

AC magnetic loss reduction of SLM processed Fe-Si for additive manufacturing of electrical machines

Tiismus, Hans; Kallaste, Ants; Belahcen, Anouar; Tarraste, Marek; Vaimann, Toomas; Rassõlkin, Anton; Asad, Bilal; Shams Ghahfarokhi, Payam Energies 2021 / 13 p. : ill <https://doi.org/10.3390/en14051241> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Additive Manufacturing and Performance of E-Type Transformer Core

Tiismus, Hans; Kallaste, Ants; Belahcen, Anouar; Rassõlkin, Anton; Vaimann, Toomas; Shams Ghahfarokhi, Payam Energies 2021 / art. 3278 <https://doi.org/10.3390/en14113278> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Additive manufacturing of Nd-based permanent magnets from recycled materials : innovations, challenges, and prospects

Sarwar, Waqas Ahmed; Tiismus, Hans Future Frontiers : PhD Conference on Emerging Technologies : Book of Abstracts 2025 / p. 25 ; poster 16 https://tuit.ut.ee/sites/default/files/2025-05/PhD%20Conference%202025%20Book%20of%20Abstracts_pub3.pdf

Additive manufacturing of prototype axial flux switched reluctance electrical machine

Tiismus, Hans; Kallaste, Ants; Belahcen, Anouar; Vaimann, Toomas; Rassõlkin, Anton 2021 28th International Workshop on Electric Drives : Improving Reliability of Electric Drives (IWED) 2021 / 4 p. : ill <https://doi.org/10.1109/IWED52055.2021.9376337>

Additively manufactured spoke-type permanent magnet rotors : Solutions to multidisciplinary design challenges and comparison with traditional design

Ajamloo, Akbar Mohammadi; Tiismus, Hans; Kallaste, Ants; Ibrahim, Mohamed N.; Sergeant, Peter IEEE transactions on energy conversion 2025 / 12 p. <http://doi.org/10.1109/TEC.2025.3619827> <https://ieeexplore.ieee.org/document/11197694>

Application of active thermography for the study of losses in components produced by laser powder Bed fusion

Quercio, Michele; Poskovic, Emir; Franchini, Fausto; Fracchia, Elisa; Ferraris, Luca; Canova, Aldo; Tenconi, Alberto; Tiismus, Hans; Kallaste, Ants Journal of magnetism and magnetic materials 2024 / art. 171796 <https://doi.org/10.1016/j.jmmm.2024.171796> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Axial synchronous magnetic coupling modeling and printing with selective laser melting

Tiismus, Hans; Kallaste, Ants; Vaimann, Toomas; Rassõlkin, Anton; Belahcen, Anouar 2019 IEEE 60th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON), 7-9 October 2019 : conference proceedings 2019 / 4 p. : ill <https://doi.org/10.1109/RTUCON48111.2019.8982344>

Challenges of additive manufacturing of electrical machines

Tiismus, Hans; Kallaste, Ants; Belahcen, Anouar; Rassõlkin, Anton; Vaimann, Toomas 2019 IEEE 12th International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives (SDEMPED), 27-30 Aug. 2019, Toulouse, France : proceedings 2019 / p. 44-48 : ill <https://doi.org/10.1109/DEMPED.2019.8864850>

Comparative Study of Advanced Heatsink Structures for Improved Thermal Performance in Axial Flux Motors

Sarap, Martin; Singh, Shalini; Kallaste, Ants; Qureshi, Ahmed Jawad; Tiismus, Hans; Vaimann, Toomas; Shams Ghahfarokhi, Payam IEEE Access 2025 / p. 100850-100860 <https://doi.org/10.1109/ACCESS.2025.3577289>

Concepts of additively manufactured electrical machines and components

Vaimann, Toomas; Tiismus, Hans; Kallaste, Ants 2023 23rd International Scientific Conference on Electric Power Engineering (EPE) 2023 / 6 p <https://doi.org/10.1109/EPE58302.2023.10149252>

Control challenges of 3D printed switched reluctance motor

Rassõlkin, Anton; Kallaste, Ants; Vaimann, Toomas; Tiismus, Hans 2019 26th International Workshop on Electric Drives : Improvement in Efficiency of Electric Drives (IWED) : Moscow Power Engineering Institute, Moscow, Russia 30th of January - 02nd of February 2019 : proceedings 2019 / 5 p. : ill <https://doi.org/10.1109/IWED.2019.8664282>

Corrections to “Opportunities and Challenges of Utilizing Additive Manufacturing Approaches in Thermal Management of Electrical Machines”

Shams Ghahfarokhi, Payam; Podgornovs, Andrejs; Kallaste, Ants; Marques Cardoso, Antonio J.; Belahcen, Anouar; Vaimann, Toomas; Tiismus, Hans; Asad, Bilal IEEE Access 2021 / p. 62532 <https://doi.org/10.1109/ACCESS.2021.3074827> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Design and performance of laser additively manufactured core induction motor

Tiismus, Hans; Kallaste, Ants; Naseer, Muhammad Usman; Vaimann, Toomas; Rassõlkin, Anton IEEE Access 2022 / p. 50137-50152 <https://doi.org/10.1109/ACCESS.2022.3173317> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Design of an additively manufactured polymer composite electrical machine

Sarap, Martin; Kallaste, Ants; Naseer, Muhammad Usman; Tiismus, Hans; Rjabtšikov, Viktor; Shams Ghahfarokhi, Payam; Vaimann, Toomas; Aman, Alexander; Kutia, Mykhailo 2023 IEEE 17th International Conference on Compatibility, Power Electronics

Design of an additively manufactured thermal solution for an axial flux switched reluctance motor

Sarap, Martin; Singh, Shalini; **Kallaste, Ants;** Jawad Qureshi, Ahmed Jawad; **Tiismus, Hans; Vaimann, Toomas;** Shams Ghahfarokhi, Payam Case studies in thermal engineering 2025 / art. 105805 <https://doi.org/10.1016/j.csite.2025.105805>

Determination of heat transfer coefficient from housing surface of a totally enclosed fan-cooled machine during passive cooling

Shams Ghahfarokhi, Payam; Podgornovs, Andrejs; **Kallaste, Ants;** Cardoso, Antonio J. Marques; **Belahcen, Anouar; Vaimann, Toomas; Asad, Bilal; Tiismus, Hans** Machines 2021 / art. 120 <https://doi.org/10.3390/machines9060120> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Determining the thermal conductivity of additively manufactured metal specimens

Sarap, Martin; Kallaste, Ants; Shams Ghahfarokhi, Payam; Tiismus, Hans; Vaimann, Toomas 2022 29th International Workshop on Electric Drives: Advances in Power Electronics for Electric Drives (IWED) 2022 / 4 p <https://doi.org/10.1109/IWED54598.2022.9722591>

Development and testing of vertical take-off and landing aerial vehicle with tandem electric ducted fan motor

Pütsep, Kristjan; Nerep, Tõivo; Tiismus, Hans; Rassõlkin, Anton Proceedings of the Estonian Academy of Sciences 2023 / p. 184–193 <https://doi.org/10.3176/proc.2023.2.08> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Development of an axial flux SRM through additive manufacturing

Hussain, Shahid; Kallaste, Ants; Naseer, Muhammad Usman; Tiismus, Hans; Vaimann, Toomas 2024 International Conference on Electrical Machines (ICEM) 2024 / 6 p <https://doi.org/10.1109/ICEM60801.2024.10700569>

Direct conductor cooling of outer-rotor machine enabled by additive manufacturing

Sarap, Martin; Kallaste, Ants; Shams Ghahfarokhi, Payam; Tiismus, Hans; Vaimann, Toomas 2023 IEEE International Conference on Electric Machines and Drives (IEMDC) 2023 / 4 p <https://doi.org/10.1109/IEMDC55163.2023.10238858>

Eddy current loss reduction prospects in laser additively manufactured soft magnetic cores

Tiismus, Hans; Kallaste, Ants; Vaimann, Toomas; Rassõlkin, Anton 2022 International Conference on Electrical Machines (ICEM) 2022 / p. 1511-1516 <https://doi.org/10.1109/ICEM51905.2022.9910679>

The effect of build direction on the thermal conductivity of additively manufactured AIS10Mg and silicon-steel samples

Sarap, Martin; Kallaste, Ants; Shams Ghahfarokhi, Payam; Tiismus, Hans; Vaimann, Toomas 2022 International Conference on Electrical Machines (ICEM) 2022 / p. 538-543 <https://doi.org/10.1109/ICEM51905.2022.9910944>

Electrical and thermal anisotropy in additively manufactured AISi10Mg and Fe-Si samples

Sarap, Martin; Tiismus, Hans; Kallaste, Ants; Saarna, Mart; Kolnes, Märt; Shams Ghahfarokhi, Payam; **Vaimann, Toomas** Machines 2025 / art. 1 <https://doi.org/10.3390/machines13010001>

Electrical resistivity of additively manufactured silicon steel for electrical machine fabrication

Tiismus, Hans; Kallaste, Ants; Vaimann, Toomas; Rassõlkin, Anton; Belahcen, Anouar 2019 Electric Power Quality and Supply Reliability Conference (PQ) & 2019 Symposium on Electrical Engineering and Mechatronics (SEEM), Kärda, Estonia, June 12-15, 2019 : proceedings 2019 / 4 p. : ill <https://doi.org/10.1109/PQ.2019.8818252>

Evaluation of 3D-printed magnetic materials for additively-manufactured electrical machines

Selema, Ahmed; Beretta, Margherita; Van Coppenolle, Matty; **Tiismus, Hans; Kallaste, Ants;** Ibrahim, Mohamed N.; Rombouts, Marleen; Vleugels, Jozef; Kestens, Leo A.I.; Sergeant, Peter Journal of magnetism and magnetic materials 2023 / art. 170426, 12 p. : ill <https://doi.org/10.1016/j.jmmm.2023.170426> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Experimental measurements and numerical modelling of additively manufactured Fe-Si cores

Stella, Marco; Faba, Antonio; Fulginei, F. Riganti; Quercio, Michele; Scorretti, Riccardo; Bertolini, Vittorio; Sabino, Luis Gustavo; **Tiismus, Hans; Kallaste, Ants;** Cardelli, Ermanno Journal of magnetism and magnetic materials 2024 / art. 171752 <https://doi.org/10.1016/j.jmmm.2024.171752> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Exploring the Landscape of End User Energy Flexibility: A Systematic Review of Technologies, Challenges, and Opportunities

Maask, Vahur; Agabus, Hannes; Tiismus, Hans; Astapov, Victor; Ahmadiyahangar, Roya; Korõtko, Tarmo; Rosin, Argo IEEE Access 2025 / p. 146579-146602 <https://doi.org/10.1109/ACCESS.2025.3599989> <https://ieeexplore.ieee.org/document/11129056>

Hysteresis loss evaluation of additively manufactured soft magnetic core

Tiismus, Hans; Kallaste, Ants; Belahcen, Anouar; Rassõlkin, Anton; Vaimann, Toomas 2020 International Conference on Electrical Machines (ICEM), 23-26 august 2020, Gothenburg, Sweden : online : proceedings 2020 / p. 1657-1661 <https://doi.org/10.1109/ICEM49940.2020.9270836>

Hysteresis measurements and numerical losses segregation of additively manufactured silicon steel for 3D printing electrical machines

Tiismus, Hans; Kallaste, Ants; Belahcen, Anouar; Vaimann, Toomas; Rassõlkin, Anton; Lukichev, Dmitry Applied sciences 2020 / art. 6515, 15 p <https://doi.org/10.3390/app10186515> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Iron losses evaluation of additively manufactured 6.5 % silicon steel

Tiismus, Hans 19th International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school of energy and geotechnology. III" : Tartu, Estonia, January 14-17, 2020 2020 / p. 103-104 : ill https://www.ester.ee/record=b5291755*est

Isotroopse plaadi Lambi lainete teoreetiline ja eksperimentaalne uurimine

Tiismus, Hans TTÜ üliõpilaste teadustööde konkursi kokkuvõtted : Tipika teaduskonverents, 24. november 2011, Tallinn 2011 / lk. 7

3D-printimine töötab teha mootoritele uuenduskuuri

Tiismus, Hans novaator.err.ee 2023 [3D-printimine töötab teha mootoritele uuenduskuuri](#) <https://digikogu.taltech.ee/et/Item/1a6cde04-f268-42c1-95d7-b9a43dd70046> https://www.ester.ee/record=b5511687*est

Laser additively manufactured magnetic core design and process for electrical machine applications

Tiismus, Hans; Kallaste, Ants; Vaimann, Toomas; Lind, Liina; Virro, Indrek; Rassõlkin, Anton; Dedova, Tatjana Energies 2022 / art. 3665 <https://doi.org/10.3390/en15103665> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Material properties for 3D printing electrical machines

Tiismus, Hans 18th International Symposium "Topical Problems in the Field of Electrical and Power Engineering". Doctoral School of Energy and Geotechnology III : Toila, Estonia, January 14-19, 2019 : [proceedings] 2019 / p. 139-140 https://www.ester.ee/record=b5183874*est

Modelling of magnetization processes of 3D-Printed Fe-Si components by means of an artificial neural network implemented in a FEM scheme

Stella, Marco; Faba, Antonio; Bertolini, Vittorio; Fulginei, F. Riganti; Sabino, Lorenzo; Tiismus, Hans; Kallaste, Ants; Cardelli, Ermanno 2024 International Conference on Electrical Machines (ICEM) 2024 / 7 p <https://doi.org/10.1109/ICEM60801.2024.10700301>

Modelling of magnetization processes of 3D-printed Fe-Si components by means of an artificial neural network implemented in a Finite Element Scheme

Stella, Marco; Faba, Antonio; Bertolini, Vittorio; Riganti-Fulginei, Francesco; Sabino, Lorenzo; Tiismus, Hans; Kallaste, Ants; Cardelli, Ermanno IEEE Open Journal of the Industrial Electronics Society 2025 / p. 1650-1662 <http://doi.org/10.1109/OJIES.2025.3620857> <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=11202631&tag=1>

Opportunities and challenges of utilizing additive manufacturing approaches in thermal management of electrical machines

Shams Ghahfarokhi, Payam; Podgornovs, Andrejs; Kallaste, Ants; Cardoso, Antonio J. Marques; Belahcen, Anouar; Vaimann, Toomas; Tiismus, Hans; Asad, Bilal IEEE Access 2021 / art. 9364970, p. 36368-36381 : ill <https://doi.org/10.1109/ACCESS.2021.3062618> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Optimization of a 3D-printed permanent magnet coupling using genetic algorithm and Taguchi method

Andriushchenko, Ekaterina; Kallaste, Ants; Belahcen, Anouar; Vaimann, Toomas; Rassõlkin, Anton; Heidari, Hamidreza; Tiismus, Hans Electronics 2021 / art. 494, 16 p. : ill <https://doi.org/10.3390/electronics10040494> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Performance evaluation of additive manufacturing based test samples for studies of defects in electrical insulation

Shafiq, Muhammad; Taklaja, Paul; Kiitam, Ivar; Tiismus, Hans; Palu, Ivo; Kütt, Lauri 2021 International Conference on Electrical, Computer and Energy Technologies (ICECET) 2021 / 6 : <https://doi.org/10.1109/ICECET52533.2021.9698476>

Performance of additively manufactured prototype transformer core

Tiismus, Hans 20th International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school of energy and geotechnology. III" : Tallinn, Estonia, September 8-10, 2021 2021 / p. 41-42 : ill https://www.ester.ee/record=b5457278*est

Preliminary analysis of soft magnetic material properties for additive manufacturing of electrical machines

Tiismus, Hans; Kallaste, Ants; Rassõlkin, Anton; Vaimann, Toomas Modern Materials and Manufacturing 2019 : 12th International DAAAM Baltic Conference and 27th International Baltic Conference BALTMATTRIB 2019. Selected, peer reviewed papers from the conference Modern Materials and Manufacturing 2019 (MMM 2019), April 24-26, 2019, Tallinn, Estonia 2019 / p. 270-275 : ill <https://www.scientific.net/KEM.799.270> https://www.ester.ee/record=b5235278*est <https://doi.org/10.4028/www.scientific.net/KEM.799.270> [Conference proceeding at Scopus](#) [Article at Scopus](#)

Preliminary design analysis of an axial flux yokeless stator switched reluctance machine

Hussain, Shahid; Kallaste, Ants; Naseer, Muhammad Usman; Sarap, Martin; Tiismus, Hans; Vaimann, Toomas 2023 IEEE

Production and properties of additively manufactured electrical machine cores = Kihtlisandus meetodil valmistatud elektrimasinate magnetsüdamikud ja nende omadused

Tiismus, Hans 2022 <https://doi.org/10.23658/taltech.49/2022> <https://digikogu.taltech.ee/et/Item/1a6cde04-f268-42c1-95d7-b9a43dd70046>
https://www.ester.ee/record=b5511687*est

Prototype induction motor core preparation with laser additive manufacturing

Tiismus, Hans 21st International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school of energy and geotechnology. III" : Pärnu, Estonia, June 15-18, 2022 2022 / p. 35-36 : ill https://www.ester.ee/record=b5504019*est

Review of technical solutions addressing voltage and operational challenges in a distribution grid with high penetration of intermittent RES

Astapov, Victor; Shabbir, Noman; Rosin, Argo; Kütt, Lauri; Maask, Vahur; Tiismus, Hans Energy reports 2025 / p. 1738-1760
<https://doi.org/10.1016/j.egyr.2025.08.019>

Sliding mean value subtraction-based DC drift correction of B-H curve for 3D-printed magnetic materials

Asad, Bilal; Tiismus, Hans; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Shams Ghahfarokhi, Payam Energies 2021 / art. 284, 10 p <https://doi.org/10.3390/en14020284> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

State of the art of additively manufactured electromagnetic materials for topology optimized electrical machines

Tiismus, Hans; Kallaste, Ants; Vaimann, Toomas; Rassõlkin, Anton Additive manufacturing 2022 / art. 102778, 19 p. : ill <https://doi.org/10.1016/j.addma.2022.102778> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

State-of-the-Art Review of Emerging Trends in Renewable Energy Generation Technologies

Tiismus, Hans; Maask, Vahur; Astapov, Victor; Korõtko, Tarmo; Rosin, Argo IEEE Access 2025 / p. 10820 - 10843
<https://doi.org/10.1109/ACCESS.2025.3528640>

Study of axial flux stator structures in additive manufacturing material and soft magnetic composite

Pierluigi, Amoroso; Poskovic, Emir; Tiismus, Hans; Quercio, Michele; Ferraris, Luca; Tenconi, Alberto 2024 International Conference on Electrical Machines (ICEM) 2024 / 7 p <https://doi.org/10.1109/ICEM60801.2024.10700312>

Teaduspreemia tehnikateaduste alal tööde tsükli "Kihtlisandustehnoloogial põhinevad elektrimasinad" eest : Toomas Vaimann, Anton Rassõlkin, Ants Kallaste (kollektiivi juht) ja Hans Tiismus

Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Tiismus, Hans Eesti Vabariigi preemiad 2022 : teadus. F. J. Wiedemanni keeleauhind. Kultuur. Sport 2022 / lk. 130-145 : ill., fot https://www.ester.ee/record=b1226072*est

Technologies for additive manufacturing of electrical machines

Tiismus, Hans; Kallaste, Ants; Vaimann, Toomas; Rassõlkin, Anton; Belahcen, Anouar 2019 20th International Conference of Young Specialists on Micro/Nanotechnologies and Electron Devices (EDM) 2019 / p. 651-655 : ill <https://doi.org/10.1109/EDM.2019.8823462>

Topology optimization and additive manufacturing of a loudspeaker soft magnetic core

Sarap, Martin; Pärtel, Marcus; Kallaste, Ants; Tiismus, Hans; Vaimann, Toomas 2024 International Conference on Electrical and Computer Engineering Researches (ICECER) 2024 / 5 p <https://doi.org/10.1109/ICECER62944.2024.10920438>

Utilization of additive manufacturing in the thermal design of electrical machines : a review

Sarap, Martin; Kallaste, Ants; Shams Ghahfarokhi, Payam; Tiismus, Hans; Vaimann, Toomas Machines 2022 / art. 251
<https://doi.org/10.3390/machines10040251> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Исследование магнитогидродинамического (МГД)-привода в дозаторном режиме : автореферат ... кандидата технических наук (05.09.03)

Lehtla, Tõnu 1975 https://www.ester.ee/record=b1322410*est