

Mohd Sartaj, Ph.D.

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Summary

Dr. Mohd Sartaj is a dedicated academic with a PhD in Electrical Engineering, an M.Tech in Power Systems and Drives, and a B.E. in Electrical Engineering. With specialized experience in the control of three-phase and multi-phase induction motors and self-excited induction generators, He brings a wealth of knowledge and practical expertise to the field. Committed to excellence in research and teaching, He is passionate about advancing electrical engineering education, conducting cutting-edge research, and mentoring students to become innovative and skilled engineers.

Employment History

- Dec 2024 – Now 📌 Assistant Professor at Sharad Institute of Technology College of Engineering, Ichalkaranji (Kolhapur), Maharashtra
- Aug 2024 – Dec 2024 📌 Guest faculty at Guru Gobind Singh Indraprastha University, Dwarka Sec-16, Dwarka, Delhi.
- Apr 2019 – Mar 2022 📌 Senior Research Fellow (CSIR) at Electrical Engineering Department, Aligarh Muslim University.
- July 2017 – Dec 2017 📌 Assistant Professor at Visveswaraya group of institutions, Dadri, Gautam Buddha Nagar.

Education

- 2018 – 2024 📌 **Ph.D. in Electrical Engineering**, Electrical Engineering Department, Aligarh Muslim University, Aligarh-202002, India.
Thesis title: *Performance Optimization of an Induction Generator Utilizing High-Phase Order Drive Technology.*
- 2014 – 2016 📌 **M.Tech. in Power Systems and Drives**, Electrical Engineering Department, Aligarh Muslim University, Aligarh-202002, India.
Dissertation title: *Modelling and Control of Multi-Phase Wind Energy Generation System.*
- 2009 – 2013 📌 **B.E. in Electrical Engineering** Electrical Engineering Department, Aligarh Muslim University, Aligarh-202002, India.
Project title: *Design of 132 kV Double Circuit Overhead Transmission Line*

Ph.D. Work

The optimized power output of a self-excited induction generator (SEIG) is determined by rewinding a three-phase induction machine into various configurations and evaluating its performance under different loading conditions. The configurations investigated included: three-phase four-pole, symmetrical six-phase four-pole, asymmetrical six-phase six-pole, and symmetrical nine-phase four-pole. The performance of each configuration was rigorously monitored for key parameters, including total harmonic distortion (THD), voltage, current, frequency, and reactive power.

Research Publications

Journal Articles

- 1 M. Sartaj, M. F. Khan, and M. R. Khan, "Two magnetic saturation models of a six-phase self-excited induction generator: Comparison and experimental validation," *Water and Energy International*, vol. 66, no. 7, pp. 51–58, 2023.
- 2 M. Sartaj, M. R. Khan, and M. F. Khan, "Modeling of a 3-phase induction generator including magnetic cross saturation effect," *Acta Energetica*, no. 01, pp. 51–56, 2020.
- 3 M. F. Khan, M. R. Khan, and M. Sartaj, "Nine-phase self-excited induction generator for autonomous renewable energy systems," *Journal of Modern Power Systems and Clean Energy (IEEE)*, (under review), 25.

Conference Proceedings

- 1 M. R. Khan, M. N. Akhter, and M. Sartaj, "Harmonics analysis of six-phase induction motor drive," in *2023 International Conference on Power, Instrumentation, Energy and Control (PIECON)*, IEEE, 2023, pp. 1–6.
- 2 M. Rizwan Khan, M. N. Akhter, and M. Sartaj, "Harmonics analysis of triple-phase induction motor drive," in *International Conference on Renewable Power*, Springer, 2023, pp. 601–618.
- 3 M. R. Khan, M. F. Khan, and M. Sartaj, "Consideration of dynamic cross saturation in mathematical modeling of an asymmetrical six-phase seig for wind energy applications," in *2022 IEEE International Conference on Power Electronics, Smart Grid, and Renewable Energy (PESGRE)*, IEEE, 2022, pp. 1–6.
- 4 M. R. Khan, M. F. Khan, and M. Sartaj, "Analysis of considering dynamic cross saturation in mathematical model of a symmetrical six-phase self-excited induction generator," in *2021 IEEE 2nd International Conference on Smart Technologies for Power, Energy and Control (STPEC)*, IEEE, 2021, pp. 1–6.
- 5 M. Sartaj, M. R. Khan, and M. F. Khan, "Modelling of five-phase induction generator incorporating magnetic cross saturation effect," in *2019 International Conference on Electrical, Electronics and Computer Engineering (UPCON)*, IEEE, 2019, pp. 1–6.
- 6 Z. Sarwer, M. Sartaj, M. R. Khan, M. Zaid, and U. Shahajhani, "Comparative performance study of five-phase induction motor," in *2019 Innovations in Power and Advanced Computing Technologies (i-PACT)*, IEEE, vol. 1, 2019, pp. 1–6.


Patent

Title	■	IHX TYPE TWENTY-FIVE LEVEL ELECTRICAL POWER INVERTER
Patent No.	■	499341
Date of Grant.	■	15/01/2024
Publisher	■	Patent Office, Government of India








Conference/Presentation

- 2022 ■ Presented a paper titled "Consideration of Dynamic Cross Saturation in Mathematical Modeling of an Asymmetrical Six-Phase SEIG for Wind Energy Applications" at the 2022 IEEE International Conference on Power Electronics, Smart Grid, and Renewable Energy (PESGRE).
- 2021 ■ Presented a paper titled "Analysis of Considering Dynamic Cross Saturation in Mathematical Model of a Symmetrical Six-Phase Self-Excited Induction Generator" at the 2021 IEEE 2nd International Conference on Smart Technologies for Power, Energy, and Control (STPEC).
- 2019 ■ Presented a paper titled "Modelling of Five-Phase Induction Generator Incorporating Magnetic Cross Saturation Effect," 2019 International Conference on Electrical, Electronics, and Computer Engineering (UPCON), 2019.









Conference/Presentation (continued)

- 2018  Presented a paper titled "Five-Phase Induction Generator for Wind Energy Conversion Applications" at the 2nd IEEE International Conference on Power Electronics, Intelligent Control, and Energy Systems (ICPEICES-2018), held from October 22 to 24, 2018 at Delhi Technological University, Delhi.

Workshops Attended




- 2019  Attended a course, "**Short Term Course on Electric Vehicle Technologies Based on Power Electronics and Drives**," held from November 26–30, 2019, at I.I.T. Delhi.
-  Participated in One Week Training Program on "**DIGITAL SIGNAL PROCESSOR FOR POWER ELECTRONIC CONVERTERS AND CONTROL**" held in the Department of Electrical Engineering, AMU, Aligarh, 14-19 September 2019
- 2018  Participated in the Five (5) Days Training Programme on **Entrepreneurship Development on "Solar PV Rooftop"** Electrical Engineering Department of participation under the MNRE-USAID-PACE-DEED Scheme Conducted by AMU in collaboration with NISE during 04th - 08th September 2018
-  Attended a one-week workshop on **Embedded system control using Arduino**, held September 13–17, 2018, at the Electrical Engineering Department of Aligarh Muslim University, Aligarh.
-  Attended the lecture series on "**Innovation and Research Methodologies**" held on July 23–25, 2018, at the Electrical Engineering Department of Aligarh Muslim University, Aligarh.
-  Attended a one-week workshop on "**Design and Implementation of Power Converters with EMC/EMI Modelling for Micro-Grid and Electric Vehicle Applications**" which was held on 18-21 July 2018 at I.I.T. Ropar.
- 20013  Attended a two-day workshop on "**Advances in Gas Insulated System**" held on 28-29 January 2013 at the Electrical Engineering Department, Aligarh Muslim University, Aligarh.

Skills

Languages	 Strong reading, writing, and speaking competencies in English, Urdu, and Hindi and a basic understanding of Arabic and Marathi.
Coding	 Matlab, FORTRAN, L ^A T _E X...
Simulation	 Matlab Simulink, Simscape, ...
Controllers	 DSP TMS320F2812, TMS320F28335, TMS320F28379D, and Arduino.
Power Electronics	 Multi-level Inverters, AC-DC converters, Active Rectifier.
Electric Drives	 DC Motor Drives, Induction Motor Drives, and Induction Generators.
Drawing	 Microsoft Visio, Auto CAD.
Misc.	 Academic Research, Laboratory Development, Teaching, MS Excel.


Miscellaneous

National level Exams



- 2018  NTA-UGC-NET DEC 2018, Qualified in Electronic Sciences.
- 2015  GATE-2015, Qualified with a 98.90 percentile and a GATE score of 630 (AIR-1379).
- 2009  UPSEE 2009, Secured A.I.R. (All India Rank) 35.

Miscellaneous (continued)

Scholarship/Fellowships

- 2019-2022  **CSIR Fellowship.** Under Direct S.R.F. Category by CSIR, New Delhi.
- 2014-2016  **MHRD Scholarship.** GATE Scholarship by MHRD Government of India.

Certificate Courses

- 2016  **Certificate of Proficiency in Marathi Language.** Department of Modern Indian Languages, Aligarh Muslim University, Aligarh.
- 2007  **AutoCAD 2006.** Learning Point Computers, Education Society, Aligarh.