IST)

Registration link: <https://forms.gle/cw8QB4nKWU2EJoiT9>

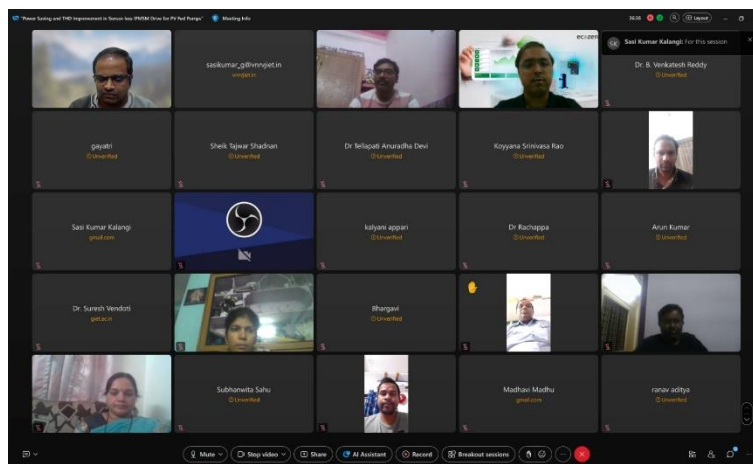
Flyer of Industry Lecture Series



Pics of the Industry Lecture Series event



Virtual Momento to Industry Lecture Series Speaker



Participants in Industry Lecture Series