Department of Electrical Engineering
IIT Bombay

Shrikrishna V. Kulkarni, FINAE, FIEEE, Professor, Department of Electrical Engineering and Dean (Research and Development), Indian Institute of Technology Bombay, Mumbai

Research Interests

- Transformers: Design, Analysis, and Diagnostics
- Electromagnetic and Coupled Field Computations
- Modeling of Magnetic Materials
- High Voltage Engineering: Insulation Design and Diagnostics
- Application of Multi-Criteria Decision Making Techniques and AI/ML Methods to Transformers

Courses Offered

- EE002 Principles of Electrical Engineering Course [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_ugcourses_syl.htm#EE002]
- EE003 Principles of Electrical Engineering Lab [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_ugcourses_syl.htm#EE003]
- EE114 Power Engineering-I [https://www.ee.iitb.ac.in/web/course_lists/ee-114-power-engineering-i/]
- EE220 Electrical Machines Lab [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_ugcourses_syl.htm#EE220]
- EE301 Electromagnetic Waves [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_ugcourses_syl.htm#EE301]
- EE315 Microprocessor Lab [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_ugcourses_syl.htm#EE315]
- EE334 Power Systems [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_ugcourses_syl.htm#EE334]
- EE350 Technical Communication [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_ugcourses_syl.htm#EE350]
- EE415 Electrical Design Lab [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_ugcourses_syl.htm#EE415]
- EE673 Power System & Power Electronics Lab [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_pgcourses_syl.htm#EE673]
- EE686 HVDC Transmission [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_pgcourses_syl.htm#EE686]
- EE725 Computational Electromagnetics [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_pgcourses_syl.htm#EE725]
- EE792 Communication Skills [http://www.ee.iitb.ac.in/%7Eeeoffice/curriculum/ee_pgcourses_syl.htm#EE792]

NPTEL MOOC Course

Electrical Equipment and Machines: Finite Element Analysis https://swayam.gov.in/nd1_noc20_ee81/preview [https://swayam.gov.in/nd1_noc20_ee81/preview] (First delivered in 2020 and then run in repeat mode in 2023, 2024, 2025)

Links

https://onlinecourses.nptel.ac.in/noc25_ee147/preview [https://onlinecourses.nptel.ac.in/noc25_ee147/preview]

- Sample FE Codes
- https://www.ee.iitb.ac.in/~fclab/mooc/1DFECode.txt [https://www.ee.iitb.ac.in/~fclab/mooc/1DFECode.txt]
- https://www.ee.iitb.ac.in/~fclab/mooc/2DFECode_ManualMeshing.txt [https://www.ee.iitb.ac.in/~fclab/mooc/2DFECode_ManualMeshing.txt]

Associated Laboratories

- Field Computation Laboratory [http://www.ee.iitb.ac.in/~fclab]
- Insulation Diagnostics Laboratory [http://www.ee.iitb.ac.in/~idlab]
- Virtual Electromagnetics Laboratory [https://www.ee.iitb.ac.in/course/~vel/]

Academic Background

- BE Electrical (VJTI, Mumbai)
- M. Tech Electrical (Indian Institute of Technology Bombay, Mumbai)
- Ph.D. (Indian Institute of Technology Bombay, Mumbai)

Work Experience

- Dean (Research and Development), IIT Bombay: Since March 2, 2026.
- Institute Chair Professor, IIT Bombay: March 18, 2021 to September 18, 2024.
- Dean (Administrative Affairs), IIT Bombay: August 3, 2020 to August 7, 2023.
- Associate Dean-II (Infrastructure, Planning & Support), IIT Bombay: January 6, 2015 to March 15, 2018.
- Professor, Department of Electrical Engineering, IIT Bombay: since February 27, 2009.
- Associate Professor, Department of Electrical Engineering, IIT Bombay: March 28, 2005 to February 26, 2009.
- Assistant Professor, Department of Electrical Engineering, IIT Bombay: April 26, 2001 to March 27, 2005.
- March 1, 1990 to April 25, 2001: Design and development of power transformers and shunt reactors upto 400 kV class, 315 MVA at Crompton Greaves Limited.

Professional Training Received

- Electromagnetic Field Computations in Transformers: For 2 weeks in 1994 in Institute of Electrical Machines and Transformers, Lodz, Poland
- Business Leadership Program: 3 months residential training plus 3 major projects - in 1996-1998 - Organised by Crompton Greaves Limited

Awards and Professional Recognition

Awards

- INAE Outstanding Teacher Award (2025)
- Best Paper Award at International Conference on Transformers, TRAFOTECH Global 2025
- VJTI Distinguished Alumnus Award (February 2024)
- Research Dissemination Award 2016 of IIT Bombay [Link:] [https://www.ircc.iitb.ac.in/IRCC-Webpage/rnd/ResearchAwardsDetails.jsp?AwardType=NationalInstituteIITB&AwardName=IITBombayReviewPaperAward]
- Certificate of appreciation by IEEE - An exceptional reviewer for the IEEE Transactions on Power Delivery (2014)
- Power System Award (PPSA-2020) conferred by Power System Operation Corporation Limited for PhD research on 'Techno-economic analysis of electricity networks with renewable energy sources and storage devices“ to Dr. Subir

Majumdar who worked under the supervision of Prof. S A Khaparde and Prof. S V Kulkarni
- Power System Award (PPSA-2014) conferred by Power System Operation Corporation Limited for PhD research on transformer diagnostics to Dr. Ketan Badgujar who worked under the supervision of Prof SV Kulkarni
- Citation Award by Central Power Research Institute, India, for contribution to the field of transformers (2014)
- Best paper award in Power and Energy Track in IEEE INDICON Conference 2013
- A special award and recognition for contributions to TRAFOTECH-2010: International Conference on Transformers held in January 2010
- IEEMA (Indian Electrical and Electronics Manufacturers Association) Best Paper Award at International Conference on Transformers, TRAFOTECH-2006
- Second Best Paper Award at International Conference on Transformers, TRAFOTECH-2002
- Career Award for Young Teachers conferred by All India Council for Technical Education, India, in 2001
- Young Engineer Award 2000 conferred by Indian National Academy of Engineering for contributions in 'Electromagnetic field calculations in transformers and high voltage insulation design'
- Best paper award in Technology Convention of Crompton Greaves Limited (1999)
- Best paper award in Technology Convention of Crompton Greaves Limited (1995)

Recognition

- IEEE PES Distinguished Lecturer (from February 2020)Topics [https://www.ee.iitb.ac.in/~fclab/Invited_talks_and_Training_Programs/DLP%20Topics.pdf]
- INAE Chair Professor (from 01-04-2018 to 31-03-2020)
- Fellow of IEEE (01-01-2019)
- Fellow of Indian National Academy of Engineering (01-01-2012)
- Fellow of The Institution of Electronics and Telecommunication Engineers India (2013)

Editorship

- Editor, IEEE Transactions on Power Delivery (2012-2019)
- Editor, IEEE Power Engineering Letters (2012-2019)

National Level Activities

- Chairman of Expert Committee – DST-SERB Scheme: Intensification of Research in High Priority Areas - Energy Transformation and Storage (2021)
- A member of Sectional Committee – V (Electrical Engineering), Indian National Academy of Engineering (2017-2022)
- A co-opted member of Program Advisory Committee for Electrical, Electronics and Computer Engineering of Science and Engineering Research Board, Department of Science and Engineering, Government of India (2017-2018)
- A member of the Standing Committee on R&D for Research Schemes of Ministry of Power, Government of India (2016-2021)
- Chairman – Technical Committee on Grid, Distribution and Energy Conservation Research, set up by Ministry of Power, Government of India (2016-2021)
- A member of Expert Committee on R&D in Power Sector set up by Ministry of Power, Government of India (2015)
- A member of the Governing Council of Central Power Research Institute India (March 2013 - March 2018)

International Level Activities

- A member of the International Organising Committee of the Advanced Research Workshop on Transformers, ARWtr 2025, Vigo, Spain, and also delivered an invited talk on the topic "Applications of Artificial Intelligence to Transformers"
- A member of the International Organising Committee of the Advanced Research Workshop on Transformers, ARWtr 2019, Cordoba, Spain

- Invited to give a tutorial “Modeling of Transformers for Diagnostic and Transient Studies” at 3rd International Conference on Condition Assessment Techniques in Electrical Systems (CATCON 2017 - IEEE Conference record No. 41724), IIT Ropar, November 2017
- Invited to give a tutorial “Modeling of Magnetic Characteristics Including Hysteresis Effects for Transformers” at 3rd International Colloquium: Transformer Research and Asset Management Split, Croatia, October 15 – 17, 2014
- Invited to give a talk on “Recent trends on power transformers” at a workshop on transformers organized by ABB, Sweden and KTH Royal Institute of Technology, Stockholm (June 2012)
- A member of Technical Committee of 2nd International Colloquium on ‘Transformer Research and Asset Management’ held in Croatia on May 16-18, 2012
- Invited by ABB Corporate Research Center, Vasteras, Sweden, to give set of three talks on power transformers (October 2010)
- A member of the International Organizing Committee of the Advanced Research Workshop on Transformers ARWtr 2010, Santiago de Compostela, Spain; also delivered a Tutorial “Finite Element Method: Applications to Design and Analysis of Power Transformers” at the Workshop (October 2010)
- Invited to give a Tutorial on “Application of FEM for Electromagnetic Analysis in Power Transformers”at the International Conference on Transformers TRAFOTECH (January 17, 2010)
- A member of the Technical Committee of the International Colloquium on ‘Transformer Research and Asset Management’ held in Croatia on November 12-14, 2009
- A member of the International Organizing Committee of the Advanced Research Workshop on Transformers ARWtr 2007, Baiona, Spain; also delivered a keynote lecture “Applications of Coupled Field Computations for Analysis of Complex Phenomena in Transformers” at the Workshop (October 2007)
- Invited by the EcoleSuperieureD’Electricite, Paris, for giving a lecture on the research activities in the area of transformers, computational electromagnetics and insulation diagnostics (July 2007)
- Invited by the Tennessee Tech University, USA, to deliver a lecture on “Condition Monitoring and Diagnostics of Power Transformers” (June 2007)
- The rapporteur for a technical session at the International Conference on Transformers (TRAFOTECH 2006)
- A member of the Technical Committee of the International Conference of Transformers TRAFOTECH-2006 held in January 2006
- A member of the Technical Committee for organizing the International Conference on Power Systems held at Kathmandu, Nepal, in November 2004 (the conference was organized jointly by IIT Bombay and Tribhuvan University Nepal)
- Invited as a key speaker at the Advanced Research Workshop on Modern Transformers ARWtr 2004, Vigo, Spain, to talk on “Challenges and strategies in transformer design” (October 2004)
- Invited by the Zapopan Technological Superior Institute, Mexico, to deliver a set of 4 lectures on transformers in a training course (July 2004)
- A member of the Technical Committee of the International Conference of Transformers TRAFOTECH-2002 held in Mumbai in January 2002
- A member of the IEEE Transformer On-Line Monitoring Task Force (1999-2000)

Other Information

Continuing Education Programmes (CEP) Conducted for Industry and Other Institutions in the following areas

- Numerical Methods in Electromagnetics: Theory and Applications
- Computational Electromagnetics
- Engineering Electromagnetics and Finite Element Method
- Design, Analysis and Diagnostics of Power Transformers
- High Voltage Engineering

CEP Programs [https://www.ee.iitb.ac.in/~fclab/Invited_talks_and_Training_Programs/CEP%20Courses%20Conducted.pdf]

Sponsored Research Projects

The following 7 research projects have been completed:

- Distribution Automation (AICTE Career Award Research Grant)
- Development of Fields Computation Facility for Computer Aided Analysis of Power Apparatus and Systems (DST SERC Fast Track Grant)
- Planning Studies for Distributed Generation (MHRD Sponsored)
- Development of Competence in Coupled Electromagnetic-Structural Analysis (DST-TIFAC sponsored)
- Collaborative Research and Development in Power Equipment and Transmission Areas (Reliance Infrastructure Ltd)
- Modeling and analysis of hysteresis phenomenon in magnetic materials used in transformers (IIT Bombay IRCC Awards Grant)
- Development of Transformer Health Assessment Tracker (Adani Electricity Mumbai Limited)

Ongoing projects:

- Design and Realization of High-Power Planar Magnetics with Controlled Parasitics – Co-PI (LPSC-ISRO)
- National Centre for Photovoltaic Research and Education (MNRE) - One of the investigators in 2nd phase and 3rd phase contributing to “Analysis of Insulation Degradation of Solar PV Modules”

Consultancy Projects in the Following Areas

- Technical consultancy in the area of transformers
- Analysis and optimization of insulation design in power transformers
- Assessment of short-circuit withstand of transformers
- Estimation and control of circulating currents in the clamping structure of a power transformer
- Analysis of transpositions on a 400 kV transmission line
- Computation of reactances, electric and magnetic fields, and unbalanced voltages for transmission lines
- Theory and applications of low-frequency electromagnetics

Completed/ In-progress [https://www.ee.iitb.ac.in/~fclab/Consultancy%20Projects/Consultancy%20-%20Projectwise%20Details.pdf]

Invited Guest Lectures and Tutorials

International Tutorials and Invited Talks [https://www.ee.iitb.ac.in/~fclab/Invited_talks_and_Training_Programs/International%20Invited%20Talks%20and%20Tutorials.pdf]

Invited Tutorials and Talks in Various Workshops and Conferences in India [https://www.ee.iitb.ac.in/~fclab/Invited_talks_and_Training_Programs/Invited%20Tutorials%20and%20Talks%20in%20Workshops%20and%20Conferences%20in%20India.pdf]

Invited Guest Lectures in Engineering Colleges in India [https://www.ee.iitb.ac.in/~fclab/Invited_talks_and_Training_Programs/Invited%20Guest%20Lectures%20in%20Engineering%20Colleges%20in%20India.pdf]

Workshops Conducted

Research Scholars and Alumni Symposium - 2014 [https://www.ee.iitb.ac.in/~fclab/RSAS%202014/Report%20RSAS-2014.pdf]

EM Pedagogy and Research Trends - 2015 [https://www.ee.iitb.ac.in/~fclab/workshops/EM Pedagogy%20and%20Research%20Trends%20Workshop.pdf]

Power Engineering: Curricula, Research, and Outreach - 2019 [https://www.ee.iitb.ac.in/~fclab/workshops/Workshop%20Report.pdf]

Conferences Organized

Tutorials Committee Co-Chair: IEEE INDICON 2013 Conference [https://www.ee.iitb.ac.in/~fclab/workshops/INDICON%202013.pdf]

Organizing Secretary: National Power Systems Conference (NPSC) 2008 [https://www.ee.iitb.ac.in/~fclab/workshops/NPSC%20Brochure.pdf]

INAE Activities

List of Activities [https://www.ee.iitb.ac.in/~fclab/INAE/INAE%20Activities.pdf]

IEEE Activities

- Editorship
    - Editor, IEEE Transactions on Power Delivery (2012-2019)
    - Editor, IEEE Power Engineering Letters (2012-2019)
- Vice-Chair Awards, IEEE India Council: 2021-2022
- IEEE Bombay Section
    - Execom Member: 2019-2021
    - PES-IAS Joint Chapter Chair: 2021 https://ieeebombay.org/pesias/ [https://ieeebombay.org/pesias/]
    - Education Activities (EA) Chair: 2019-2020
    - Webinar Conducted as EA Chair https://www.ee.iitb.ac.in/~fclab/IEEE/Teachers Day.pdf [https://www.ee.iitb.ac.in/~fclab/IEEE/Teachers Day.pdf]
    - Short Term Training Program (STTP) Conducted as EA Chair
        - Emerging Trends in Electrical and Electronics Systems, VNIT Nagpur [https://www.ee.iitb.ac.in/~fclab/IEEE/VNIT%20Nagpur%20STTP%20Report.pdf]
        - Recent Advances in Renewable Energy and Power Systems, NIT Raipur [https://www.ee.iitb.ac.in/~fclab/IEEE/NIT%20Raipur%20STTP%20Report.pdf]
        - Faculty Development Programme, VJTI Mumbai [https://www.ee.iitb.ac.in/~fclab/IEEE/VJTI_IEEE%20BS%20FDP.pdf]
        - Shifting Teaching-Learning Paradigms through Innovative Pedagogy, VNIT Nagpur [https://www.ee.iitb.ac.in/~fclab/IEEE/STTP_VNIT_Report.pdf]
- Conferences and other activities [https://www.ee.iitb.ac.in/~fclab/IEEE/IEEE Activities.pdf]

Patents

- P. M. Joshi and S. V. Kulkarni, “A diagnostic method for determining deformations in a transformer winding,” US Patent 8278939 B2 awarded on October 2, 2012, Indian Patent 269859 awarded on November 12, 2015
- J. Venkat, A. Shukla, and S. V. Kulkarni, Asymmetrical triple bridge converter-based power electronic transformer, Indian Patent No. 360664, Granted on 10-03-2021.
- Rahul Bhat, S. V. Kulkarni, and S. S. Joshi, Magnetic system for levitation and braking of metal pieces, Indian Patent Application No. 201821006281, 19th February, 2019, Indian Patent No. 419382, Granted on 27.01.2023.
- Venkat Jakka, Anshuman Shukla, and S. V. Kulkarni, Apparatus for Generating AC Superimposed DC Signal, US Patent 10224716 B2 granted on March 5, 2019, Indian Patent Application Appl. No. 201621033871, date of application 04 October 2016, Granted on 29th April 2023.
- Rahul Bhat, H. J. Bahirat, and S. V. Kulkarni, “Magnetic field-based DC vacuum arc switching arrangement and method of producing magnetic field,” Provisional Patent filed on 21st January 2019 (201921002497), Complete specification filed on 21st January 2020, Indian Patent No. 468118, Grated on 10.11.2023.
- Makarand M. Kane, S. V. Kulkarni, Himanshu Bahirat, Suhas S. Joshi, “Electrical Supply Scheme with time interleaving for Multi-wire Electric Discharge Machine”, Indian Patent, Appl. No. 202021044094, 09 Oct, 2020, Indian Patent no. 484649, Granted on 18.12.2023.
- H. J. Bahirat, S V. Kulkarni, P. P. Vaidya, and Lekshmi Ajesh Kaimal, Universal Partial Discharge Simulator, Application No. 201621029072 filed on 26th August 2016, Indian Patent No. 491883, Grated on 29.12.2023.

- Makarand M. Kane, S. V. Kulkarni, Himanshu Bahirat, Suhas S. Joshi, “An Electrical Supply Scheme for Multi-wire EDM,” Indian Patent, Appl. No. 202021041051, 22 Sep, 2020, Indian Patent No. 492843, Granted on 01.01.2024.
- Makarand M. Kane, Kamlesh Joshi, Nitin Tiwari, S. V. Kulkarni, Himanshu Bahirat, Suhas S. Joshi, “A Customizable Wire Electric Discharge Machine”, Indian Patent, Appl. No. 202021032434, 29 July 2020, Indian Patent No. 530393, Granted on 26.03.2024.

Contact Information

Department of Electrical Engineering
IIT Bombay, Powai
Mumbai 400 076, India
Email : svk [at] ee [dot] iitb [dot] ac [dot] in
Phone (O) : (0091 22) - 2576 7430
Office room no: 211-C
Fax: (0091 22) - 25723707

Books Written

•Authors: S.V. Kulkarni and S.A. Khaparde
Title: Transformer Engineering: Design and Practice
Publisher: CRC Press (Taylor & Francis Group), New York, May 2004, 476 pages
ISBN: 0-8247-5653-3
Published book reviews:
a. IEEE Electrical Insulation Magazine, July/August 2005, Vol. 21, No. 4, pp. 55-56: “This book would be of interest to power transformer designers, utility engineers who need to know about the interaction of the transformer with the power system, and power engineering students.”
b. IEEE Power Electronics Society Newsletter, 2006, Vol. 18, No. 2, p. 17: “The book is written in an impressively deep analytical spirit.”

•http://www.crcpress.com/product/isbn/9781439853771 [http://www.crcpress.com/product/isbn/9781439853771]
Authors: S.V. Kulkarni and S.A. Khaparde
Title: Transformer Engineering: Design, Technology, and Diagnostics, Second Edition
Publisher: CRC Press (Taylor & Francis Group), New York, September 2012, 730 pages
ISBN: 9781439853771 (this edition has been translated into Chinese language and published in 2016 by China Machine Press: ISBN 9787111539544)

•https://india.oup.com/product/principles-of-electromagnetics-9780199461851?searchbox_input=Principles [https://india.oup.com/product/principles-of-electromagnetics-9780199461851?searchbox_input=Principles]
Authors: Matthew N.O. Sadiku & S.V. Kulkarni
Title: Principles of Electromagnetics, Sixth Edition, Asian Adaptation
Publisher: Oxford University Press, India, September 2015, 908 pages
ISBN: 9780199461851
(Asian adaptation of the original undergraduate text book: Matthew N.O. Sadiku, Elements of Electromagnetics, Sixth International Edition, Oxford University Press)

•https://www.crcpress.com/Transformers-Analysis-Design-and-Measurement/Lopez-Fernandez-Ertan-Turowski/p/book/9781466508248 [https://www.crcpress.com/Transformers-Analysis-Design-and-Measurement/Lopez-Fernandez-Ertan-Turowski/p/book/9781466508248]
Book Chapter: S. V. Kulkarni, ‘Challenges and Strategies in Transformer Design,” Chapter 5 in the book “Transformers: Analysis, Design, and Measurement” edited by X. M. Lopez-Fernandez, H. Bulent Ertan, and J. Turowski, CRC Press (Taylor & Francis Group), New York, June 2012

Students

For a list of PhD students see: PhD Students [https://www.ee.iitb.ac.in/~fclab/Students/PhD_Students/List of PhD students.pdf]

List of Publications

For citations of books and papers see: Google Scholar Citations [https://scholar.google.co.in/citations?user=udLCYSQAAAAJ&hl=en]

Journals

1. A. K. Paul, B. Sai Ram, and S. V. Kulkarni, "Pulse Transformer-Based Driver Module for SiC MOSFETs in a Single-Switch Converter for Induction Sealing," Accepted for publication in IEEE Transactions on Industry Applications, doi: 10.1109/TIA.2025.3644987.

2. Teruvai Manoj, Chilaka Ranga, and S. V. Kulkarni, "A Hybrid Multi-Criteria Decision-Making Based Fuzzy System for Comprehensive Health Assessment of Power Transformers," IEEE Transactions on Power Delivery, vol. 41, no. 3, pp. 1020-1031, June 2026, doi: 10.1109/TPWRD.2026.36585782.

3. E. R. Anagha, S. V. Kulkarni, and N. Shiradkar, "Development of a Characterization Technique to Effectively Detect Latent Insulation Defects in the Field-Deployed PV Modules," Solar Energy Materials and Solar Cells, Vol. 292, 113761, 2025.

4. B. Sai Ram, Ajay Pal Singh Baghel, Krzysztof Chwastek, Shrikrishna V. Kulkarni, Laurent Daniel, Marcos Flavio de Campos, and Ikenna Cajetan Nlebedim, "Modelling of Angular Behaviour of Core Loss in Grain Oriented Laminations Using the Loss Separation Approach," Journal of Superconductivity and Novel Magnetism, 2025, 38:49.

5. Mohammad Maoyafikuddin, Shrikrishna V Kulkarni, and Rochish M. Thaokar, "Synthesis Method and High Salt Concentration Can Affect Electrodeformation of GUVs under Strong Pulsed DC Fields," ACS Omega 2025, Vol. 10, pp. 6427−6436.

6. K. Kanakgiri, D. I. Bhardwaj, B. Sai Ram, and S.V. Kulkarni, "A Circuit-Based Formulation for Soft Magnetic Materials Using the Jiles–Atherton Model," IEEE Transactions on Magnetics, Vol. 60, No. 10, October 2024, Paper No. 7301107.

7. K. Kanakgiri, Sidharth Varier, B. Sai Ram, G. M. Unniachanparambil, and S. V. Kulkarni, "A Modified Takács Model to Formulate the Anisotropic Behavior of Grain-Oriented Laminations," IEEE Transactions on Magnetics, Vol. 10, No. 10, October 2024, Paper No. 7301008.

8. A.K. Paul, Sai Ram B·, and S.V. Kulkarni, "Review of Coupled Inductors in Power Electronics: From Concept to Practice," Elsevier e-Prime - Advances in Electrical Engineering, Electronics and Energy, Volume 8, June 2024, Paper No. 100501.

9. G. M. Unniachanparambil and S. V. Kulkarni, "Comparison of Dynamic Loss Inclusion under Asymmetrical Minor Loops using Lavers Formula and Inverse Jiles-Atherton Model," IEEE Transactions on Magnetics, Vol. 60, No. 3, March 2024, Paper No. 7000304.

10. G. M. Unniachanparambil, R. Rane, and S. V. Kulkarni, "Influence of Compressive Stress on the Magnetic Characteristics of Grain-Oriented Material under Non-Sinusoidal Excitation," Journal of Magnetism and Magnetic Materials, Elsevier, Volume 590, January 2024, Paper No. 171148.

11. Subir Majumder, S. A. Khaparde, A. P. Agalgaonkar, S. V. Kulkarni, A. K. Srivastava, and S. Perera, "Chance-Constrained Pre-Contingency Joint Self-Scheduling of Energy and Reserve in VPP," IEEE Transactions on Power Systems, Vol. 39, No. 1, January 2024, pp. 245-260.

12. E. R. Anagha, K. L. Narasimhan, S. V. Kulkarni, Narendra Shiradkar, "Humidity-Induced Electrical Conduction in Fluropolymer-based Photovoltaic Backsheets," Solar Energy, Elsevier, Volume 263, October 2023, Paper No. 111947.

13. Santosh V. Singh, A.M. Kulkarni, H.J. Bahirat, S.V. Kulkarni, and P.K. Gargava, “Analysis of the Transformer Failure using a Measurement-Simulation Approach: A Case Study,” Journal International Association on Electricity Generation, Transmission, and Distribution, Vol. 36, Issue 2, 2023, pp. 9-22.

14. G. M. Unniachanparambil, R. Rane, K. Kanakgiri, S. V. Kulkarni and B. S. Ram, “Investigation of Rotational Magnetization under Non-Sinusoidal Excitation for Non-Oriented Material,” IEEE Transactions on Magnetics, Vol. 59, No. 1, January 2023, Paper No. 6100111.

15. Makarand M. Kane, Kamlesh Joshi, H.J. Bahirat, Madhav Phadke, S.V. Kulkarni, and Suhas S. Joshi, “Comparative electrical characterization of spark-erosion of silicon and steel as a base and its implications on equivalent circuit,” Materials Science in Semiconductor Processing, Elsevier, 137, 106199, 2022

16. S. Majumder, A. P. Agalgaonkar, S. A. Khaparde, S. Perera, and S. V. Kulkarni, “Graph Theory based Voltage Sag Mitigation Cluster Formation Utilizing Dynamic Voltage Restorers in Radial Distribution Networks,” IEEE Transaction on Power Delivery, Vol. 37, No. 1, February 2022, pp. 18-28.

17. R. Raj, B. S. Ram, R. Bhat, G. M. Unniachanparambil and S. V. Kulkarni, “A Novel Cost-Effective Magnetic Characterization Tool for Soft Magnetic Materials Used in Electrical Machines,” in IEEE Transactions on Instrumentation and Measurement, vol. 70, pp. 1-8, 2021, Art no. 6009508, doi: 10.1109/TIM.2021.3099558.

18. B. Sai Ram, A. K. Paul, and S. V. Kulkarni, “Soft magnetic materials and their applications in transformers,” Journal of Magnetism and Magnetic Materials, Elsevier, vol. 531, 2021, Art no. 168210 (13 pages).

19. M. M. Kane, S. V. Kulkarni, H. J. Bahirat, and S. S. Joshi, “Analysis of Electrical Forces in Multi-wire EDM for Semiconductors,” in Procedia CIRP, Elsevier, Vol. 95, pp. 302-307, 2020.

20. M. M. Kane, K. Joshi, N. Tiwari, S. V. Kulkarni, H.J. Bahirat, and S. S. Joshi, “Experiments with Miniature Wire EDM for Silicon“, in Procedia CIRP, Elsevier, Vol. 95, pp. 296-301, 2020.

21. Hrishitosh Bisht, Vikram M. Gadre, S. V. Kulkarni, and B. S. Ram, “A Wavelet descriptor model of hysteresis loop phenomena”, IET Electric Power Applications, vol. 14, no. 11, pp. 2187-2192, Nov. 2020.

22. M. M. Kane, A. Khadse, H. Chandwani, H. Bahirat and S. V. Kulkarni, “Modeling and Efficiency Improvement of a Pulse Generator for Wire Electric Discharge Machining,” in IEEE Transactions on Plasma Science, Vol. 48, no. 10, 3350-3357, 2020.

23. Makarand M. Kane, Ajinkya Phanse, Himanshu Bahirat, S. V. Kulkarni, “Classification and Comparative Study of EDM Pulse Generators,” in IET Power Electronics, Vol. 13, No. 14, pp. 2943-59, 2020.

24. Y. Sanghvi, H. Bisht, Uday K. Khankhoje, V. M. Gadre, and S. V. Kulkarni., “Iteratively reweighted L1–L2 norm minimization using wavelets in inverse scattering,” Journal of the Optical Society of America A, Vol. 37, No. 4,pp. 680-687, 2020.

25. Rahul Bhat, Himanshu Bahirat and S. V. Kulkarni., “Effects of homopolar magnetic fields on low current DC vacuum arcs” IEEE Transactions on Plasma Science, Vol. 48, N0. 4, April 2020, pp. 930-938.

26. B. Sai Ram, A. P. S. Baghel, S. V. Kulkarni, L. Daniel, and I. C. Nlebedim, “A Frequency-dependent Scalar Magneto-Elastic Hysteresis Model Derived using Multi-Scale and Jiles-Atherton Approaches,” IEEE Transactions on Magnetics, Vol. 56, No. 3, 2020, pp. 1-5.

27. S. Majumder, A. P. Agalgaonkar, S. A. Khaparde, S. Perera, and S. V. Kulkarni, Allowable Delay Heuristic in Provision of Primary Frequency Reserve in the Future Power System, IEEE Transactions on Power Systems, Vol. 35, No. 2, 2020, pp. 1231-1241.

28. Greeshma Mohan U. and S. V. Kulkarni, Use of a Scaling Power Law to Incorporate Asymmetrical Minor Loops in the Inverse Jiles Atherton Model, IET Electric Power Applications, Vol. 13, No. 12, Dec 2019, pp. 2090-2095.

29. B. Sai Ram, S. V. Kulkarni, A Hybrid Product-Multi-Scale Model for Magneto-Elastic Behavior of Soft Magnetic Materials, Physica B, Vol. 571, pp. 301-306, 2019.

30. A. P. S. Baghel, B. Sai Ram, L. Daniel, S. V. Kulkarni, G. Krebs, J. B. Blumenfeld, and L. Santandrea, An Alternative Approach to Model Mechanical Stress Effects on Magnetic Hysteresis in Electrical Steels using Complex Permeability, Computational Materials Science, Vol. 166, pp. 96-104, 2019.

31. S. Majumder, A. P. Agalgaonkar, S. A. Khaparde, P. Ciufo, S. Perera, and S. V. Kulkarni, "Allocation of Common-Pool Resources in Unmonitored Open System," IEEE Transactions on Power Systems, Vol. 34, No. 5, pp. 3912-3920, 2019.

32. S. Majumder, S. A. Khaparde, A. P. Agalgaonkar, P. Ciufo, S. Perera, and S. V. Kulkarni, "DFT-Based Sizing of Battery Storage Devices to Determine Day-Ahead Minimum Variability Injection Dispatch With Renewable Energy Resources," IEEE Transactions on Smart Grid, Vol. 10, No. 1, 2019, pp. 626-638.

33. B. Sai Ram, S. V. Kulkarni, "An isoparametric approach to model ferromagnetic hysteresis including anisotropy and symmetric minor loops," Journal of Magnetism and Magnetic Materials, Vol. 474, 2019, pp. 574-584,2019.

34. Rahul Bhat, and S. V. Kulkarni, "Influence of Contact Plate Parameters and Eddy Currents on Residual Flux Decay in AMF type Vacuum Interrupters," IEEE Transactions on Power Delivery, Vol. 33, No. 6, pp. 2812-3821, 2018.

35. Rahul Bhat, and S. V. Kulkarni, "Influence of Petal Parameters on the Electromagnetic Force Driving the Arc in RMF type Vacuum Interrupters," IET Electric Power Applications, Vol. 12, No. 7, pp. 1027-1033, 2018.

36. K.Chwastek, A. P. S. Baghel, B. Sai Ram, B. Borowik, L. Daniel, and S. V. Kulkarni, " On some approaches to model magnetization processes," Journal of Physics D: Applied Physics, Vol. 51, No. 14, p. 145003, 2018.

37. J. Venkat, A. Shukla, and S. V. Kulkarni, "Flexible Power Electronic Converters for Producing AC Superimposed DC (ACsDC) Voltages," IEEE Transactions on Industrial Electronics, Vol. 65, No. 4, 2018, pp. 3145-3156.

38. M. Mukherjee, D. Martin, S. V. Kulkarni and T. Saha, "A Mathematical Model to Measure Instantaneous Moisture Content in Transformer Insulation Cellulose," IEEE Transactions on Dielectrics and Insulation, Vol. 25, No. 5, October 2017, 3207–3216.

39. M. Mondal, G. B. Kumbhar, and S. V. Kulkarni, "Localization of Partial Discharges inside a Transformer Winding Using a Ladder Network Constructed From Terminal Measurements," IEEE Transactions on Power Delivery, Vol. 33, No. 3, pp. 1035-1043, 2018.

40. H. H. Sidhwa, R. P. R. C. Aiyar, and S. V. Kulkarni, "Electromagnetic Cloaking in Higher Order Spherical Cloaks," Applied Physics B, 2017, 123:189, DOI 10.1007/s00340-017-6758-z.

41. S. V. Kulkarni, "A virtual interactive electromagnetic laboratory: an effective pedagogical approach," Invited Paper, FEMAT Journal, Vol. 21, 2017.

42. A. P. S. Baghel, B. Sai Ram, K.Chwastek, L. Daniel, and S. V. Kulkarni, "Hysteresis modelling of GO laminations for arbitrary in-plane directions taking into account the dynamics of orthogonal domain walls," Journal of Magnetism and Magnetic Materials, Volume 418, November 2016, pp. 14-20

43. K. Chwastek, A. P. S. Baghel, M. F. de Campos, S. V. Kulkarni and J. Szczygłowski, "A Description for the Anisotropy of Magnetic Properties of Grain-Oriented Steels," in IEEE Transactions on Magnetics, vol. 51, no. 12, pp. 1-5, Dec. 2015.

44. A. P. S. Baghel, K. Chwastek, and S. V. Kulkarni, "Modeling of Minor Hysteresis loops in the Rolling and Transverse Directions of Grain-Oriented Laminations," IET Electric Power Applications, Vol. 9, Issue 4, 2015, pp. 344-348.

45. H. H. Sidhwa, R. P. Aiyar, and S. V. Kulkarni, "Electromagnetic cloaking in convex and concave media with surface modelled as a parameterised function," Optics Express, Vol. 23, No. 15, pp. 15641-15656, 2015.

46. A. P. S. Baghel, A. Gupta, K. Chwastek, and S. V. Kulkarni, “Comprehensive Modeling of Dynamic Hysteresis Loops in the Rolling and Transverse Directions for Transformer Laminations,” Physica B, Vol. 462, 2015, pp. 86-92.

47. A.P.S. Baghel, S.K. Shekhawat, S.V. Kulkarni, and I. Samajdar, Modeling of dynamic hysteresis for grain-oriented laminations using a viscosity-based modified dynamic Jiles–Atherton model, Physica B, Vol. 448, 2014, pp. 349–353.

48. A. P. S. Baghel and S. V. Kulkarni, “Dynamic Loss Inclusion in the Jiles-Atherton Hysteresis Model Using the Original JA Approach and the Field Separation Approach,” IEEE Transactions on Magnetics, Vol. 50, No. 2, February 2014.

49. A. Bakshi and S. V. Kulkarni, “Coupled Electromagnetic-Structural Analysis of the Spiraling Phenomenon in a Helical Winding of a Power Transformer,” IEEE Transactions on Power Delivery, Vol. 29, No. 1, February 2014, pp. 235-240.

50. A. Bakshi and S. V. Kulkarni, “Analysis of Buckling Strength of Inner Windings in Transformers Under Radial Short-Circuit Forces,” IEEE Transactions on Power Delivery, Vol. 29, No. 1, February 2014, pp. 241-245.

51. M. M. Kane and S. V. Kulkarni, “MTL-Based Analysis to Distinguish High-Frequency Behavior of Interleaved Windings in Power Transformers,” IEEE Transactions on Power Delivery, Vol. 28, No. 4, October 2013, pp. 2291-2299.

52. S. Magdaleno-Adame, J. C. Olivares-Galvan, S. V. Kulkarni, R. Escarela-Perez, “Analysis of slots in horizontal plates of T-beams in shell-form power transformers,” Electric Power Systems Research, Vol. 101, 2013, 88–95.

53. A. P. S. Baghel and S. V. Kulkarni, “Hysteresis Modeling of the Grain-Oriented Laminations with Inclusion of Crystalline and Textured Structure in a Modified Jiles-Atherton Model,” Journal of Applied Physics, Vol. 113, January 2013, pp. 043908-1-043908-5.

54. G. Surya Narayana, K. P. Badgujar, and S. V. Kulkarni, “Factorization based transfer function estimation technique for deformation diagnostics of windings in transformers,” IET Electric Power Applications, Vol. 7, 2013, pp. 39-46.

55. A. P. S. Baghel and S. V. Kulkarni, “Parameter Identification of the Jiles-Atherton Hysteresis Model using a Hybrid Technique,” IET Proceedings – Electric Power Applications, , Vol. 6, Iss. 9, November 2012, pp. 689–695.

56. A. Bakshi and S. V. Kulkarni, “Towards short-circuit proof design of power transformers,” The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, COMPEL, Vol. 31, No. 2, 2012, pp. 692-702.

57. K. P. Badgujar, M. Maoyafikuddin, and S. V. Kulkarni, “Alternative statistical techniques for aiding SFRA diagnostics in transformers,” IET Proceedings-Generation Transmission and Distribution, Vol. 6, No. 3, 2012, pp. 189-198.

58. A. S. Bhangaonkar, S. V. Kulkarni, and R. K. Shevgaonkar, ”Study of the Effects of Alternating Magnetic Field on Point-plane Corona,” IEEE Transactions on Dielectrics and Electrical Insulation, Vol. 18, No. 6., December 2011, pp. 1813-1820.

59. A. Bakshi and S. V. Kulkarni, “Eigen value analysis for investigation of tilting of transformer winding conductors under axial short-circuit forces,” IEEE Transactions on Power Delivery, Vol. 26, No. 4, October 2011, pp. 2505-2512.

60. R. S. Bhide, S. V. Kulkarni, and P. Bhandarkar, “Analysis of Five-Legged Transformer used for Parallel Operation of Rectifiers by Coupled Circuit-Field Approach,” IEEE Transactions on Power Delivery, Vol. 26, No. 2, April 2011, pp. 607-616.

61. S. D. Kore, P. P. Date, S.V. Kulkarni, Satendra Kumar, Dolly Rani, M. R. Kulkarni, S.V. Desai, R.K. Rajawat, K.V. Nagesh, and D.P. Chakravarty Application of Electromagnetic Impact Technique for Welding Copper-to-Stainless Steel Sheets, International Journal of Advanced Manufacturing Technology, Vol. 54, 2010, pp. 949-955, DOI 10.1007/s00170-010-2981-z.

62. Amit Bakshi and S. V. Kulkarni, “Analysis of Winding Disk in Transformer under Action of Axial Electromagnetic Forces by Green’s Function Approach,“ International Journal of Applied ELectromagnetics and Mechanics, Vol. 34, No. 4, 2010, pp. 237-247.

63. K. Kaushik and S. V. Kulkarni, “Solution of a Low-Frequency Coupled Electromagnetic Problem Using the Wavelet-Galerkin Method,” International Journal of Applied ELectromagnetics and Mechanics, vol. 34, no. 1-2, 2010, pp. 1-19.

64. R. S. Bhide, S. V. Kulkarni, and P. Bhandarkar, “Analytical Description for Zero-sequence Characteristics of Five-legged Core Construction in Transformers,” Proceedings of IET- Electric Power Applications, vol. 4, no. 6, July 2010, pp. 407-417.

65. S. D. Kore, P. P. Date, S.V. Kulkarni, Satendra Kumar, Dolly Rani, M. R. Kulkarni, S. V. Desai, R.K. Rajawat, K.V. Nagesh, and D. P. Chakravarty, “Electromagnetic Impact Welding of Cu-to-Cu Sheets,” International Journal of Material Forming, Springer, Vol. 3, Issue 2, 2010, pp. 117-121.

66. S. D. Kore, P. Dhanesh, S. V. Kulkarni, and P. P. Date, “Numerical Modeling of Electromagnetic Welding,” International Journal of Applied Electromagnetics and Mechanics, Vol. 32, No. 1, 2010, pp. 1-19.

67. R. G. Karandikar, S. A. Khaparde, and S. V. Kulkarni, “Strategic Evaluation of Bilateral Contract for Electricity Retailer in Restructured Power Market,” International Journal of Electrical Power and Energy Systems, Vol. 32, Iss. 5, June 2010, pp. 457-463.

68. P. M. Joshi and S. V. Kulkarni, “Three-Phase Transformer Winding Deformation Diagnostics Using Terminal Capacitance Measurements,” International Journal of Emerging Electric Power Systems, July 2009, Vol. 10, Iss. 3, Article 8.

69. A. S. Bhangaonkar, K. K. Dudani, and S. V. Kulkarni, “Analysis of Frequencies Radiated by the Point-to-Plane Electrode Configuration under DC and AC Voltages,” International Journal of Emerging Electric Power Systems: Vol. 10, Iss. 3, July 2009, Article 6.

70. S. D. Kore, P. P. Date, S. V. Kulkarni, Satendra Kumar, Dolly Rani, M. R. Kulkarni, S. V. Desai, R. K. Rajawat, K. V. Nagesh and D. P. Chakravarty, “Electromagnetic Impact Welding of Al-to-Al-Li Sheets,” Journal of Manufacturing Science and Engineering, ASME Transactions, Vol. 131, June 2009, pp. 0345021-0345024.

71. R. Escarela-Perez, S. V. Kulkarni, J. Alvarez-Ramirez, and K. Kaushik, “Analytical Description of the Load-Loss Asymmetry Phenomenon in Three-Phase Three-Limb Transformers,” IEEE Transactions on Power Delivery, Vol. 24, No. 2, April 2009, pp. 695-702.

72. P. M. Joshi and S. V. Kulkarni, “Use of Deformation Coefficient for Transformer Winding Diagnostics,” International Journal of Emerging Electric Power Systems, October 2008, Vol. 9, Iss. 3, Art. 7.

73. R. Escarela-Perez, S. V. Kulkarni, and E. Melgoza , “Multi-Port Network and 3D Finite-Element Models for Accurate Transformer Calculations: Single-Phase Load-Loss Test” Electric Power Systems Research, Vol. 78, Issue 11, November 2008, pp. 1941–1945.

74. S. D. Kore, P. P. Date, and S. V. Kulkarni, “Electromagnetic Impact Welding of Aluminum to Stainless Steel Sheets,” Journal of Materials Processing Technology, Volume 208, Issues 1-3, 21 November 2008, pp. 486-493.

75. R. S. Bhide, G. B. Kumbhar, S. V. Kulkarni, and J. P. Koria, “Coupled circuit-field formulation for analysis of parallel operation of converters with interphase transformer,” Electric Power Systems Research. Vol. 78, Issue 1, January 2008, pp 158-164.

76. R. G. Karandikar, N. R. Deshpande, S. A. Khaparde, and S. V. Kulkarni, “Modelling volatility clustering in electricity price return series for forecasting value at risk,” European Transactions on Electrical Power, Wiley InterScience Publication, October 2007.

77. R. G. Karandikar, S. A Khaparde, and S. V. Kulkarni, “Quantifying Price Risk of Electricity Retailer based on CAPM and RAROC Methodology,” International Journal of Electrical Power and Energy Systems, Elsevier, Issue 29 (10), 2007, pp.803-809.

78. K. C. Hari, M. Nabi, and S. V. Kulkarni, “Improved FEM Model for defect shape construction from MFL signal by using genetic algorithm,” IET Proceedings – Science, Measurement and Technology, Vol. 1, No. 4, July 2007, pp. 196-200.

79. R. Escarela-Perez, S. V. Kulkarni, N. K. Kodela, and J.C. Olivares-Galvan, “Asymmetry during load-loss measurement of three-phase three-limb transformers,” IEEE Transactions on Power Delivery, Vol. 22, No. 3, July 2007, pp. 1566-1574.

80. S. D. Kore, P. P. date, and S. V. Kulkarni, “Effect of process parameters on electromagnetic welding of Al sheets” International Journal of Impact Engineering, Vol. 34, Issue 8, 2007, pp. 1327–1341.

81. G. B. Kumbhar, S.V. Kulkarni, R. Escarela-Perez, and E. Campero-Littlewood, “Applications of coupled field formulations to electrical machinery,” The International Journal for Computation and Mathematics in Electrical and Electronic Engineering, Vol. 26, Issue 2, 2007, pp. 489-523.

82. G. B. Kumbhar and S.V. Kulkarni, “Analysis of short circuit performance of split-winding transformer using coupled field-circuit approach,” IEEE Transactions on Power Delivery, Vol. 22, No. 2, April 2007, pp. 936-943.

83. G. B. Kumbhar, S. V. Kulkarni, and V. S. Joshi, “Analysis of half-turn effect in power transformers using nonlinear-transient FE formulation,” IEEE Transactions on Power Delivery, Vol. 22, No. 1, January 2007, pp. 195-200.

84. G. C. Venkatesh and S. V. Kulkarni, ”Energy yield of passive stall regulated fixed speed wind turbine with optimal rotor speed,” Electric Power Systems Research, Elsevier, Vol. 76, 2006, pp. 1019-1026.

85. A. P. Agalgaonkar, S. V. Kulkarni, and S. A. Khaparde, “Evaluation of configuration plans for DGs in developing countries using advanced planning techniques,” IEEE Transactions on Power Systems, Vol. 21, No. 2, May 2006, pp. 973-981.

86. M. Nabi, S. V. Kulkarni, A. K. Gupta, and G. B. Kumbhar, “An improved finite element computational scheme for transient field-circuit coupled systems,” International Journal of Computational Methods in Engineering Science and Mechanics, Vol. 7, No. 4, July-August 2006, pp. 313-322.

87. A. P. Agalgaonkar, S. V. Kulkarni, S. A. Khaparde, and S. A. Soman, “Distributed Generation Opportunity under Availability Based Tariff and Reliability Considerations,” International Journal of Emerging Electric Power Systems, Vol. 2, Issue 1, Article 1035, 2005.

88. A. P. Agalgaonkar, S. V. Kulkarni, S. A. Khaparde, and S. A. Soman, “Placement and penetration of distributed generation under standard market design,” International Journal of Emerging Electric Power Systems, Vol. 1, Issue 1, Article 1004, 2004.

89. S. V. Kulkarni, J. C. Olivares, R. Escarela-Perez, V. K. Lakhiani, and J. Turowski, “Evaluation of eddy losses in cover plates of distribution transformers,” IEE Proceedings - Science, Measurement and Technology, Vol. 151, No. 5, September 2004, pp. 313-318.

90. J. C. Olivares, R. Escarela-Perez, S. V. Kulkarni, F. De Leon, and M. A. Venegas-Vega, “2-D finite-element determination of tank wall losses in pad-mounted transformers,” Electric Power Systems Research, Vol. 71, 2004, pp. 179-185.

91. J. C. Olivares, R. Escarela-Perez, S. V. Kulkarni, F. De Leon, E. Melgoza, and O. Hernandez, “Improved insert geometry for reducing tank wall losses in pad-mounted transformers,” IEEE Transactions on Power Delivery, Vol. 19, No. 3, July 2004, pp. 1120-1126.

92. M. Nabi, S. V. Kulkarni, and V. R. Sule, “A novel modeling and solution approach for repeated finite element analysis of eddy current systems,” IEEE Transactions on Magnetics, Vol. 40, Issue 1, January 2004, pp. 21-28.

93. J. C. Olivares, S. V. Kulkarni, J. Canedo, J. Driesen, and R. Escarela, “Impact of joint design parameters on transformer losses,” International Journal of Power and Energy Systems, Vol. 23, No. 3, 2003, pp. 151-157.

94. M. U. Nabi, V. R. Sule, and S. V. Kulkarni, “An efficient computational modelling and solution scheme for repeated finite element analysis of composite domains with varying material property,” International Journal of Computational Engineering Science, Vol. 3, No. 3, 2002, pp. 257-275.

95. D. A. Koppikar, S. V. Kulkarni, and J. Turowski, “Fast 3-D interactive computation of stray field and losses in asymmetric transformers,” IEE Proceedings – Generation, Transmission and Distribution, Vol. 147, No. 4, July 2000, pp. 197-201.

96. D. A. Koppikar, S. V. Kulkarni, P. N. Srinivas, S. A. Khaparde, and R. Jain, “Evaluation of flitch plate losses in power transformers,” IEEE Transactions on Power Delivery, Vol. 14, No. 3, July 1999, pp. 996-1001.

97. D. A. Koppikar, S. V. Kulkarni, G. Ghosh, S. M. Ainapure, and J. S. Bhavsar, “Circulating current loss in transformer windings,” IEE Proceedings - Science, Measurement and Technology, Vol. 145, No. 4, July 1998, pp. 136-140.

98. D. A. Koppikar, S. V. Kulkarni, S. A. Khaparde, and B. Arora, “A modified approach to overfluxing analysis of transformer,” International Journal of Electrical Power & Energy Systems, Vol. 20, No. 4, 1998, pp. 235-239.

99. D. A. Koppikar, S. V. Kulkarni, S. A. Khaparde, and S. K. Jha, “Evaluation of eddy losses due to high current leads in transformers,” IEE Proceedings - Science, Measurement and Technology, Vol. 144, No. 1, January 1997, pp. 34-38.

International Conferences

100. Teruvai Manoj and S.V. Kulkarni, “Assessment of Transformer Insulation by Decision Trees using a Combinational Weighting Model,” 7th International Colloquium “Transformer Research and Asset Management” - ICTRAM, Cavtat, Croatia, May 2026.

101. Teruvai Manoj and S.V. Kulkarni, “Multi-Criteria Decision-Making Techniques for Lifecycle Management of Power Transformers,” 13th TRAFOTECH GLOBAL Conference - IEEMA, New Delhi, India, pp. 229-235, December 2025.

102. N. Maheswara Rao, S.V. Kulkarni, B. Sai Ram, and Amit Bakshi “An Insight into Mechanical Stresses in the Core and Windings of Power Transformers,” 13th TRAFOTECH GLOBAL Conference - IEEMA, New Delhi, India, pp. 162-172, December 2025 (Received the Best Paper Award).

103. S.V. Kulkarni, “Applications of Artificial Intelligence to Transformers,” Invited talk at ARWtr2025, International Research Workshop on Transformers, Vigo, Spain, October 2025.

104. B. Prasad, S. V. Kulkarni, S. Magdaleno-Adame, and B. Sai Ram, “An Analytical Formulation for Eddy Current Losses in Conducting Plates under Normal Magnetic Field Excitation,” Presented at 25th International Conference on the Computation of Electromagnetic Fields (COMPUMAG), Naples, Italy, June 22 - 26, 2025.

105. V. Mohale, S. V. Kulkarni, and Y. V. Hote, “Integration of Hydrogen Fuel Cells Based Energy Storage System for an Indian Power Grid,” 2025 IEEE Industry Applications Society Annual Meeting (IAS), Taipei, Taiwan, 2025, pp. 1-7, doi: 10.1109/IAS62731.2025.11061489.

106. E. R. Anagha, S. V. Kulkarni, and Narendra Shiradkar, “Electrical Characterization of Fresh and Degraded Photovoltaic Backsheets Based on Temperature and Humidity-Dependent DC Conductivity,” In the 41st European Photovoltaic Solar Energy Conference and Exhibition (EUPVSEC), 2024.

107. E. R. Anagha, S. V. Kulkarni, Narendra Shiradkar, “Limitations of the Utility of Dry Insulation Resistance Test to Detect Defects in Photovoltaic Modules,” ISES Solar World Congress 2023, October 30 – November 4, 2023, New Delhi.

108. E. R. Anagha, S. V. Kulkarni, and Narendra Shiradkar, “Insulation characteristics of polymer backsheets and encapsulants for photovoltaic applications,” IEEMA - Eleventh International Conference on Electrical & Electronic Insulating Materials & Systems, INSULEC–2024, Mumbai, February 1 - 2, 2024.

109. B. Sai Ram, A. P. S. Baghel, K. Chwastek, S. V. Kulkarni, L. Daniel, I. C. Nlebedim, M. F. de Campos, “Modelling of Angular Behaviour of Core Loss in Grain-Oriented Laminations using the Loss Separation Approach,” International Conference on Magnetism and Magnetic Materials (ICMAGMA - 2023), Hyderabad, 4th-6th December 2023.

110. Greeshma Mohan U., B. Sai Ram, and S. V. Kulkarni, “An Inverse Jiles-Atherton Model Considering Dynamic and Temperature Effects for Ferrites,” International Conference on Magnetism and Magnetic Materials (ICMAGMA - 2023), Hyderabad, 4th-6th December 2023.

111. Immanuel Williams, Anouar Belahcen and Shrikrishna V. Kulkarni, “An Investigation into Permanent Magnet Hysteresis Losses in Reverse-salient Permanent Magnet Synchronous Motors,” 32nd International Symposium on Industrial Electronics, ISIE 2023, Helsinki, Finland, June 19-21, 2023.

112. G. M. Unniachanparambil and S. V. Kulkarni, “Comparison of Dynamic Loss Inclusion under Asymmetrical Minor Loops using Lavers Formula and Inverse Jiles-Atherton Model,” 24th International Conference on the Computation of Electromagnetic Fields, COMPUMAG 2023, Kyoto, Japan, May 22-26, 2023.

113. E. R. Anagha, D. Pratti, S. V. Kulkarni, and N. Shiradkar, “Modeling of Leakage Currents in c-Si PV Modules and Investigation of their Arrhenius Behavior,” 2020 47th IEEE Photovoltaic Specialists Conference (PVSC), 2020, pp. 1105-1109, doi: 10.1109/PVSC45281.2020.9300731.

114. E. R. Anagha, S. V. Kulkarni, and N. Shiradkar, “Moisture Ingress Modeling in c-Si PV Modules using Finite Element Simulations Based on Dual Transport Diffusion,” 2021 IEEE 48th Photovoltaic Specialists Conference (PVSC), 2021, pp. 2470-2474, doi: 10.1109/PVSC43889.2021.9518770.

115. B. Sai Ram, A. P. S. Baghel, S. V. Kulkarni, and L. Daniel, “Inclusion of Dynamic Losses in a Scalar Magneto-elastic hysteresis Model Derived Using Multi-scale and Jiles-Atherton Approaches,” in 22nd International Conference on Computational Electromagnetics, COMPUMAG -2019, Paris, France, 15th-19th July, 2019.

116. Greeshma Mohan U. and S. V. Kulkarni, “Transformer Engineering for Emerging Power Systems,” Advanced Research Workshop on Transformers, ARWtr 2019, Cordoba, Spain, October, 7-9, 2019.

117. B. Sai Ram, A. P. S. Baghel, and S. V. Kulkarni, “A Simple Hysteresis Model to Predict Magnetomechanical Behavior of Soft Magnetic Materials,” International Conference on Magnetic Materials and Applications (ICMAGMA - 2018), Bhubaneswar, 9th-13th December, 2018.

118. Rahul Bhat, S.V. Kulkarni, Sandeep Kulkarni, and Komal Wankhade, “Investigations of Arc Motion on RMF Contacts using Hybrid FEM-Analytical Modeling Appproach,” 28 th International Symposium on Discharges and Electrical Insulation in Vacuum (ISDEIV), Greifswald, Germany September 23 rd-28 th 2018, pp. 471–474.

119. B. Sai Ram, A. P. S. Baghel, and S. V. Kulkarni, “An Insight into Factors Influencing Core Performance in Transformers,” in 10th International Conference on Transformers, TRAFOTECH-2018, New Delhi, 4-5 October2018, pp. 71-78.

120. Anant Pawar, Rishabh Raj, Greeshma Mohan U, B. Sai Ram and S. V. Kulkarni, “ A LabVIEW Based Measuring System For Hysteresis Loops of Magnetic Materials”, Seventh International Conference on Advances in Electrical Measurements and Instrumentation Engineering, EMIE 2018, July 13-14, 2018 Cochin.

121. M. M. Kane, A. Jadhav, M. Kumar, S.V. Kulkarni, S.S. Joshi, “Machining Behaviour of Silicon in Wire EDM for PV Applications”, EU PVSEC, European PV Solar Energy Conference and Exhibition, Amsterdam, 25 - 29 September 2017, pp 333 – 338.

122. Subir Majumder, S. A. Khaparde, Vedanta Pradhan, S. V. Kulkarni, Ashish P. Agalgaonkar, Sarath Perera, and Phil Ciufo, “A critical review on the methods for calculating the risk of process failure because of voltage sags,” IEEE International Conference on Power System Technology (POWERCON), 2016, Wollongong, Australia.

123. G.V. Avhad, H.J. Bahirat, and S.V. Kulkarni, “Spectral Mapping of the Corona Discharge”, Presented at International Power Modulator and High Voltage Conference, 2016, IPMHVC 2016, San Francisco, USA, July 2016.

124. I S Jha, B. N. De. Bhowmick, S. B. R. Rao, Dhyeya. R. Shah, Rachit Srivastava, R. K. Singh, S. V. Kulkarni, and

Santosh Kumar, “Operational experience in 1200 kV national test station, India,” Paper B3-304, CIGRE 2016, Paris.

125. K. Chwastek, A. P. S. Baghel, P. Borowik, B. S. Ram, and S. V. Kulkarni, “Loss separation in chosen grades of grain-oriented steel” Progress in Applied Electrical Engineering (PAEE), Poland, 26 June - 1 July 2016.

126. Rahul Bhat, Sandeep Kulkarni, M. Hemachander and S.V. Kulkarni, On the effect of Eddy Currents on Current Interruption in Axial Magnetic Field type Vacuum Interrupters, SWICON-2015, Mumbai.

127. Ajay P. S. Baghel, Boggavarapu S. Ram, Krzysztof Chwastek, and S. V. Kulkarni, “Hysteresis modeling of grain-oriented laminations in arbitrary directions using dynamics of orthogonal domain walls,” ICMAGMA-2015, International Conference on Magnetic Materials and Applications, Vellore, 2-4 December 2015.

128. T.Talande, Sanjay Kholiya, Vikaas Sonar, K.Rajamani, B.Sairam, and S. V. Kulkarni, “Determination of magnetic field intensity in the vicinity of underground extra high voltage cables,” CABLETECH-2015, International Conference on Power Cables, Bangalore, 26-27 February 2015, pp. 120-126.

129. Puneet Bhasin, H. S. V. S. Kumar Nunna, Suryanarayana Doolla, and S. V. Kulkarni, ““ Multi-Agent based Diagnosis Framework for Transformers in a Smart Distribution System,” IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES-2014),16-19 December 2014, IIT Bombay, Mumbai, India.

130. V. N. S. Rao Jakka, Anshuman Shukla and S. V. Kulkarni, “Operation of a Three Phase Solid State Transformer under Unbalanced Load Condition,” IEEE International Conference on Power Electronics, Drives and Energy Systems (PEDES-2014),16-19 December 2014, IIT Bombay, Mumbai, India.

131. S. V. Kulkarni, “Activities in high voltage laboratory, Indian Institute of Technology Bombay,” Published in India Corner, Electrical Insulation News in Asia, The Institute of Electrical Engineers of Japan, Vol. 21, November 2014, pp. 37-40.

132. A. P. S. Baghel and S. V. Kulkarni, “Modeling of magnetic characteristics including hysteresis effects for transformers,” Invited paper, 3rd International Colloquium Transformer Research and Asset Management, Split, Croatia, October 15 – 17, 2014.

133. Rahul Bhat, S.V. Kulkarni, Sandeep Kulkarni, and M. Hemachander, “Effect of eddy currents on the current interruption performance of axial magnetic field type of vacuum interrupters,” International Symposium on Discharges and Electrical Insulation in Vacuum (ISDEIV), Mumbai, October 2014, pp. 305–308.

134. Rahul Bhat, S.V. Kulkarni, Sandeep Kulkarni, and M. Hemachander, “On computation of the radial magnetic field in vacuum interrupters,” International Symposium on Discharges and Electrical Insulation in Vacuum (ISDEIV), Mumbai, October 2014, pp. 301–304.

135. K. P. Badgujar, T. Patel, S. Mehta, and S. V. Kulkarni, “Frequency Response Analysis: Theory and Practice,” International Conference on Transformers, TRAFOTECH-2014, Bangalore, pp. V31-V36.

136. J. Venkat, A. Shukla, and S. V. Kulkarni, “Power Electronic Transformers in Smart Grids,” International Conference on Transformers, TRAFOTECH-2014, Bangalore, pp. I28-I35.

137. J. Venkat, A. Shukla, and S. V. Kulkarni, “A Novel dq-Vector Based Control for the Three Phase Active Rectifier in a Power Electronic Transformer,” Annual IEEE India Conference (INDICON), Mumbai, 2013.

138. Ketan P. Badgujar, A. P. S. Baghel, and S. V. Kulkarni, “A Coupled Field-Circuit Formulation and a Duality Based Approach for Analysis of Low-Frequency Response of Transformers,” Annual IEEE India Conference (INDICON), Mumbai, 2013. Best Paper Award in Power and Energy Track.

139. P.M. Joshi, K. P. Badgujar, and S.V. Kulkarni “Localization of Deformations in Transformer Windings Using Terminal Capacitance Measurements,” IEEE 1st International Conference on Condition Assessment Techniques in Electrical Systems, 2013, Kolkata, pp. 318-324.

140. S. B. Mallik, P. Purkait, N. Mohandas and S. V Kulkarni, “Analysis of Variations in Measured Recovery Voltage Peaks due to Presence of Moisture in Insulation of Power Transformers,” IEEE 1st International Conference on Condition Assessment Techniques in Electrical Systems, December 2013, Kolkata, pp.180-185.

141. Sidhwa H. H., Aiyar R. P. and Kulkarni S. V., “Ray Tracing in an Arbitrary Cloak in Two Dimensions,” in Progress In Electromagnetics Research Symposium Proceedings, Stockholm, Sweden, August 2013, 1792-1795.

142. A. P. S. Baghel and S. V. Kulkarni, “On the Modeling of the Dynamic Hysteresis usingÂ JA and the Field Separation Theories,” 19th International Conference on the Computation of Electromagnetic fields (COMPUMAG), Budapest-HUNGARY, 30th June-4th July, 2013.

143. Ketan Badgujar, S. V. Kulkarni, and P. M. Joshi, Deformation Coefficient Based Winding Diagnostics: A Complementary Approach to FRA, 5th International CBIP Conference on Large Power Transformers - Modern Trends in Application, Installation, Operation & Maintenance, New Delhi, 24-25 January 2013, pp. 190-194.

144. K. Kale, K. P. Badgujar, G. Surya Narayana, and S. V. Kulkarni, A parametric study for aiding deformation diagnostics of transformer windings,” International Conference on Emerging Trends and Challenges in Transformer Technology organized by Central Power Research Institute - India, New Delhi, 13-14 September 2012, pp. 93-100.

145. K. P. Badgujar, A. Gupta, and S. V. Kulkarni, “A hybrid modeling approach for determining frequency response of transformer coils,” 11th International Conference on Transformers, TRAFOSEM-2011, New Delhi, November 2011, Session-IV, pp. 25-34.

146. Ketan Badgujar, Lokesh Chadokar, Adit Gupta, and S. V. Kulkarni, Air Core Model for Determining Frequency Response of Transformer Coils, 3rd International Advanced Research Workshop on Transformers, 3-6 October, 2010, Santiago de Compostela, Spain, pp. 463-468.

147. Amit Bakshi and S. V. Kulkarni, Towards Short-Circuit Proof Design of Power Transformers, 3rd International Advanced Research Workshop on Transformers, 3-6 October, 2010, Santiago de Compostela, Spain, pp. 366-371.

148. P. M. Joshi and S. V. Kulkarni, “A Novel Approach for On-Line Deformation Diagnostics of Transformer Windings,” IEEE PES General Meeting, Minneapolis, USA, 25-29 July, 2010, Paper No. 2010GM1320.

149. R. Agarwal, S. V. Kulkarni, B. K. Sahoo, V. R. Sardeshpande, and R. Deshpande, “Online monitoring of transformer: A case study,” TRAFOTECH-2010, International Conference on Transformers, Mumbai, 18-19 January 2010, pp. VI-36 - VI-39.

150. P. M. Joshi and S. V. Kulkarni, “Deformation coefficient based diagnostics of multiple section deformations in transformer windings,” TRAFOTECH-2010, International Conference on Transformers, Mumbai, 18-19 January 2010, pp. VI-1 - VI-4.

151. A. Bakshi, R. V. Thakar, S. V. Kulkarni, and S. Vora, “Mechanical stress and deformation analysis of transformer winding using finite element method,” TRAFOTECH-2010, International Conference on Transformers, Mumbai, 18-19 January 2010, pp. I-1 - I-5.

152. A. Bakshi and S. V. Kulkarni, “Mechanical Deformation Analysis of Inner Winding of a Transformer using Finite Element Method,” Proceedings ICCMS09, Third International Congress on Computational Mechanics and Simulation, IIT Bombay, 1-5 December 2009, pp. 289-290.

153. S. V. Kulkarni, J. Singh, S. H. Kulkarni, and H. S. Mantrawadi, “Elastoplastic FEM Analysis for Electromagnetic Forming Process,” Proceedings ICCMS09, Third International Congress on Computational Mechanics and Simulation, IIT Bombay, 1-5 December 2009, pp. 285-286.

154. Chikku Abraham and S. V. Kulkarni, “FDTD Simulated Propagation of Electromagnetic Pulses due to PD for Transformer Diagnostics,” Paper 1569128887, TENCON 2008, Hyderabad, India, November 18-21, 2008.

155. R. S. Bhide and S. V. Kulkarni, “High Frequency AC-DC Converter for High Current Applications,” Paper No. 1349, Proceedings of International Conference on Electrical Machines, ICEM 2008, Vilamoura, Portugal, 6-9 September, 2008.

156. B. G. Fernandes, A. M. Kulkarni, S. V. Kulkarni, and S. A. Khaparde, “ Power Engineering Laboratories at IIT Bombay,” IEEE PES General Meeting, Pittsburgh, USA, 20-24 July, 2008, Paper No. 08GM0409.

157. P. M. Joshi and S. V. Kulkarni, “Transformer Winding Diagnostics Using Deformation Coefficient,” IEEE PES General Meeting, Pittsburgh, USA, 20-24 July, 2008, Paper No. 08GM0583.

158. A. S. Bhangaonkar and S. V. Kulkarni, “Understanding Electromagnetic Radiation due to Partial Discharges by Simulating the Motion of a Group of Charged Particles and their Interaction,” IEEE International Symposium on Electrical Insulation, ISEI 2008, Vancouver, Canada, 08-10 June, 2008. pp. 663-666.

159. A. S. Bhangaonkar and S. V. Kulkarni, “Approaches for Numerical Simulation of Partial Discharges,” Paper No. 4HVW3, IEEE Power Modulator Conference and High Voltage Workshop, PMC 2008, Las Vegas, USA, 27-31 May 2008.

160. A. S. Bhangaonkar, S. V. Kulkarni, and R.K. Shevgaonkar, “Evaluation of Radiated Electric Field during Partial Discharge using Particle Motion Physics,” International Conference on Power Systems, ICPS-2007, Bangalore, 12-14 December, 2007.

161. P. M. Joshi and S. V. Kulkarni, “A novel method for detection of winding deformation using terminal measurements,” Advanced Research Workshop on Transformers, ARWtr 2007, Baiona, Spain, October, 28-31, 2007, pp. 343-348.

162. S. V. Kulkarni, “Coupled Field Computations for Analysis of Intricate Phenomena in Transformers,” Invited Paper, Advanced Research Workshop on Transformers ARWtr 2007, Baiona, Spain, October 28-31, 2007, pp. 172-186.

163. R. Escarela-Perez, S. V. Kulkarni, and E. Melgoza, “3D Finite-Element Determination of Multi-Port Network Models for Transformer Calculations,” Paper PA1-8, Proceedings of the 16th Conference on the Computation of Electromagnetic Fields, COMPUMAG 2007, June 24-28, Aachen, Germany.

164. G. B. Kumbhar and S. V. Kulkarni, “Analysis of Sympathetic Inrush Phenomena in Transformers Using Coupled Field-Circuit Approach,” IEEE PES General Meeting, June 24-28, 2007, Tampa, USA.

165. R. S. Bhide and S. V. Kulkarni, “Analysis of parallel operation of converters with interphase transformer,” Proceedings of India International Conference on Power Electronics, IEEE-IICPE 2006, Chennai, pp. 193-196.

166. A. V. Kank, G. B. Kumbhar, and S.V. Kulkarni, “Coupled magneto-mechanical field computations,” International Conference on Power Electronics Drives and Energy Systems for Industrial Growth, PEDES 2006, Organized by IEEE and IIT Delhi, December 12-15, 2006.

167. K. Kaushik and S. V. Kulkarni, “A wavelet based numerical technique for electromagnetic field analysis,” International Conference on Power Electronics Drives and Energy Systems for Industrial Growth, PEDES 2006, Organized by IEEE and IIT Delhi, December 12-15, 2006.

168. A. P. Agalgaonkar, S. V. Kulkarni, and S. A. Khaparde, “Evaluation of configuration plans for DGs in developing countries using tradeoff analysis and MADM,” IEEE PES T&D Conference and Exposition, Dallas, USA, May 21-24, 2006.

169. S. D. Kore, P. P. Date, and S. V. Kulkarni, “Electromagnetic welding of aluminum sheets,” Sheet Metal Welding Conference, Livonia, Michigan, USA, 9-12 May, 2006.

170. A. P. Agalgaonkar, C. V. Dobariya, M. G. Kanabar, S. A. Khaparde, and S. V. Kulkarni, “Optimal sizing of distributed generators in micro-grid,” Paper No. 349, IEEE Power India Conference, April 10-12, 2006, New Delhi.

171. S. V. Kulkarni, G. B. Kumbhar, Ashish Gupta, and Sourabh Varma, “Applications of field-circuit coupled formulations for reliability enhancement of transformers,” International Conference on Transformers TRAFOTECH 2006, January 20-21, Session II, Paper 4, pp. II 60-66.

172. S. Kumar, G. B. Kumbhar, S. V. Kulkarni, R. P. R. C. Aiyar, and S. V. Desai, “Electromagnetic forming: A case study of coupled magneto-mechanical formulation,” ISEF 2005 - XII International Symposium on Electromagnetic Fields in Mechatronics, Electrical and Electronic Engineering, Baiona, Spain, September 15-17, 2005, Paper No. EE-2.22.

173. C. V. Dobariya, A. P. Agalgaonkar, S. A. Khaparde, S. V. Kulkarni, A. R. Abhyankar, “Economic analysis of distributed generators,” International Conference on Computer Applications in Electrical Engineering - Recent Advances, Roorkee, September 29 - October 1, 2005, pp. 93-97.

174. S. V. Kulkarni, R. P. R. C. Aiyar, and R. K. Shevgaonkar, ”Computational electromagnetics: issues, trends and applications,” ISEF 2005 - XII International Symposium on Electromagnetic Fields in Mechatronics, Electrical and Electronic Engineering, Baiona, Spain, September 15-17, 2005, Paper No. CE-1.4.

175. S. Verma, G. B. Kumbhar, and S. V. Kulkarni, “Coupled circuit-field formulation for analysis of parallel operation of converters with interphase transformer,” International Conference on Computer Applications in Electrical Engineering - Recent Advances, Roorkee, September 29 - October 1, 2005, pp. 279-282.

176. A. P. Agalgaonkar, S. V. Kulkarni, and S. A. Khaparde, “Multi-attribute decision making approach for strategic planning of DGs,” IEEE PES General Meeting, San Francisco, June 2005, Paper no. 0-7803-9156-X/05.

177. A. P. Agalgaonkar, S. V. Kulkarni, S. A. Khaparde, and S. A. Soman, “Distributed generation opportunity under availability based tariff and reliability considerations,” International Conference on Power Systems, ICPS 2004, Kathmandu, Nepal, 3-5 November, 2004, pp. 368-373.

178. G. B. Kumbhar and S. V. Kulkarni, “Applications of coupled field formulations to power system engineering,” International Conference on Power Systems, ICPS 2004, Kathmandu, Nepal, 3-5 November, 2004, pp. 599-603.

179. S. V. Kulkarni, “Challenges and strategies in transformer design,” Invited Paper, Advanced Research Workshop on Modern Transformers ARWtr 2004, Vigo, Spain, October 28-30, 2004.

180. N. R. Deshpande, S. V. Kulkarni, V. M. Gadre, and S. A. Khaparde, “Recent trends in applications of wavelet transform to power system engineering,” 36th North American Power Symposium, Idaho, USA, August 2004.

181. P. K. Kukde, D. A. Sathe, and S. V. Kulkarni, “Accelerated power development and reform programme in India,” IEEE PES General Meeting, Denver, 2004, Paper No. 0-7803-8456-2/04.

182. J. Deo, S. A. Khaparde, S. V. Kulkarni, and A. P. Agalgaonkar, “Restructuring issues faced by power industry in Maharashtra, India,” International Conference on Electrical Supply Industry in Transition: Issues and Prospects for Asia, Bangkok, 14-16 January, 2004, pp. 11:1-11:14.

183. A. G. Bhutad, S. V. Kulkarni, and S. A. Khaparde, “Three-phase load flow methods for radial distribution networks,” IEEE TENCON Conference, Bangalore, 15-17 October, 2003, pp. 781-785.

184. A. P. Agalgaonkar, S. V. Kulkarni, and S. A. Khaparde, “Impact of wind generation on losses and voltage profile in a distribution system,” IEEE TENCON Conference, Bangalore, 15-17 October, 2003, pp. 775-779.

185. M. Nabi, V. R. Sule, and S. V. Kulkarni, “Efficient FE modeling and solution scheme for repeated computation through exploitation of coefficient matrix structure,” 6th International Symposium on Electric and Magnetic Fields, Aachen, Germany, 6-9 October, 2003, pp. 297-300.

186. S. V. Kulkarni, G. B. Kumbhar, and M. Nabi, “Current trends in coupled field formulations in electrical machinery,” 6th International Symposium on Electric and Magnetic Fields, Aachen, Germany, 6-9 October, 2003, pp. 287-291.

187. S. V. Kulkarni, S. A. Khaparde, and R. G. Karandikar, “Strategic optimal bidding by schedule coordinator for distributed generators in deregulated power system,” Power Systems 2003: Distributed Generation and Advanced Metering, Clemson, USA, March 12-14, 2003.

188. S. V. Kulkarni, S. A. Khaparde, and A. P. Agalgaonkar, “Optimal placement and penetration level assessment of distributed generation in MV distribution systems,” Power Systems 2003: Distributed Generation and Advanced Metering, Clemson, USA, March 12-14, 2003.

189. V. K. Lakhiani and S. V. Kulkarni, “Insulation design of EHV transformers – a review,” International Insulation Conference, INSUCON 2002, Berlin, Germany, 18-20 June, 2002, pp. 283-287.

190. S. V. Manerikar and S. V. Kulkarni, “Globalization: Issues before Indian transformer manufactures,” TRAFOTECH - 2002, International Conference on Transformers, Mumbai, 24-25 January 2002, pp. 143-147.

191. V. K. Lakhiani and S. V. Kulkarni, “Short circuit withstand of transformers – a perspective,” TRAFOTECH - 2002, International Conference on Transformers, held at Mumbai, 24-25 January 2002, pp. 34-38.

192. S. V. Kulkarni, S. Palanivasagam, and M. Yaksh, “Calculation of circulating current loss in transformer windings using FE Analysis,” ANSYS Users Conference, Pittsburgh, USA, August 27-30, 2000.

193. S. V. Kulkarni, “Advanced FEM analysis for reliability enhancement of transformers,” Third International R & D Conference 2000, Jabalpur, India, March 2000, pp. 390-395.

194. S. V. Kulkarni and S. A. Khaparde, “Stray loss evaluation in power transformers - a review,” IEEE PES Winter Meeting 2000, Singapore, January 2000, Paper no. 0-7803-5938-0/00.

195. G. Zwolinski, J. Turowski, S. V. Kulkarni, and D. A. Koppikar, “Method of fast computation of 3-D stray field and losses in highly asymmetric transformers,” TRAFOTECH'98, International Conference on Transformers, held at Mumbai 23-24 January 1999, pp I 51-58.

196. D. A. Koppikar, S. V. Kulkarni, and A. K. Dubey, “Optimization of EHV transformer insulation by statistical analysis,” ISH'97, International Symposium on High Voltage Engineering, Montreal, 25-29 August 1997, Vol. 6, pp. 289-292.

197. P. S. Mashelkar and S. V. Kulkarni, “Value engineering on 315 MVA, 400/220/33 kV auto transformer,” INVEST-96, International Conference on Value Engineering, Jamshedpur, 15-16 November 1996.

198. D. A. Koppikar, S. V. Kulkarni, and J. Turowski, “Industrial verification of 3-D hybrid analytically numerical calculation of stray field and losses in 3-phase power transformers,” ISEF–1995, International Symposium on Electromagnetic Fields, Thessaloniki, Greece, 25-27 September 1995, pp. 345-348.

199. S. V. Kulkarni and B. Ramachandrudu, “Orthogonal array design of experiments for analysis of key performance parameter of transformer,” First World Congress for Total Quality Management organised by Sheffield Hallam University and Royal Statistical Society, Sheffield, United Kingdom, 10-12 April 1995, pp. 201 - 204.

200. S. V. Kulkarni, “Influence of system operating conditions on magnetizing inrush current of transformer,” TRAFOTECH-94, International Conference on Transformers, Bangalore, 20 - 21 January 1994, pp. VI 19 - 23.

201. S. V. Kulkarni, G. S. Gulwadi, R. Ramachandran, and S. Bhatia, “Accurate estimation of eddy loss in transformer windings by using FEM analysis,” TRAFOTECH-94, International Conference on Transformers, Bangalore, 20-21 January 1994, pp. I7 - 10.

202. A. S. Nene, S. V. Kulkarni, and K. Vijayan, “Asymmetrical magnetizing phenomenon of 3-phase core type transformers,” TRAFOTECH-94, International Conference on Transformers, held at Bangalore, 20 - 21 January 1994, pp. IV 21 - 26.

203. B. Prasad, S. V. Kulkarni, S. Magdaleno-Adame, and B. Sai Ram, “An Analytical Formulation for Eddy Current Losses in Conducting Plates under Normal Magnetic Field Excitation,” Presented at 25th International Conference on the Computation of Electromagnetic Fields (COMPUMAG 2025), Naples, Italy, June 22 to 26, 2025.

204. S.V. Kulkarni, “Applications of Artificial Intelligence to Transformers,” Invited Paper, Advanced Research Workshop

on Transformers, ARWtr2025, Baiona, Spain, October 13-15, 2025.

205. Vivek P. V., Anshuman Shukla and S. V. Kulkarni, “Triple-Active Bridge Based Architecture for Power Unbalance Mitigation in MMC-PV Systems,” in Proceedings of 51st Annual Conference of the IEEE Industrial Electronics Society (IECON 2025), Madrid, Spain, October 14-17, 2025.

National Conferences

206. Santosh V. Singh, A. M. Kulkarni, H. J. Bahirat, S. V. Kulkarni, P. K. Gargava, “Analysis of the Transformer Failure using a Measurement-Simulation Approach: A Case Study,” National Conference on Failure of Major Equipments of Sub Station - Case Studies (Under the aegis of CIGRE NSC B3 on Substations), CBIP, New Delhi, February 2023.

207. G. B. Kumbhar and S. V. Kulkarni, “A directly coupled field-circuit model of a transformer to study surge phenomena and for frequency response analysis,” 18th National Power Systems Conference, Guwahati, December 2014.

208. S. V. Kulkarni, “Advanced electromagnetic and coupled field computations for improving performance and reliability of power transformers,” Annals of the Indian National Academy of Engineering, Vo. X, April 2013, pp. 111-116.

209. S. V. Kulkarni and P. M. Joshi, “Determining deformations in transformers,” Efficient Infrastructure Magazine, Vol. 1, February/March 2013, pp. 30-32.

210. K. P. Badgujar and S. V. Kulkarni, “Fuzzy Logic Based Identification of Deviations in Frequency Response of Transformer Windings” in Proceedings of 17th NPSC 2012, IIT BHU, Varanasi, India, Session 5, paper ID 12145, Dec 2012.

211. S. S. P. Alapati and S.V. Kulkarni, “Coupled Magnetic-Structural Finite Element Analysis,” COMSOL Conference, November 13-14, 2009, Bangalore.

212. R. S. Bhide and S. V. Kulkarni, “Comparison of Interphase Transformer and Five-Legged Transformer Options for Low-Voltage High-Current Applications,” Electrical India, A Chary Publication, pp. 54-61, Aug. 2009

213. A. P. S. Baghel, R. V. Thakar, S. V. Kulkarni, and S. Chauhan, ”Linear Magneto-Structural Analysis by Sequential Coupling Method,” National Conference on Technological Advances & Computational Trends in Electrical Engineering (TACT), March 2009, pp. 239-243.

214. Chikku Abraham, Avinash S. Bhangaonkar, and S. V. Kulkarni, “Towards Development of Competence in Simulation and Measurement of Partial Discharge Signals in the UHF Range,” Fifteenth National Power Systems Conference (NPSC), IIT Bombay, December 2008, pp. 436-441.

215. M. B. Sivapriya, S. V. Kulkarni, and R. Banerjee, ”Issues of Small Isolated Power Networks with Distributed Generation,” Fifteenth National Power Systems Conference (NPSC), IIT Bombay, December 2008, pp. 164-168.

216. S. V. Kulkarni, “Transformers - The Vital Components in Power System,” Electrical India Magazine, August 2007, pp. 72-74.

217. A. V. Kank and S. V. Kulkarni, “Analysis of Lorentz and saliency forces in rotating machines,” Proceedings of COMSOL Users Conference 2006, Bangalore, November 2006, pp. 18-21.

218. Avinash S. Bhangaonkar, Deepak B. Mahajan, and S. V. Kulkarni, “Partial discharge diagnostics in transformers: journey so far and road ahead,” The IndiaDoble 2006 Colloquium, Baroda, India, March 6-8, 2006.

219. R. T. Keshwani, S. V. Kulkarni, and S. Bhattacharya, “Defect characterization of instrumented pipeline inspection gauge using COMSOL Multiphysics,” Invited Paper, published in e-News of Innovate Software Solutions Pvt. Ltd., January 2006, pp. 1-6.

220. S. V. Kulkarni and N. K. Gavli, “Transformer monitoring: recent trends and case study,” Invited Paper, Workshop on

Substation and Distribution Automation, Crompton Greaves Limited, Kanjur, Mumbai, October, 2005.

221. G. D. Patil and S. V. Kulkarni, “Performance assessment of load flow techniques for unbalanced distribution systems,” 13th National Power Systems Conference, December 27-30, 2004, Chennai, pp. 134-139.

222. R. T. Keshwani, S. V. Kulkarni, S. Bhattacharya, and S. Makhija, “Models and computational techniques for reliable detection of defects in pipelines using IPIG,” National Conference on Trends of Computational Techniques in Engineering, Longowal, October 15-16, 2004, pp. 77-83.

223. S. V. Kulkarni and M. Nabi, “Finite element computation and analysis of electromagnetic systems: major issues and trends,” Invited Paper, National Conference on Trends of Computational Techniques in Engineering, Longowal, October 15-16, 2004, pp. 651-659.

224. S. V. Kulkarni, “Distribution automation: opportunities and challenges,” Invited Paper, National Seminar on Electrifying India - Engineering Management in Power Sector, IEEE EMS Bombay Chapter, February 2004.

225. S. A. Khaparde, S. V. Kulkarni, and R. G. Karandikar, “The issues of implementation of DG in rural distribution network,” DISGEN 2003, Conference on Distributed Power Generation, Confederation of Indian Industry, Bangalore, 20-21 February 2003.

226. S. A. Khaparde, S. V. Kulkarni, R. G. Karandikar, and A. P. Agalgaonkar, “Role of distributed generation in Indian scenario,” South Asia Regional Conference on Transitions towards Sustainable Development, New Delhi, 10-11 February, 2003.

227. L. R. Subramanyan, S. V. Kulkarni, and L. Kumar, “Distribution automation: advantages and issues of implementation,” IEEE ACE-2001: 27th Annual Convention and Exhibition of IEEE India Council, November 2-3, 2001, New Delhi, pp. 215-219.

228. V. K. Reddy and S. V. Kulkarni, “Estimation of natural frequencies of power transformer windings by FEM analysis,” NIIT-ANSYS Users Conference, Pune, India, November 16-17, 2000.

229. S. V. Kulkarni, “Comprehensive design verification of transformers by FEM analysis,” NIIT-ANSYS Users Conference, Pune, India, November 16-17, 2000.

230. K. V. Pawaskar and S. V. Kulkarni, “Latest trends in the field of transformers,” All India Conference on Electrical System - Transformers, 18-19 December, 1998, Mumbai, pp. 01-09.

231. D. A. Koppikar, S. V. Kulkarni, and S. P. Nangrani, “Reliability of EHV transformer insulation under short circuit condition,” Fourth Conference on EHV Technology, IISc Bangalore, 17-18 July 1998, pp. 72-76.

232. D. A. Koppikar, S. V. Kulkarni, and S. A. Khaparde, “Overfluxing simulation of transformer by 3D FEM analysis,” Fourth Conference on EHV Technology, IISc Bangalore, 17-18 July 1998, pp. 69-71.

233. D. A. Koppikar, K. Vijayan, and S. V. Kulkarni, “FEM analysis for optimization and reliability improvement of EHV transformers and reactors,” Third Workshop and Conference on EHV Technology, IISc Bangalore, 2-4 August 1995, pp. 63-66.

234. S. V. Kulkarni, R. T. Valunjkar, S. K. Banerjee, “Fault performance of AC network influenced by DC link,” NPSC-1990, Fourth National Power System Conference, 1990, Bombay, pp. 70-75.

Last updated on May 31, 2026