Sukanta Das

Associate Professor
Department of Electrical Engineering
Indian Institute of Technology (ISM), Dhanbad
Jharkhand-826004, India.
Phone: (+91) 326-2235653 (O), Mobile: (+91) 7667458474
E-mail(s): asksukanta@iitism.ac.in, asksukanta.iitism@gmail.com

Bio-Sketch:

Dr. Sukanta Das received the Bachelor of Engineering degree in Electrical Engineering from Jalpaiguri Government Engineering College, Jalpaiguri, India, in 2002, and the Master of Engineering and Ph.D. degrees in Electrical Engineering from Bengal Engineering and Science University (now known as the Indian Institute of Engineering Science and Technology), Howrah, India, in 2004 and 2013, respectively.

Dr. Das is currently an Associate Professor & Head of the Department of Electrical Engineering, Indian Institute of Technology (ISM), Dhanbad, India. Apart from teaching regular courses on Electrical Machines & Drives, he is actively involved in Research & Development work. He has accomplished a few projects sponsored by SERB, DHI etc. and is also currently involved in other Industry projects with Mahindra & Mahindra Ltd. India. Till date, Prof. Das has guided 8 students towards their Ph.D degrees. Moreover, 26 students have completed their M.Tech. dissertations under his supervision. He has authored /coauthored about 65 publications in journals /conferences.

His current research interests include fault-tolerant control of induction motor drives, energy efficient operation of induction motor drives, predictive control of machine drives, fast charging of electrical vehicles and other aspects of electrical machine drives. Presently, Dr. Das is a *Senior Member of IEEE* and *Fellow of IEI*.

Academic Qualifications:

BE (Electrical Engg.) 2002 – Jalpaiguri Govt. Engineering College, Jalpaiguri, under University of North Bengal (NBU), West Bengal, India.

ME (Electrical Engg., Specialization in Power System) - 2004 & Ph.D. (Engg.) 2013 – Indian Institute of Engineering Science & Technology (IIEST), Shibpur, Howrah (Erstwhile Bengal Engineering and Science University (BESU), Shibpur, Howrah, India).

Personal Details:

- Male, Married, from West Bengal-Indian.

Current Research Interests:

Mathematical formulation of novel concepts, their theoretical development and finally experimental validation using microcontrollers or rapid prototyping platforms are the key steps followed in the following research areas.

- Electric Vehicles.
- Brushless Special Machines.
- High-Performance Electric Drives.
- Energy Efficient Control of Motor Drives.
- Fault Tolerant Control of Motor Drives.

- Energy Efficient Control of Electrical Drives in EV.
- Fast Charging Technologies.

Experience:

Teaching-Twenty years on-going. Till date different subjects and laboratories of Under-graduate and Post-graduate courses of Electrical Engineering have been taught. A few project/thesis dissertations at under-graduate and post-graduate Ph.D. levels are completed, and a few more research/thesis guidance at under-graduate, post-graduate and Ph.D. levels are on-going.

Employer	Position held	Duration in the post
Birbhum Institute of Engineering and Technology, Suri, Birbhum, West Bengal, India.	Lecturer	March 15, 2004 – August 31, 2008
	Senior Lecturer	September 01, 2008-October 31, 2010
Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand, India.	Assistant Professor	November 01, 2010 – April 11, 2021
Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand, India.	Associate Professor	April 12, 2021 – Continuing

Courses Offered in Under-Graduate:

Sl. No.	Courses	Code	L-T-P	Program
1	Electrical Technology	EEC11102/12102	3-1-0	1st year B.Tech. (EE)
2	Electrical Technology Practical	EEC12201	0-0-3/2	
3	Circuit Theory	EEC13111	3-1-0	2nd year B.Tech. (EE)
4	Circuit Theory Practical	EEC13211	0-0-3/2	
5	Electrical Measurements Practical	EEC14211	0-0-3/2	
6	Applied Electrical Engg.	EER14101	3-0-0	2nd year B.Tech. (MEC)
7	Electrical Machines-II	EEC15111	3-0-0	3rd year B.Tech. (EE)
8	Utilization of Electric Power	EEH16101	3-0-0	
9	Power Electronics Practical	EEC16211	0-0-3/2	
10	Power System Practical	EEC16212	0-0-3/2	
11	Applied Electrical Engg.	EER16101	3-1-0	3rd year B.Tech. (MLE)
12	Special Purpose Electric Machines & Drives	EEC18115	3-0-0	4th year B.Tech. (EE)

Courses Offered in Post-Graduate:

Sl. No.	Courses	Code	L-T-P	Program
1	Generalized Theory of Electrical Machines	EEC51101	3-0-0	1st year M.Tech. (PSE+PEED)

Significant Projects Supervised at Under-Graduate (B.Tech.) Level:

- Power System Control.
- Transformer Protection.
- Application of Wavelet Transform in Power Quality Study.
- Detection and Prevention of CT Saturation Using Artificial Neural Network.
- Induction Motor Condition Monitoring.
- Vector Controlled Methods for Induction Motor Drives.
- SOC and SOH Monitoring of Battery.

Significant Projects Supervised at Post-graduate (M.Tech.) Level: 26

Academic session-2013-14: 01

1. "A Comparative Study on Different PWM Techniques and Assessment of Performance of Induction Motor Drives Using ANN Based Space Vector Pulse Width Modulated VSI"-- by **Taneesha Bhandari**

Academic session-2014-15: 03

2. "Phase-Disposition PWM Five-level Inverter Switch Fault Diagnosis using DWT MRA and ANN"-- by **Anant Khalkho**
3. "Estimation of Speed and Rotor Resistance for Speed Sensorless Induction Motor Drive Utilizing Reactive Power Based MRAS"-- by **Murli Manohar**
4. "Estimation of Speed and Rotor Resistance for Speed Sensorless Induction Motor Drive Utilizing Rotor Flux Based MRAS"-- by **Senen James Purti**

Academic session-2015-16: 03

5. "Design of Wavelet Notch Filter using Multi-Resolution Analysis" -- by **Vikash Ranjan**
6. "Sensorless Speed Control of Permanent Magnet Synchronous Motor Drive Utilizing V*xI Model Reference Adaptive System" -- by **Alok Kumar Bhoi**
7. "Sensorless Vector Control of Induction Motor Drives Connected in Parallel" -- by **Sandeep Kumar**
8. Vector Control Technique for Speed Control of DFIM Drive Using Back-to-Back Converters -- by **Nilesh Kumar**

Academic session-2016-17: 04

9. "Space Vector Modulation Based Direct Torque Control of Induction Motor Drive" -- by **Pasupuleti Sivakumar**
10. "Comparative Performance Assessment of Different Multi-Level Inverter Fed Induction Motor Drive System" -- by **Avinash Saw**
11. "Correction of Current Transformer Secondary Current Distortion due to Saturation Using Artificial Neural Networks" -- by **Rishabh Gaurav**
12. "A comparative Study of Different Advanced Speed Control Techniques of Induction Motor Drive" -- by **Pooja Sharma**

Academic session-2017-18: 05

13. "Different Model Predictive Control Based Advanced Speed Control Techniques for Induction Motor Drive" -- by **Diksha Singh**
14. "Application of on-line Loss Minimization Strategy in Direct Torque Controlled Induction Motor Drive" -- by **Saurabh Nandy**

15. "Development and Validation of Automatic Model Predictive Controller for UGV based Lane Centering System" -- by **Parag Goyal**
16. "Development of FOC based Speed Controllers for PMSM and IM Drives for Electric Vehicle Application" -- by **Rachana Singh**
17. "Model Predictive Control Based Supervisory Controller for Hybrid Electric Vehicle" -- by **Anuradha Singh**

Academic session-2018-19: 04

18. "Field Oriented Control of Multi-Phase Induction Machine" -- by **Praveen Kumar**
19. "Design of 10 kVA Two-Level Three-Phase Voltage Source Inverter Using IPM PMRSB120 for Three-Phase Induction Motor Drives" -- by **Urbesh Sarkar**
20. "Speed Control of Brushless Doubly-Fed Reluctance Machine Using Direct Torque Control" -- by **Niraj Tiwary**
21. "Speed Control of Induction Motor Drive Using Model Predictive Current Control" -- by **Sunil Kumar**

Academic session-2019-20: 02

22. "A Speed Sensorless Rotor Flux-MRAS Based Direct Torque Control Scheme for Induction Motor Drives" -- by **Devjyoti Roy**
23. "Comparative Analysis of Speed Control of Brushless DC Motor Using Field Oriented Controller by Both SPWM And SVPWM Techniques" -- by **Kurra Govardhan**

Academic session-2020-21: 01

24. "Speed Control of Doubly Fed Induction Machine with Field-Oriented Control" -- by **Akash Lal**

Academic session-2021-22: 01

25. "Development of Bharat DC001 Standard Based Fast Charger for Electric Vehicle"-- by **Sai Kiran S**

Academic session-2022-23: 01

26. "Current Sensor Fault-Tolerant Strategy for IM Drives Operating under Model Predictive Control Regime"-- by **Rajarshi Chakraborty**

Projects Supervision at Post-graduate Level (On-going): 01

Key area:

1. PMSM Drive Control.

Ph.D Students Graduated: 08

1.	*Title of Ph.D Thesis:* "Predictive Control Strategies for Speed Sensorless Induction Motor Drives "...by Adrish Bhaumik *Notified for the Award of Ph.D Degree:* September 23, 2022. *Key Publications:* [1] Adrish Bhaumik, and **Sukanta Das**, "Predictive torque control strategy for speed adaptive flux observer based sensorless induction motor drive in flux-weakening region," *IEEE Transactions on Power Electronics*, vol. 36, no. 12, pp. 14110-14118, June. 2021. [Q1] [2] Adrish Bhaumik, and **Sukanta Das**, "Virtual voltage vector based predictive current control of speed sensorless induction motor drives," *ISA Transactions*,

	14-July, 2022, ISSN 0019-0578, https://doi.org/10.1016/j.isatra.2022.07.007. Early Access [Q1] *Present Engagement:* Post Doctoral Fellow, Dept. of E&CE, National University of Singapore
2.	*Title of Ph.D Thesis:* "Sensorless Speed Control of Brushless Doubly-Fed Reluctance Motor Drive Utilizing Model Reference Adaptive Controller"... by Mukesh Kumar *Notified for the Award of Ph.D Degree:* May 23, 2022. *Key Publications:* [1] Mukesh Kumar, and **Sukanta Das**, "Sensorless speed estimation of brushless doubly-fed reluctance generator using active power based MRAS," *IEEE Transactions on Power Electronics*, vol. 34, no. 8, pp. 7878-7886, Aug. 2019. [Q1] [2] Mukesh Kumar, and **Sukanta Das**, "Model reference adaptive system based sensorless speed estimation of brushless doubly-fed reluctance generator for wind power application," *IET Power Electronics*, vol. 11, no. 14, pp. 2355-2366, Nov. 2018. [Q2] *Present Engagement:* Assistant Professor, Department of Electrical Engineering, Government Engineering College Jamui affiliated with Bihar Engineering University
3.	*Title of Ph.D Thesis:* "Sensor Fault-Tolerant Control of Induction Motor Drives Using Machine Model Based Observers"...by Murli Manohar *Notified for the Award of Ph.D Degree:* February 14, 2022. *Key Publications:* [1] Murli Manohar, and **Sukanta Das**, "Direct torque controlled induction motor drive using modified five-level torque controller for reduction in torque ripple," *IET Power Electronics*, Vol. 13, no. 9, pp. 1885-1892, July 2020. [Q2] [2] Murli Manohar, and **Sukanta Das**, "Current sensor fault-tolerant control for direct torque control of induction motor drive using flux linkage observer," *IEEE Transaction on Industrial Informatics*, vol. 13, no. 6, pp. 2824–2833, Dec. 2017. [Q1] *Present Engagement:* Assistant Professor, Dept. of Electrical Engineering, BIT Sindri, Dhanbad, Jharkhand
4.	*Title of Ph.D Thesis:* "Energy Efficient Operation of Vector Controlled Induction Motor Drive Using Search Controller"....by Abhisek Pal *Notified for the Award of Ph.D Degree*: July 23, 2021. *Key Publications:* [1] Abhisek Pal, and **Sukanta Das**, "Search controller-based online efficiency optimisation strategy for induction motor drives using modified adaptive

	quadratic interpolation," *IET Power Electronics*, Vol. 13, no. 18, pp. 4282-4290, Dec. 2020. [Q2] [2] Abhisek Pal, **Sukanta Das**, and Ajit K. Chattopadhyay, "An improved rotor flux space vector based MRAS for field oriented control of induction motor drives," *IEEE Transaction on Power Electronics*, vol. 33, no. 6, pp. 5131–5141, June 2018. [Q1] *Present Engagement:* Assistant Professor, Dept. of Electrical Engineering, Thapar Institute of Engineering and Technology
5.	*Title of Ph.D Thesis:* "Limited Range Variable Speed Operation of Brushless Doubly-fed Reluctance Machine using Model Predictive Current Control Technique under Primary Flux Orientation"....by Karuna Kiran *Notified for the Award of Ph.D Degree:* March 15, 2021. *Key Publications:* [1] Karuna Kiran, and **Sukanta Das**, "Variable speed operation of brushless doubly-fed reluctance machine drive using model predictive current control technique," *IEEE Transactions on Power Electronics*, vol. 35, no. 8, pp. 8396-8404, Aug. 2020. [Q1] [2] Karuna Kiran, and **Sukanta Das**, "Implementation of reactive power based MRAS for sensorless speed control of brushless doubly-fed reluctance motor drive," *IET Power Electronics*, vol. 11, no. 1, pp. 192-201, Jan. 2018. [Q2] *Present Engagement:* Assistant Professor, SVERI College of Engineering Pandharpur
6.	*Title of Ph.D Thesis:* "Model Reference Adaptive System Based Sensorless Speed Control of Doubly-Fed Induction Machine Drive under Different Control Regimes"....by Rahul Kumar *Notified for the Award of Ph.D Degree:* November 11, 2020. *Key Publications:* [1] [Rahul Kumar, **Sukanta Das**, and Adrish Bhaumik,"Speed sensorless model predictive current control of doubly-fed induction machine drive using model reference adaptive system," *ISA Transactions*, vol. 86, pp. 215-226, Jan. 2019. [Q1] [2] Rahul Kumar, and **Sukanta Das**, "MRAS based speed estimation of grid-connected doubly-fed induction machine drive," *IET Power Electronics*, vol. 10, no. 7, pp. 726–737, July 2017. [Q2] *Present Engagement:* Assistant Professor, Dept. of Electrical Engineering, BIT Sindri, Dhanbad, Jharkhand
7.	*Title of Ph.D Thesis:* "Wavelet Transform and ANN Based Fault Diagnosis Scheme for

	Simultaneous Detection of Broken Rotor Bars and Bearing Damages in Squirrel Cage Induction Motor"…by Ashish Kumar Sinha (as co-guide with Prof. T. K. Chatterjee, MME) *Notified for the Award of Ph.D Degree:* April 01, 2019 *Key Publication:* [1] Ashis Kr. Sinha, **Sukanta Das**, and Tarun Kr. Chatterjee, "Empirical relation for broken bar determination in SCIM," *The International Journal for Computation and Mathematics in Electrical and Electronic Engineering*, vol. 37, no. 1, pp. 242-265, Jan. 2018. [Q4] *Present Engagement:* Assistant Professor, Dept. of Electrical Engineering, Institute of Engineering & Technology, GLA University-Mathura
8.	*Title of Ph.D Thesis:* "Low-Region Speed Control of Vector Controlled Induction Motor Drives Using Model Reference Adaptive Controller" .....by Rakesh Kumar *Notified for the Award of Ph.D Degree:* March 14, 2017 *Key Publications:* [1] Rakesh Kumar, and **Sukanta Das**, "Eigenvalue based relative parameter sensitivity analysis for optimized performance of sensorless induction motor drives," IET Electric Power Applications, vol. 10, no. 8, pp. 723–734, Sept. 2016. [Q2] [2] Rakesh Kumar, **Sukanta Das**, and A.K. Chattopadhyay, "Comparative assessment of two different MRAS schemes for speed sensorless control of induction motor drives," IET Electric Power Applications, vol. 10, no. 2, pp. 141-154, Feb. 2016. [Q2] [3] Rakesh Kumar, **Sukanta Das**, P. Syam, and A.K. Chattopadhyay, "Review on model reference adaptive system for sensorless vector control of induction motor drives," IET Electric Power Applications, vol. 9, no. 7, pp. 496–511, July, 2015. [Q2] *Present Engagement:* Assistant Professor in the Dept. of ECE at Indian Naval Academy

Ph. D Supervision (On-going): 04

Sl. No.	Topic	Date of Registration
1	Energy Efficient Operation of Induction Motor Drive	01.08.2019
2	High-Performance Control of Induction Motor Drive Systems for Electric Vehicle Application	11.08.2021
3	Fault-Tolerant Control of Induction Motor Drives Considering Inverter Non-Linearity Effect	14.07.2023
4	Variable Speed PMSM Drives	03.01.2023

Funding Received as PI/CI:

Sl. No.	Title of the project	Sponsored by & Project No.	Project Cost (Rs.)	Duration	Status
1.	Design and Implementation of Wavelet Transform based Notch Filter to Denoise Synchronizing Signal in Power Electronics Converters under Harmonics Polluted Environment.	IIT(ISM) Dhanbad FRS(35)/2012-2013/EE	10,00,000/-	Three years	**Completed**
2.	Hardware Feature Enhancement of Existing MCK28335 Kit C Pro-S (IM) for Conducting Research Activity in Industry Standard Vector Control Drive Applications	Minor Research Project under TEQIP-II (vide letter dated 22.07.2013)	1,00,000/-	One year	**Completed**
3.	Sensorless Speed Control of Brushless Doubly-Fed Reluctance Motor Drive Utilizing Model Reference Adaptive Controller	SERB (DST) File No. YSS/2015/001670 DST(SERB)(134)/2015-2016/458/ Electrical Engg.	30,84,750/-	Three years	**Completed**
4.	Execution of a Common Approach for Current Sensor Fault-Tolerant Control of Induction Motor Drives in Different Control Regimes	SERB (DST), File No. CRG/2019/00384 [DST(SERB)(249)/2019-2020/696/ EE]	46,86,264/-	Three years	**Completed**
5.	Development of Energy Efficient Control Scheme for Induction Motor Drive Used in EV and HEV	Department of Heavy Industries in Collaboration with Mahindra & Mahindra Ltd. [7(11)/2019-AEI (20739)]	84,37,000/-	Three years	**On-going**
6.	FIST Engineering	DST (FIST)	2,03,00,000/-	Five	**On-going**

	Sciences – Project [Involves 3 Co-PIs]	DST(FIST)/2024 -2025/1114/EE		Years	
7.	Center of Excellence by ReNEW Power Foundation	SCOE0007I	1,00,00,000/-	One Year	**On-going**

Publications:

In Journals:

[1] Goutam Goswami, and **Sukanta Das**, "Inherently robust loss model controller for energy efficient operation of indirect rotor field-oriented induction motor drives," ***IEEE Transactions on Power Electronics***, vol. 39, no. 1, pp. 14951-14960, Nov. 2024. https://doi.org/10.1109/TPEL.2024.3435959 [Q1].

[2] Rajarshi Chakraborty, and **Sukanta Das**, "Fault-tolerant technique against current sensors for model predictive control of induction motor drives," ***IEEE Transactions on Power Electronics***, vol. 39, no. 7, pp. 8506-8516, July 2024. https://doi.org/10.1109/TPEL.2024.3381169 [Q1].

[3] Goutam Goswami, and **Sukanta Das**, "An online efficient loss model controller for rotor-field oriented induction motor drives," ***IEEE Transactions on Energy Conversion***, vol. 39, no. 1, pp. 578-588, Mar. 2024. https://doi.org/10.1109/TEC.2023.3313354 [Q1].

[4] **Sukanta Das**, and Murli Manohar, "A resilient current sensor fault tolerant strategy for vector-controlled induction motor drive," ***IEEE Journal of Emerging and Selected Topics in Power Electronics***, vol. 11, no. 4, pp. 4313-4320, Aug. 2023. https://doi.org/10.1109/JESTPE.2022.3179319 [Q1]

[5] Adrish Bhaumik, and **Sukanta Das**, "Virtual voltage vector based predictive current control of speed sensorless induction motor drives," ***ISA Transactions***, vol. 133, no. 2, pp. 495-504, Feb. 2023. https://doi.org/10.1016/j.isatra.2022.07.007 [Q1]

[6] Mukesh Kumar, and **Sukanta Das**, "Modified active power-MRAS for limited range variable speed sensorless brushless doubly-fed reluctance machine drive," ***The International Journal for Computation and Mathematics in Electrical and Electronic Engineering***, vol. 42, no. 2, pp. 425-448, July. 2022. https://doi.org/10.1108/COMPEL-12-2021-0497 [Q4]

[7] Adrish Bhaumik, and **Sukanta Das**, "Predictive torque control strategy for speed adaptive flux observer based sensorless induction motor drive in flux-weakening region," ***IEEE Transactions on Power Electronics***, vol. 36, no. 12, pp. 14110-14118, June. 2021. https://doi.org/10.1109/TPEL.2021.3089611 [Q1]

[8] Abhisek Pal, and **Sukanta Das**, "Search controller-based online efficiency optimisation strategy for induction motor drives using modified adaptive quadratic interpolation," ***IET Power Electronics***, vol. 13, no. 18, pp. 4282-4290, Dec. 2020. https://doi.org/10.1049/iet-pel.2020.0206 [Q2]

[9] Karuna Kiran, and **Sukanta Das**, "Variable speed operation of brushless doubly-fed reluctance machine drive using model predictive current control technique," ***IEEE Transactions on Power Electronics***, vol. 35, no. 8, pp. 8396-8404, Aug. 2020. https://doi.org/10.1109/TPEL.2020.2964007 [Q1]

[10] Murli Manohar, and **Sukanta Das**, "Direct torque controlled induction motor drive using modified five-level torque controller for reduction in torque ripple," ***IET Power Electronics***, Vol. 13, no. 9, pp. 1885-1892, July 2020. https://doi.org/10.1049/iet-pel.2019.1027 [Q2]

[11] Abhisek Pal, and **Sukanta Das**, "Development of energy efficient scheme for speed sensorless induction motor drive," ***International Transactions on Electrical Energy Systems***, e12448. https://doi.org/10.1002/2050-7038.12448, May 2020. https://doi.org/10.1002/2050-7038.12448 [Q3]

[12] Mukesh Kumar, and **Sukanta Das**, "Sensorless speed estimation of brushless doubly-fed reluctance generator using active power based MRAS," ***IEEE Transactions on Power Electronics***, vol. 34, no. 8, pp. 7878-7886, Aug. 2019. https://doi.org/10.1109/TPEL.2018.2882473 [Q1]

[13] **Sukanta Das**, Rakesh Kumar, and Abhisek Pal, "MRAS based speed estimation of induction motor drive utilizing machine's d- and q- circuit impedances," ***IEEE Transactions on Industrial Electronics***, vol. 66, no. 6, pp. 4286-4295, June 2019. https://doi.org/10.1109/TIE.2018.2860530 [Q1]

[14] Rahul Kumar, and **Sukanta Das**, "Model reference adaptive system based sensorless speed control of grid-connected doubly-fed induction generator in wind energy conversion system," ***Iranian Journal of Science and Technology, Transactions of Electrical Engineering***, vol. 44, pp. 129-140, 25-Apr.2019. https://doi.org/10.1007/s40998-019-00196-5 [Q4]

[15] Rahul Kumar, **Sukanta Das**, and Adrish Bhaumik,"Speed sensorless model predictive current control of doubly-fed induction machine drive using model reference adaptive system," ***ISA Transactions***, vol. 86, pp. 215-226, Jan. 2019. https://doi.org/10.1016/j.isatra.2018.10.025 [Q1]

[16] Karuna Kiran, **Sukanta Das**, Mukesh Kumar, and Abhijit Sahu,"Sensorless speed control of brushless doubly-fed reluctance motor drive using secondary flux based MRAS," ***Electric Power Components and Systems***, vol. 46, no. 6, pp. 701-715, Dec. 2018. [Q4]

[17] Mukesh Kumar, and **Sukanta Das**, "Model reference adaptive system based sensorless speed estimation of brushless doubly-fed reluctance generator for wind power application," ***IET Power Electronics***, vol. 11, no. 14, pp. 2355-2366, Nov. 2018. [Q2]

[18] Abhisek Pal, **Sukanta Das**, and Ajit K. Chattopadhyay, "An improved rotor flux space vector based MRAS for field oriented control of induction motor drives," ***IEEE Transaction on Power Electronics***, vol. 33, no. 6, pp. 5131–5141, June 2018. [Q1]

[19] Ashis Kr. Sinha, **Sukanta Das**, and Tarun Kr. Chatterjee, "Wavelet transform based ball bearing fault detection scheme for heavy duty mining electrical motors under supply frequency regulation using MCSA," ***International Journal of Technology***, vol. 9, no. 1, pp. 170-180, Jan. 2018. Scopus

[20] Ashis Kr. Sinha, **Sukanta Das**, and Tarun Kr. Chatterjee, "Empirical relation for broken bar determination in SCIM," ***The International Journal for Computation and Mathematics in Electrical and Electronic Engineering***, vol. 37, no. 1, pp. 242-265, Jan. 2018. [Q4]

[21] **Sukanta Das**, and Vikash Ranjan, "Wavelet transform based filter to remove the notches from signal under harmonic polluted environment," ***J. Inst. Eng. India Ser. B (2017)***, vol. 99, no. 1, pp. 71-77, Feb. 2018. [Scopus]

[22] Karuna Kiran, and **Sukanta Das**, "Implementation of reactive power based MRAS for sensorless speed control of brushless doubly-fed reluctance motor drive," ***IET Power Electronics***, vol. 11, no. 1, pp. 192-201, Jan. 2018. [Q2]

[23] Murli Manohar, and **Sukanta Das**, "Current sensor fault-tolerant control for direct torque control of induction motor drive using flux linkage observer," ***IEEE Transaction on Industrial Informatics***, vol. 13, no. 6, pp. 2824–2833, Dec. 2017. [Q1]

[24] Rahul Kumar, and **Sukanta Das**, "MRAS based speed estimation of grid-connected doubly-fed induction machine drive," ***IET Power Electronics***, vol. 10, no. 7, pp. 726–737, July 2017. [Q2]

[25] Abhisek Pal, Rakesh Kumar, and **Sukanta Das**, "Sensorless speed control of induction motor driven electric vehicle using model reference adaptive controller," ***Energy Procedia***, Elsevier, vol. 90, pp.540-551, Dec. 2016. [Scopus]

[26] Rakesh Kumar, and **Sukanta Das**, "Eigenvalue based relative parameter sensitivity analysis for optimized performance of sensorless induction motor drives," ***IET Electric Power Applications***, vol. 10, no. 8, pp. 723–734, Sept. 2016. [Q2]

[27] Ashis Kr. Sinha, **Sukanta Das**, and Tarun Kr. Chatterjee, "A case study of bearing fault monitoring techniques for induction motors," ***Journal of Mines, Metals and Fuels***, vol. 64, no. 5 & 6, pp. 249-255, May-June 2016. [Scopus]

[28] Rakesh Kumar, **Sukanta Das**, and Ajit K. Chattopadhyay, "Comparative assessment of two different MRAS schemes for speed sensorless control of induction motor drives," ***IET Electric Power Applications***, vol. 10, no. 2, pp. 141-154, Feb. 2016. [Q2]

[29] Rakesh Kumar, **Sukanta Das**, Prasid Syam, and Ajit K. Chattopadhyay, "Review on model reference adaptive system for sensorless vector control of induction motor drives," ***IET Electric Power Applications***, vol. 9, no. 7, pp. 496–511, July, 2015. [Q2]

[30] B. Bhattacharyya, V. K. Gupta, and **Sukanta Das**, "Evolutionary programming for reactive power planning using FACTS devices," ***WSEAS Transactions on Power Systems***, vol. 9, pp. 1-6, 2014. [Scopus]

[31] **Sukanta Das**, Gautam Bandyopadhyay, and Prasid Syam, "A real time solution for current transformer saturation detection by discrete Haar wavelet transform," ***Journal of Electrical Engineering***, vol. 12, edition 1, pp. 159-166, April, 2012. [Scopus]

[32] **Sukanta Das**, Prasid Syam, Gautam Bandopadhyay, and Ajit K. Chattopadhyay, "Application of wavelet transform in denoising synchronizing signal in line synchronised power electronics converters," ***IET Power Electronics***, vol. 5, no. 3, pp. 281-292, March. 2012. [Q2]

[33] **Sukanta Das**, Gautam Bandyopadhyay, and Prasid Syam, "A solution to CT saturation by Gregory Newton's Backward Interpolation," ***International Journal of Emerging Electric Power Systems***, vol. 12, no. 6, Article 1, Nov. 2011. [Scopus]

In Conferences:

[1] N. K. Ray, **S. Das** and G. Goswami, "Active Power Based MRAS for Estimation of Rotor Resistance in Field-Oriented Control of Induction Motor Drive," *2024 IEEE 4th International Conference on Sustainable Energy and Future Electric Transportation (SEFET)*, Hyderabad, India, 2024.

[2] G. Goswami and **S. Das**, "MTPA Based Energy Efficient Strategy for Scalar Control of Induction Motor Drives," *2024 IEEE 4th International Conference on Sustainable Energy and Future Electric Transportation (SEFET)*, Hyderabad, India, 2024.

[3] K. Kiran, **S. Das**, A. Pal and S. Anand, "Sensorless Speed Control of Brushless Doubly-fed Reluctance Machine Drive: A Simplified Model Predictive Control Approach," *2024 IEEE 4th International Conference on Sustainable Energy and Future Electric Transportation (SEFET)*, Hyderabad, India, 2024.

[4] A. Pal, **S. Das** and K. Kiran, "Optimized Power Control Strategy for Sensorless Induction Motor Drive Used in Electric Vehicle Applications," *2024 IEEE 4th International Conference on Sustainable Energy and Future Electric Transportation (SEFET)*, Hyderabad, India, 2024.

[5] Deepak Kumar, **S. Das**, and Rajarshi Chakraborty, "Fault-Tolerant Strategy against Current Sensor Failures for DTC-SVPWM based Induction Motor Drives," IEEE 3rd International Conference on "*Sustainable Energy and Future Electric Transportation (SEFET-2023),* SOA-Bhubaneswar, Odisha, India during 9th – 12th August, 2023.

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Patent Filed/ Published/ Granted

[1] Title: "Model-Predictive-Current-Control for Speed Regulation of Brushless Doubly-Fed Reluctance Generator"
Inventors: Sukanta Das, and Karuna Kiran
Indian Patent Application No. 201731030886, dated 31.08.2017.
Date of Filing: August 31, 2017.
Date of Publication: March 01, 2019.
Date of Grant: March 15, 2024.
Patent Number: 527930. Click here to view Patent Certificate

[2] Title: "Low-Cost 10 kVA Intelligent-Power-Module Based Inverter for AC Machines"

Patentee: CIIE, IIT(ISM) Dhanbad.
Inventors: Sukanta Das, Abhisek Pal, and U. Sarkar
Indian Patent Application No. 202131000212.
Date of Filing: January 04, 2021.
Date of Publication: July 08, 2022.
Date of Grant: December 18, 2023.
Patent Number: 484624. Click here to view Patent Certificate

[3] Title: "A System for Volt/Hertz Speed Control of Squirrel Cage Induction Motor for Minimum Current Operation"
Inventors: Goutam Goswami, and Sukanta Das
Indian Patent Application No. 202331002547.
Date of Filing: January 12, 2023.
Date of Publication: June 23, 2023.

[4] Title: "Multi-Phase Synchronous Buck Converter for the Charging Stage of an Offboard Electric Vehicle Charger"
Inventors: Amit Kumar, A. Ghoshal, and Sukanta Das
Indian Patent Application No. 202331074730.
Date of Filing: November 02, 2023.
Date of Publication: February 23, 2024.

Short Term Course/ Seminar Attended:

- A Seminar on *Evolution in Electrical Systems*, Department of EE, National Institute of Technology, Durgapur, West Bengal, 1st April - 2nd April, 2008.
- IEEE One-day Outreach Programme On *Recent Trends In information & Communication Technology*, Birbhum Institute of Engineering Technology, Suri, Birbhum, West Bengal, 11th April, 2008.
- A short term course on *Digital Signal Processing*, Jadavpur University, Kolkata, West Bengal, 7th July-12th July, 2008.
- 15th National Power System Conference, 2008, IIT Bombay, Powai, 16th December-18th December, 2008.(paper was presented).
- Two-days Workshop on "Operation, Control, Stability and Power Quality Issues in Modern Power Systems" , Department of EE, National Institute of Technology, Durgapur, West Bengal, 26th March-27th March, 2009.
- Three-days "Workshop on "Wavelets and its Applications", PDPM IIIT DM, Jabalpur, 13th July-15th July, 2012.
- One-day Tutorial Course on "WAVELET TRANSFORM", BESU, Shibpur, Howrah, 26th November, 2012.
- PEDES 2012, CPRI, Bangaluru, 16th December-19th December, 2012.
- International Conference & Expo on Coal Beneficiation, New Delhi, 18-19 April, 2013.
- *IEEE International Conference on Signal Processing and Communication Engineering Systems (SPACES)*, 2015, Vaddeswaram, AP, India, 2-3 January, 2015.
- *IEEE TENCON,* Macau, 01-04 November, 2015.
- *IEEE INDIN,* Emden, Germany, July 24-26, 2017.
- *IEEE SEFET-2023, Bhubaneswar,* India, August 09-12, 2023.

Short Term Course/Special Lectures/ PDP Organized:

- Five-Day Online Workshop on "*Intelligent Electric Vehicle: The future of E-mobility (IEV-2024)*" Organized by the Department of Electrical Engineering, IIT (ISM) Dhanbad During July 15-19, 2024, Coordinators: Prof. **Sukanta Das** and Prof. Sukanta Halder
- Two-Day Workshop on "Implementation Aspects of Induction Motor Drives: Theoretical & Experimental Approach" Funded by SERB under SSR scheme during January 5-6, 2022.
- Two-Day Online Lecture Series on the topic: "*Mechanistic Interactions and Analytics Challenges in Energy Storage*" on September 28 & 30, 2021.
- Instructor: *Dr. Partha P. Mukherjee, Professor of School of Mechanical Engineering & University Faculty Scholar, and Director of Energy Transport Sciences Laboratory.* Purdue University, West Lafayette, IN 47907-2088, USA.
- Professional Skill Development Program on "*MATLAB & Simulink for Engineering Application*" during June 22- 27, 2015 in the Department of Electrical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad as Co-coordinator.
- Certificate Course on "*MATLAB & Simulink for Engineering Application*" during December 5-10, 2014 in the Department of Electrical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad as Co-coordinator.
- Professional Skill Development Program on "*MATLAB Based Soft Computing Techniques*" during June 27 – July 2, 2014 in the Department of Electrical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad as Co-coordinator.

Teaching/ Training Expertise & Invited Talks:

- Acted as Course Instructor for the Professional Development/Certificate Courses as arranged by Department of Electronics and Communication and Fuel and Mineral Engineering, IIT (ISM).
- Delivered a Technical Session on "Energy Efficient Control of Induction Motor Drives used in Electric Vehicle" dated March 15, 2024 for an One-week National High-End Workshop (Karyashala) sponsored by SERB, Govt of India during March 11 - 17, 2024 and Organized by the Dept. of Electrical Engg. NIT Jamshedpur.
- Delivered a Technical Session on "Fundamentals of Control Strategies of AC Induction Motor Drives" dated December 12, 2023 for a Four-Day Professional Development Program during December 4-7, 2023 Organized by the Dept. of Electrical Engg. IIT (ISM) Dhanbad at IIIF-Kolkata.
- Conducted and Delivered Lecture sessions on "Electrical Engineering Basics and Electrical Safety'' and "Power Electronics in Mining" for Graduate Engineers (87 nos.) of Adani Natural Resources (ANR) on October 19, 2023 organized by TexMIN, IIT (ISM) Dhanbad.
- Delivered a Technical Webinar on "Future of Electric Vehicles, Charging Scenario and Its Opportunities and Challenges In India" dated September 09, 2021 on the Occasion

of "World EV Day" organized by Gargi Memorial Institute of Technology, Kolkata, WB in collaboration with NDLI.

- Delivered an Invited Talk on "Electric Vehicle: A Smart Choice for a Better Tomorrow" on May 26, 2021 with regard to a Five-day Faculty Development Programme (FDP) held during May 25-29, 2021 on Smart Practices towards Tomorrow's Electric Power Paradigm organized by Gargi Memorial Institute of Technology, Kolkata, WB in collaboration with IEEE-PES, Kolkata Section.
- Delivered Lecture on "Induction Motor-Theory, Operation & Control" with regard to a Professional Development program for Coal India Limited organized by Department of Fuel and Mineral Engineering, IIT (ISM) Dhanbad in March 2016.
- Delivered Lecture & Conducted Practical session on "Application of DSP in Electrical Power Systems" with regard to a Five-day Short-Term Certificate Course on DSP Systems: Applications and Implementation organized by Department of Electronics Engg., IIT (ISM) Dhanbad during March 20-24, 2013.

Awards:

- "Fault-Tolerant Strategy against Current Sensor Failures for DTC-SVPWM based Induction Motor Drives" authored by Deepak Kumar, Sukanta Das, Rajarshi Chakraborty is bestowed 3-RD POSITION for the **Best Paper Award** in the IEEE 3rd International Conference on "Sustainable Energy and Future Electric Transportation" (SEFET-2023), organized by Department of Electrical Engineering, Institute of Technical Education & Research, Faculty of Engineering & Technology, Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, Odisha, India during 9th – 12th August, 2023.
- Felicitated by IIT(ISM) on its 96th Foundation Day (Celebrated on December 9, 2021) for Making It to the Top 2% of Scientists in the Survey Conducted by Stanford University and Published by Elsevier (Elsevier's Database, 2021).
- IET Premium Award 2017 for the ***Best Paper during 2015-17***.
- MHRD Fellowship (Govt. of India) for qualifying GATE in 2002 during 2002-2004.

Members of Professional bodies:

- Fellow of Institution of Engineers (FIE), FIE: F-1314390
- Senior Member of The Institute of Electrical and Electronics Engineers (IEEE)-Membership No.: 90328531
- Life Member of The Indian Society for Technical Education (ISTE), Life Membership No.: LM-88459
- Life Member of System Society of India (SSI), Life Membership No.: LM-32066