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Dr. Sukanta Debnath

1.	**Father's Name:**	Gopal Chandra Debnath
2.	**Mother's Name:**	Kanan Debnath
3.	**Date of birth:**	06/03/1986
4.	**a) Gender:** Male	**b) Marital Status:** Married **c) Spouse:** Dr. Upama Das
5.	**a) Permanent address:** Vill: East Kalabaria, P.O: Maichara, South Tripura, 799155	
	Phone No. +919774929058	E-mail ID: sukanta15ee@gmail.com
6.	**Nationality:**	Indian
7.	**Category:**	OBC

Details of Educational Qualification:

Exam. Passed	Specialization	Board/University	Passing Year	Class / Division
Madhyamik	All	TBSE	2002	1ST
Diploma	Electrical Engineering	WBSCTE	2007	1ST
B.Tech	Electrical Engineering	WBUT	2010	1ST
M.Tech	Power System	NIT Agartala	2012	1ST
Ph. D	Power Electronics and Drives	NIT Mizoram	2021	1ST

Doctoral Degree Details:

Thesis Title :	**Design and Control of Single and Double Coil Based Active Magnetic Bearing.**
Research area :	**Power Electronics and Machine Drives**
Date of Thesis Submission :	29-Dec-2020
Date of Viva-Voce :	22-May-2021
Degree Awarded Date :	22-May-2021
Name(s) of Supervisors(s) & Address :	Dr. Pabitra Kumar Biswas Assistant Professor NIT Mizoram Chaltlang, Dawrkawn Aizawl Mizoram-796012

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M.Tech Degree Details:

Dissertation Title :	**Modeling and simulation of Dynamic Voltage Restorer**
Area of Dissertation work :	Power system
Name(s) of Supervisors(s) & Address :	Prabir Ranjan Kasari, Assistant Professor, NIT Agartala

Details ofemployments:

Sl. No.	**Employer**	**Designation**	**From**	**To**
1	Sharad Institute of Technology College of Engineering	Associate Professor	01/09/2024	Till Date
2	Sharad Institute of Technology College of Engineering	Assistant Professor	08/01/2024	31/08/2024
3	NIT Mizoram	Temporary Faculty	21/02/2023	31/12/2024
4	NIT Mizoram	Assistant Professor	13/03/2013	12/02/2023

CoursesTaught:

Course Title	**Level (UG/PG)**	**Branch**
Power Electronics	UG	EE
Electrical And Electronic Measurement	UG	EEE, ECE
Basic Electrical Engineering	UG	EEE, CE, ME, ECE, CSE
Renewable Energy Sources	UG	EEE
Switchgear and Protection	UG	EEE
Electrical Energy Utilization And Audit	UG	EEE
Electrical Machines-I	UG	EEE
Power System	UG	EEE

Laboratory Classes Conducted:

Name of Laboratory	**Level (UG/PG)**	**Branch**
Power Electronics Lab	UG	EE
Basic Electrical Engineering Lab	UG	EEE, CE, ME, ECE, CSE
Electrical And Electronic Measurement Lab	UG	EEE, ECE
Instrumentation Laboratory	UG	EEE
Electronic System Design Laboratory	UG	EEE
Data Communication and Networking Lab	UG	AI&DS
Power Systems Lab	UG	EEE

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Journal Papers:

1. Debarghya Dutta, Pabitra Kumar Biswas, **Sukanta Debnath** and F. Ahmad, "Advancements and Challenges in Active Magnetic Bearings: A Comprehensive Review of Performance, Control, and Future Prospects," in IEEE Access, vol. 13, pp. 3051-3071, 2025, doi: 10.1109/ACCESS.2024.3523205. **(SCIE, IF:3.9)**
2. Debarghya Dutta, Pabitra Kumar Biswas, **Sukanta Debnath,** "A Wavelet-Based Analysis for Monitoring Controller Reliability in Active Magnetic Bearing with Rotor Eccentricities", in IEEE Access, vol. 12, pp. 197335-197346, 2024, doi: 10.1109/ACCESS.2024.3515261. **(SCIE, IF:3.9)**
3. Debarghya Dutta, **Sukanta Debnath**, and Pabitra Kumar Biswas, Exact Analytic Technique for Designing Controller Architecture in Multi-Axis Active Magnetic Bearings with Rotor Eccentricities, Mechanics Based Design of Structures and Machines, 1–19. https://doi.org/10.1080/15397734.2024.2438782. (**SCIE, IF: 3.6**)
4. Das, U., **Sukanta Debnath**, Gupta, S., Biswas, P. K., Biswas, S. K., & Babu, T. S. (2024). Design, simulation and testing of U-type actuator-based single-coil active-magnetic-bearing. Mechanics Based Design of Structures and Machines, 1–17. https://doi.org/10.1080/15397734.2024.2428756. (**SCIE, IF: 3.6**)
5. **Sukanta Debnath**, Upama Das, Control the Axial Displacement of the Rotor Position with Load and No Load Condition in an Active Magnetic Bearing System. J. Vib. Eng. Technol. (2024). https://doi.org/10.1007/s42417-024-01519-5. **(SCIE, IF: 2.1)**
6. **Sukanta Debnath;** Upama Das; Pabitra Kumar Biswas, "Comparative Analysis of Single Coil and Double Coil Active Magnetic Bearings for High Speed Application", Electrical Engineering,106, 1191–1202, 2024.https://doi.org/10.1007/s00202-023-02213-7 **(SCI, IF:1.8)**
7. **Sukanta Debnath;** Das, U.; Biswas, P.K.; Aljafari, B.; Thanikanti, S.B. Design and Control of Multicoil Active Magnetic Bearing System for High-Speed Application. *Energies* 2023, *16*, 4447. https://doi.org/10.3390/en16114447**(SCIE, IF:3.2)**
8. U. Das, **Sukanta Debnath,** S. Gupta, P. K. Biswas, T. SudhakarBabu and N. I. Nwulu, "Active Magnetic Bearing System Using I-Type and U-Type Actuator," in IEEE Access, vol. 11, pp. 62780-62798, 2023, doi: 10.1109/ACCESS.2023.3276324. **(SCIE, IF:3.9)**
9. Laldingliana, J., **Sukanta Debnath,** Biswas, P.K. et al. Design and speed control of U-type 3-coil active magnetic bearing. Electrical Engineering, 106, 1135–1145 (2023). https://doi.org/10.1007/s00202-023-01838-y.**(SCI. IF:1.8)**
10. S. Gupta Suraj Gupta; Pabitra Kumar Biswas; **Sukanta Debnath**et. al., "Metaheuristic Optimization Techniques Used in Controlling of an Active Magnetic Bearing System for High-Speed Machining Application," in IEEE Access, vol. 11, pp. 12100-12118, 2023, doi: 10.1109/ACCESS.2023.3241854.(**SCIE, IF:3.9)**
11. Gupta, S., **Sukanta Debnath**, S. & Biswas, P.K. Control of an active magnetic bearing system using swarm intelligence-based optimization techniques. Electrical Engineering 105, 935–952 (2023). https://doi.org/10.1007/s00202-022-01707-0. **(SCI, IF:1.8)**
12. **Sukanta Debnath** and Pabitra Kumar Biswas (2021). Study and analysis on some design aspects in single and multi-axis active magnetic bearing (AMB). Journal of Applied Research and Technology, 19(5), 448-471. https://doi.org/10.22201/icat.24486736e.2021.19.5.1211. **(SCOPUS)**
13. **Sukanta Debnath**&Pabitra Kumar Biswas (2020) Advanced Magnetic Bearing Device for High-Speed Applications with an I-type Electromagnet, Electric Power Components and Systems, 48:16-17, 1862-1874, DOI: 10.1080/15325008.2021.1908454. **(SCIE, IF:1.5)**
14. **Sukanta Debnath,** Biswas, P.K. Design, analysis, and testing of I-type electromagnetic actuator used in single-coil active magnetic bearing. Electrical Engineering, 103, 183–194 (2021). https://doi.org/10.1007/s00202-020-01071-x. **(SCI, IF:1.8)**
15. Pachuau, Jonathan &**Sukanta Debnath**&Biswas, P. (2019). Fem Software Based 2-D and 3-D

Construction and Simulation of Single and Double Coils Active Magnetic Bearing. International Journal of Innovative Technology and Exploring Engineering. 8. 665-675. 10.35940/ijitee.K1716.0881119. **(SCOPUS)**

16. **S. Debnath,** P. K. Biswas and U. Das, "Analysis and simulation of different types of power amplifiers used in electromagnetic levitation system", *Journal of Power Technologies*, vol. 98, no. 2, pp. 220-227, 2018. **(ESCI)**
17. **Sukanta Debnath** & Biswas, P. K. (2020). Comparative magnetic analysis of I-type actuator based active magnetic bearing system, Journal of Power Technologies. 2020, Vol. 100 Issue 3, p211-222. 12p.**(ESCI)**
18. **S. Debnath,** P. K. Biswas and J. Laldingliana, "Analysis Simulation and Hardware Implementation of Single Switch Power Amplifier for Active Magnetic Bearing (AMB) system", Journal of Power Technologies, vol. 100, no. 4, pp. 308-314, 2020.**(ESCI).**
19. Upama Das, P.K. Biswas, **Sukanta Debnath,** "A Comparative Study between Load and No-Load condition of Brushless DC Motor Drives by Using MATLAB", Journal of Power Technologies, vol. 98, no. 3, pp. 281-286, June. 2017.**(ESCI).**

Conference Proceedings Indexed in Scopus:

1. **S. Debnath,** P. K. Biswas and J. Laldingliana, "Analysis and simulation of PWM based power amplifier for single axis Active Magnetic Bearing (AMB)," 2017 IEEE Transportation Electrification Conference (ITEC-India), Pune, India, 2017, pp. 1-5, doi: 10.1109/ITEC-India.2017.8333845.**(Scopus)**
2. D. Dutta, P. K. Biswas and **S. Debnath,** "Single-Phase Standalone Inverter Using Closed-Loop PI Control for Electromagnetic Suspension," 2023 International Conference on Inventive Computation Technologies (ICICT), Lalitpur, Nepal, 2023, pp. 1481-1487, doi: 10.1109/ICICT57646.2023.10134168. **(Scopus)**
3. S. Gupta, P. K. Biswas, J. Laldingliana and **S. Debnath,** "Comparative Analysis Among Different Types of Power Amplifier for Active Magnetic Bearing System," 2022 IEEE International Power and Renewable Energy Conference (IPRECON), Kollam, India, 2022, pp. 1-4, doi: 10.1109/IPRECON55716.2022.10059497. **(Scopus)**
4. S. Gupta, **S. Debnath,** J. Laldingliana and P. K. Biswas, "Analysis and Simulation of Fuzzy Control Base for Single Axis Active Magnetic Bearing System," 2019 International Conference on Cutting-edge Technologies in Engineering (ICon-CuTE), Uttar Pradesh, India, 2019, pp. 131-135, doi: 10.1109/ICon-CuTE47290.2019.8991527. **(Scopus)**
5. S. Gupta, J. Laldingliana, **S. Debnath** and P. K. Biswas, "Closed Loop Control Of Active Magnetic Bearing Using PID Controller," 2018 International Conference on Computing, Power and Communication Technologies (GUCON), Greater Noida, India, 2018, pp. 686-690, doi: 10.1109/GUCON.2018.8675123. **(Scopus)**
6. J. Laldingliana, **S. Debnath** and P. K. Biswas, "Analysis of a Single Actuator Double Winding Active Magnetic Bearing (AMB) Using Ansys Maxwell Simulation Software," 2018 2nd International Conference on Power, Energy and Environment: Towards Smart Technology (ICEPE), Shillong, India, 2018, pp. 1-6, doi: 10.1109/EPETSG.2018.8659141. **(Scopus)**
7. **Sukanta Debnath,** Upama Das, Pabitra Kumar Biswas, "Design and Testing of U-Type Electromagnetic Actuator for Magnetic Bearing", 2nd International Conference onPower Engineering and Intelligent Systems (PEIS), March 16-17, 2024, NIT Uttrakhand. **(Scopus)**

Book Chapter Published:

1. **Debnath, Sukanta** & Biswas, P. & Gupta, Suraj&Laldingliana, J.. (2020). Analysis and Simulation of PWM-Based Half-Bridge and Full-Bridge Switch Mode Amplifier for Active Magnetic Bearing (AMB). 10.1201/9780429355998-25.

2. Gupta, S., Biswas, P.K., **Debnath, S.** and Laldingliana, J. (2020). Optimization Techniques Used in Active Magnetic Bearing System for Electric Vehicles. In Artificial Intelligent Techniques for Electric and Hybrid Electric Vehicles (eds A. Chitra, P. Sanjeevikumar, J.B. Holm-Nielsen and S. Himavathi). https://doi.org/10.1002/9781119682035.ch3

Book Published:

1. **Sukanta Debnath,** Upama Das, Pabitra Kumar Biswas, "Active Magnetic Bearing for High Speed Application", Eliva Press, 978-99993-1-430-5, 2024.
2. Upama Das, **Sukanta Debnath**, Pabitra Kumar Biswas, "Optimized Speed Control Strategies of BLDC Motor Drive",Eliva Press,9789999316170, 2024.

Patent Details:

1. Jana, S., Biswas, P. K., **Debnath, S.**, A., &Dey, B. (2024). A system to store high voltage surge (Patent No. 516905). The Patent office, Government of India.**(GRANTED)**
2. Sukanta Debnath, Upama Das, Pabitra Kumar Biswas, "Single coil I-Type Axial Active Magnetic Bearing for High Speed Application", (Patent No. 202421030971). The Patent office, Government of India.**(PUBLISHED)**
3. Sukanta Debnath, Upama Das, Pabitra Kumar Biswas, "Multicoil Active Magnetic Bearing for Machining Tool Application", (Patent No. 202421030969). The Patent office, Government of India. **(PUBLISHED)**
4. Upama Das, Sukanta Debnath, Pabitra Kumar Biswas, "I-Type Electromagnetic Actuator Design and Testing for Active Magnetic Bearing", (Patent No. 202421030972). The Patent office, Government of India. **(PUBLISHED)**

Awards and achievements:

1. Best paper award in **PIES 2024, International conference** organized by **NIT Uttarakhand**.

Administrative Duties:

Position held	Period From To	Institute
Dean Research & Development	01-01-2025 to Till Date	SITCOE

Departmental Activities:

Activity	No. of Years	Period		
		From	To	Institute
PBL coordinator	0.5	08/01/2024	31/08/2024	SITCOE
IDEA Lab Member	0.5	08/01/2024	Till Date	SITCOE
R&D coordinator	0.5	08/01/2024	Till Date	SITCOE
T&P coordinator	0.5	08/01/2024	Till Date	SITCOE
NBA Cr. 5 coordinator	0.5	08/01/2024	Till Date	SITCOE

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B.Tech coordinator	1	28-08-2019	17-01-2021	NIT Mizoram
Faculty Advisor	2	18-01-2021	18-05-2022	NIT Mizoram
Lab in charge	6	28-08-2019	18-05-2022	NIT Mizoram

Establishment of new Lab:

Name of Lab	Year of Establishment	Department/Institute
Instrumentation Lab	2015	EEE/NIT Mizoram

Faculty In charge Student activities and other Institutional activities:

Position held	No. of Semesters	Period From To		Institute
Scholarship in charge	6	08-08-2013	12-10-2016	NIT Mizoram

Name and address of two References:

	1st Reference		2nd Reference
Name	Dr. Pabitra Kumar Biswas	Name	Dr. Subir Datta
Position	Associate Professor	Position	Associate Professor
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PhoneNo.	9749148157	PhoneNo	9436324853

DECLARATION

"I hereby declare that the statements made by me are true, complete and correct to best of my knowledge and belief."

Place: Kolhapur

Date…

Signature of Applicant

Name: SUKANTA DEBNATH