

# Dr. Mohammad Yazdani-Asrami

<https://www.gla.ac.uk/schools/engineering/staff/mohammadyazdani-asrami/>

PhD in Electrical Engineering, Member of IEEE (MIEEE), Member of IET (MIET), Member of CIGRE, Member of Cryogenic Society of America (MCSA), Member of British Cryogenic Council (MBCC)  
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## ***Work Experiences***

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- ❖ **Jan 2022 – Now** Lecturer in electrically powered aircraft and operations, Propulsion, Electrification & Superconductivity Group, Autonomous Systems & Connectivity Division, James Watt School of Engineering, University of Glasgow, United Kingdom
- ❖ **Nov 2019 – Dec 2021** Postdoctoral Research Associate, Department of Electronics and Electrical Engineering, University of Strathclyde, United Kingdom
- ❖ **Oct 2018 – Sep 2019** Project Engineer: Testing of Electric Machines and Components, Department of Warwick Manufacturing Group (WMG), University of Warwick, United Kingdom
- ❖ **July 2016 – Sep 2017** Research Assistant, Robinson Research Institute, Victoria University of Wellington, New Zealand
- ❖ **Sep 2012 – June 2016** PhD Research Assistant, Babol Noshirvani University of Technology, Iran
- ❖ **Oct 2011 – Aug 2012** Electrical Engineer, Afshin Faraz Keyhan Electrical Company, Iran

## ***Research Interests, Skills and Expertise***

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<https://www.gla.ac.uk/schools/engineering/research/divisions/aerospace/researchthemes/propulsionelectrificationnsuperconductivity/>

- ✓ Superconducting winding modelling, manufacturing and testing
  - Cryo-electrification for transportation applications such as electric aircraft (superconducting propulsion system, cryogenic cooling system design, hydrogen-based system)
  - Design and development of large-scale superconducting power components, such as rotating machines, cables, transformers, FCLs
- ✓ Artificial Intelligence technique for smart superconducting applications
  - Real time AC loss prediction
  - Fault detection and discrimination of superconducting coils
  - Optimal design of superconducting devices

## ***Honors & Awards***

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- ❖ Endorsed by the "UK Royal Academy of Engineering" under "Global Talent" Scheme on April 2021.
- ❖ Won "IOP trusted reviewer status" award of Institute of Physics (IOP) on March 2021.

## ***Professional activities: Board Membership***

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Dr Mohammad Yazdani-Asrami is member of management team or board in:

- ❖ *Member of Board of Directors in Jet Perfect Ltd, USA:*

<https://jetperfect.org/our-people>

- ❖ *Consulting Centre on Superconductivity Applications Coordinator:*

<https://www.cost.eu/actions/CA19108/#tabs+Name:Main%20Contacts%20and%20Leadership>

Dr Mohammad Yazdani-Asrami is member of editorial board of the following journals:

- ❖ *Transformer Magazines*  
<http://www.transformers-magazine.com/>
- ❖ *World Journal of Engineering, Emerald Publishing*  
<https://www.emeraldgrouppublishing.com/journal/wje>
- ❖ *International Journal of Power Electronics and Drive Systems (IJPEDS)*  
<http://iaesjournal.com/online/index.php/IJPEDS/about/editorialTeam>

Dr Mohammad Yazdani-Asrami acted as member of guest editorial board of the following journals/conferences:

- ❖ *"Artificial Intelligence for Large Scale Power Applications" special session in Applied Superconductivity Conference (ASC2022)* March 2022 – Dec 2022
- ❖ *"MT27" special issue in IEEE Transaction of Applied Superconductivity* Nov 2021 – May 2022
- ❖ *"Artificial intelligence and big data for superconductivity" special focus issue in journal of "Superconductor Science and Technology"* March 2021 – March 2022
- ❖ *"ASC2020" special issue in IEEE Transaction of Applied Superconductivity* Nov 2020 – May 2021
- ❖ *"Superconductivity" special issue in Transformer Magazine* Nov 2020 – May 2021
- ❖ *"Power Substation" special issue in Transformer Magazine* Jan 2019 – May 2019

### **Keynote Talk/Speech**

Dr M. Yazdani-Asrami delivered talks on electrical engineering and applied superconductivity, including:

- ❖ *"Artificial Intelligence techniques for superconductivity"*  
[Invited talk in Victoria University of Wellington, New Zealand - June 2021](#)
- ❖ *"Artificial Intelligence opportunities for applied superconductivity"*  
[Joint Seminar of the UK Applied Superconductivity Seminar Series and European Society of Applied Superconductivity - February 2021](#)
- ❖ *"Large scale applied superconductivity for electric aircraft applications"*  
[Iran National School of Superconductivity and its applications \(NSAS2021\) - February 2021](#)
- ❖ *"Harmonic impacts for AC loss on HTS transformers and machines"*  
[UK Applied Superconductivity Seminar Series - July 2020](#)
- ❖ *"Challenges of Application of HTS Transformer in Power Grid"*  
[Ferdowsi University of Mashhad, Iran – December 2019](#)
- ❖ *"Fault-tolerant current-limiting high temperature superconducting transformers"*  
[Shahrood University of Technology, Iran– December 2019](#)

### **Review activity**

Dr Mohammad Yazdani-Asrami is an active reviewer in the field of electrical engineering and applied superconductivity for more than 40 international journals, including IEEE Transactions, IET journals, and Elsevier journals. <https://publons.com/researcher/3334088/mohammad-yazdani-asrami/peer-review/>

#### ➤ **Grant/funding review activity**

- 1) UK Engineering and Physical Sciences Research Council (EPSRC) Review College, UK Dec 2021
- 2) Poland National Science Center, Poland March 2021

### **Selected Academic Publications**

Dr Mohammad Yazdani-Asrami has been published more than 70 peer-reviewed papers in international journals, conferences, and workshops, in English. Some of his selected publications are as follows:

- 1) **M. Yazdani-Asrami**, A. Sadeghi, W. Song, A. Madureira, J. Murta-Pina, A. Morandi, and M. Parizh, "Artificial Intelligence Methods for Applied Superconductivity: Material, Design, Manufacturing, Testing, Operation, and Condition Monitoring," ***Superconductor Science and Technology (IOP – IF: 3.219)***, Under Review, 2022.
- 2) **M. Yazdani-Asrami**, A. Sadeghi, S. M. Seyyedbarzegar, and W. Song, "DC Electro-Magneto-Mechanical Characterization of 2G HTS Tapes for Superconducting Cable in Magnet System Using Artificial Neural Networks," ***IEEE Transactions on Applied Superconductivity (IEEE - IF: 1.692)***, Under Review, 2022.
- 3) A. Sadeghi, S. M. Seyyedbarzegar, and **M. Yazdani-Asrami**, "Investigation on the Electrothermal Performance of a High Temperature Superconducting Cable in an Offshore Wind Farm Integrated Power System: Fault and Islanding Conditions," ***IEEE Transactions on Applied Superconductivity (IEEE - IF: 1.692)***, Under Review, 2022.
- 4) **M. Yazdani-Asrami**, A. Sadeghi, M. D. Atrey, "Selecting a Cryogenic Cooling System for Superconducting Machines: General Considerations for Electric Machine Designers and Engineers," ***International Journal of Refrigeration (Elsevier – IF: 3.461)***, May 2022.
- 5) **M. Yazdani-Asrami**, A. Sadeghi, S. M. Seyyedbarzegar, and A. Saadat, "Advanced experimental-based data-driven model for the electromechanical behavior of twisted YBCO tapes considering thermomagnetic constraints," ***Superconductor Science and Technology (IOP – IF: 3.219)***, vol. 35, no. 5, 2022.
- 6) **M. Yazdani-Asrami**, S. M. Seyyedbarzegar, M. Zhang, and W. Yuan, "Insulation Materials and Systems for Superconducting Powertrain Devices in Future Cryo-Electrified Aircraft: Part I—Material Challenges and Specifications, and Device-Level Application," ***IEEE Electrical Insulation Magazine (IEEE - IF: 3.217)***, vol. 38, no. 2, pp. 23-36, 2022.
- 7) E. Tsotsopoulou, X. Karagiannis, P. Papadopoulos, A. Dyško, **M. Yazdani-Asrami**, C. Booth, and D. Tzelepis, "Time-domain protection of superconducting cables based on artificial intelligence classifiers," ***IEEE Access (IEEE – IF: 3.745)***, vol. 10, 2022, pp. 10124-10138.
- 8) A. Sadeghi, S. M. Seyyedbarzegar, and **M. Yazdani-Asrami**, "A Simple and Fast Computation Equivalent Circuit Model to Investigate the Effect of Tape Twisting on the AC Loss of HTS Cables," ***Engineering, Technology & Applied Science Research (ETASR)***, vol. 12, no. 1, pp. 8168-8174, 2022.
- 9) **M. Yazdani-Asrami**, M. Taghipour-Gorjkolaie, W. Song, M. Zhang, S. Chakraborty, and W. Yuan, "Artificial intelligence for superconducting transformers," ***Transformers Magazine: special issue on Superconductivity***, vol. 9, pp. 60-68, 2021.
- 10) **M. Yazdani-Asrami**, W. Song, M. Zhang, W. Yuan, and X. Pei, "Magnetization Loss in HTS Coated Conductor Exposed to Harmonic External Magnetic Fields for Superconducting Rotating Machine Applications," ***IEEE Access (IEEE – IF: 3.745)***, vol. 9, 2021, pp. 77930-77937.
- 11) A. Sadeghi, S. M. Seyyedbarzegar, and **M. Yazdani-Asrami**, "Transient analysis of a 22.9 kV/2 kA HTS cable under short circuit using equivalent circuit model considering different fault parameters," ***Physica C: Superconductivity and its Applications (Elsevier - IF: 1.241)***, vol. 589, pp. 1-11, 2021, Art. no. 1353935.
- 12) W. Song, X. Pei, H. Alafnan, J. Xi, X. Zeng, **M. Yazdani-Asrami**, B. Xiang, and Z. Liu, "Experimental and Simulation Study for Resistive Helical HTS Fault Current Limiter: Quench and Recovery Characteristics," ***IEEE Transactions on Applied Superconductivity (IEEE - IF: 1.692)***, vol. 31, no. 5, pp. 1-6, 2021, Art. no. 5601106.
- 13) N. Arish, F. Marignetti, and **M. Yazdani-Asrami**, "Comparative Study of a New Structure of HTS-Bulk Axial Flux-Switching Machine," ***Physica C: Superconductivity and its Applications (Elsevier - IF: 1.241)***, vol. 584, pp. 1-8, 2021, Art. no. 1353854.
- 14) G. Messina, **M. Yazdani-Asrami**, F. Marignetti, and A. della Corte, "Characterization of HTS Coils for Superconducting Rotating Electric Machine Applications: Challenges, Material Selection, Winding Process,

- and Testing," ***IEEE Transactions on Applied Superconductivity (IEEE - IF: 1.692)***, vol. 31, no. 2, pp. 1-10, 2021, Art. no. 20193017.
- 15) **M. Yazdani-Asrami**, S. Asghar Gholamian, S. M. Mirimani, and J. Adabi, "Influence of Field-Dependent Critical Current on Harmonic AC Loss Analysis of HTS Coils for Application of Superconducting Transformers Supplying Non-Linear Loads," ***Cryogenics (Elsevier – IF: 1.336)***, vol. 113, 2021, Art. no. 103234.
  - 16) **M. Yazdani-Asrami**, M. Zhang, and W. Yuan, "Challenges for developing high temperature superconducting ring magnets for rotating electric machine applications in future electric aircrafts," ***Journal of Magnetism and Magnetic Materials (Elsevier – IF: 2.717)***, vol. 522, 2021, Art. no. 167543.
  - 17) **M. Yazdani-Asrami**, M. Taghipour-Gorjikolaie, W. Song, M. Zhang, and W. Yuan, "Prediction of Nonsinusoidal AC Loss of Superconducting Tapes using Artificial Intelligence-based Models," ***IEEE Access (IEEE – IF: 3.745)***, vol. 8, 2020, pp. 207287-207297.
  - 18) **M. Yazdani-Asrami**, W. Song, M. Zhang, W. Yuan, and X. Pei, "AC Transport Loss in Superconductors Carrying Harmonic Current with Different Phase Angles for Large Scale Power Components," ***IEEE Transactions on Applied Superconductivity (IEEE - IF: 1.692)***, vol. 31, no. 1, pp. 1-5, 2021, Art. no. 5900205.
  - 19) W. Song, X. Pei, X. Zeng, **M. Yazdani-Asrami**, X. Fang, J. Fang, and Z. Jiang, "AC Losses in Non-inductive SFCL Solenoidal Coils Wound by Parallel Conductors," ***IEEE Transactions on Applied Superconductivity (IF: 1.692)***, vol. 30, no. 8, 2020, Art. no. 5602509.
  - 20) **M. Yazdani-Asrami**, M. Staines, G. Sidorov, and A. Eicher, "Heat transfer and recovery performance enhancement of metal and superconducting tapes under high current pulses for improving fault current limiting behavior of HTS transformers," ***Superconductor Science and Technology (IOP – IF: 3.067)***, vol. 33, no. 9, 2020, pp. 1-18.
  - 21) **M. Yazdani-Asrami**, W. Song, X. Pei, M. Zhang, and W. Yuan, " AC Loss Characterization of HTS Pancake and Solenoid Coils Carrying Nonsinusoidal Currents," ***IEEE Transactions on Applied Superconductivity (IF: 1.692)***, vol. 30, no. 5, 2020, Art. no. 5900709.
  - 22) **M. Yazdani-Asrami**, M. Staines, G. Sidorov, N. Allpress, N. Glasson, S. Asghar Gholamian, "Fault current limiting HTS transformer with extended fault withstand time," ***Superconductor Science and Technology (IOP – IF: 3.067)***, vol. 32, no. 3, 2019, Art. no. 035006.
  - 23) **M. Yazdani-Asrami**, S. Asghar Gholamian, S. M. Mirimani, and J. Adabi, "Experimental Investigation for Power Loss Measurement of Superconducting Coils under Harmonic Supply Current," ***Measurement (Elsevier – IF: 2.791)***, vol. 132, 2019.
  - 24) **M. Yazdani-Asrami**, S. Asghar Gholamian, S. M. Mirimani, and J. Adabi, "Calculation of AC Magnetizing Loss of ReBCO Superconducting Tapes Subjected to Applied Distorted Magnetic Fields," ***Journal of Superconductivity and Novel Magnetism (Springer – IF: 1.13)***, vol. 31, no. 4, 2018.
  - 25) **M. Yazdani-Asrami**, S. Asghar Gholamian, S. M. Mirimani, and J. Adabi, "Investigation on Effect of Magnetic Field Dependency Coefficient of Critical Current Density on the AC Magnetizing Loss in HTS Tapes Exposed to External Field," ***Journal of Superconductivity and Novel Magnetism (Springer – IF: 1.13)***, vol. 31, no. 4, 2018.
  - 26) A. Ghabeli, **M. Yazdani-Asrami**, and S. Asghar Gholamian, "A Novel Unsymmetrical Multi-Segment Concentric Winding Scheme for Electromagnetic Force and Leakage Flux Mitigation in HTS Power Transformers," ***IEEE Transactions on Applied Superconductivity (IF: 1.692)***, vol. 25, no. 6, 2015.
  - 27) **M. Yazdani-Asrami**, M. Taghipour Gorjikolaie, M. Razavi, and S. Asghar Gholamian, "A Novel Intelligent Protection System for Power Transformers Considering Possible Electrical Faults, Inrush Current, CT Saturation and Over-Excitation," ***International Journal of Electrical Power and Energy Systems (Elsevier – IF: 4.418)***, vol. 64, no. 1, 2015.