

Acoustic noise computation of electrical motors using the boundary element method

Sathyan, Sabin; Aydin, Ugur; **Belahcen, Anouar** Energies 2020 / art. 0245 <https://doi.org/10.3390/en13010245> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

An advanced diagnostic approach for broken rotor bar detection and classification in DTC controlled induction motors by leveraging dynamic SHAP interaction feature selection (DSHAP-IFS) GBDT methodology

Khan, Muhammad Amir; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants Machines 2024 / art. 495

<https://doi.org/10.3390/machines12070495> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Broken rotor bar fault detection of the grid and inverter-fed induction motor by effective attenuation of the fundamental component

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Iqbal, Muhammad Naveed IET electric power applications 2019 / p. 2005–2014 <https://doi.org/10.1049/iet-epa.2019.0350> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Broken rotor bar fault diagnostic of inverter fed induction motor using FFT, Hilbert and Park's vector approach

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants 2018 XIII International Conference on Electrical Machines

(ICEM 2018) : Alexandroupoli, Greece, 3-6 September 2018 2018 / p. 2352-2358 : ill <https://doi.org/10.1109/ICELMACH.2018.8506957>

Changing of magnetic flux density distribution in a squirrel-cage induction motor with broken rotor bars

Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants Elektronika ir elektrotehnika = Electronics and electrical engineering 2014 / p. 11-14 : ill <https://doi.org/10.5755/j01.eee.20.7.8018> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Characterization of high-frequency impedance-based models for transient terminal overvoltage estimation in cable-fed motor drive systems

Sardar, Muhammad Usman; Vaimann, Toomas; Kütt, Lauri; Asad, Bilal; Kallaste, Ants; Kudelina, Karolina 2024 International Conference on Electrical Machines (ICEM) 2024 / 7 p <https://doi.org/10.1109/ICEM60801.2024.10700495>

Comparative simulation study of pump system efficiency driven by induction and synchronous reluctance motors

Gevorkov, Levon; Dominguez-Garcia, Jose Luis; **Rassõlkin, Anton; Vaimann, Toomas** Energies 2022 / art. 4068

<https://doi.org/10.3390/en15114068> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Comparative study of field-oriented control model in application for induction and synchronous reluctance motors for life-cycle analysis

Autsou, Siarhei; Saroka, Viktor; Karpovich, Dzmitry; **Rassõlkin, Anton; Gevorkov, Levon; Vaimann, Toomas; Kallaste, Ants;**

Belahcen, Anouar; Rassõlkin, Anton 2018 25th International Workshop on Electric Drives: Optimization in Control of Electric Drives (IWED) 2018 / p. 1-5 : ill <https://doi.org/10.1109/IWED.2018.8321371>

Co-simulations of induction machines coupled with a radial ball bearing for mechanical defects analysis

El Bouharrouti, Nada; Sitnikov, Maksim; Hemeida, Ahmed; Martin, Florian; Kudelina, Karolina; Naseer, Muhammad Usman;

Belahcen, Anouar IET Electric Power Applications 2025 / 13 p. : ill <http://dx.doi.org/10.1049/elp2.12529>

Detection of induction motor broken bars in grid and frequency converter supply

Vaimann, Toomas; Belahcen, Anouar; Martinez, Javier; **Kilk, Aleksander** Przegląd elektrotechniczny 2014 / p. 90-94 : ill

<https://www.pe.org.pl/articles/2014/1/22.pdf> [Journal metrics at Scopus](#) [Article at Scopus](#)

Diagnostic possibilities of induction motor bearing currents

Kudelina, Karolina; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Demidova, Galina; Karpovich, Dzmitry 2021 XVIII

International Scientific Technical Conference Alternating Current Electric Drives (ACED) : proceedings 2021 / 5 p. : ill

<https://doi.org/10.1109/ACED50605.2021.9462298>

Digital twin service unit development for an EV induction motor fault detection

Rjabtšikov, Viktor; Mohamed, Mahmoud Ibrahim Hassanin; Asad, Bilal; Rassõlkin, Anton; Vaimann, Toomas; Kallaste, Ants; Kuts, Vladimir; Stepien, Mariusz; Krawczyk, Mateusz 2023 IEEE International Conference on Electric Machines and Drives

(IEMDC) 2023 / 5 p <https://doi.org/10.1109/IEMDC55163.2023.10239085>

The FEM based modeling and corresponding test rig preparation for broken rotor bars analysis

Asad, Bilal; Eensalu, Lauri; Vaimann, Toomas; Kallaste, Ants; 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 / 9 p. : ill <https://doi.org/10.1109/RTUCON48111.2019.8982350>

Harmonic spectrum analysis of induction motor with broken rotor bar fault

Asad, Bilal; Vaimann, Toomas; Kallaste, Ants; Belahcen, Anouar 59th Annual International Scientific Conference on Power and Electrical Engineering : November 12, 13, 2018, Riga Technical University (RTUCON) : conference proceedings 2018 / 7 p. : ill

<https://doi.org/10.1109/RTUCON.2018.8659842>

Harmonics distortion in inverter-fed motor-drive systems : case study

Heidari, Hamidreza; Rassõlkin, Anton; Kallaste, Ants; Vaimann, Toomas; 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.2019.8818230>

Heat pump induction motor faults caused by soft starter topology — case study

Kudelina, Karolina; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Huynh, Van Khang 2021 IEEE 19th International Power Electronics and Motion Control Conference, The Silesian University of Technology Gliwice, Poland, 25 - 29 April, 2021 (PEMC) : proceedings 2021 / p. 454-459 : ill <https://doi.org/10.1109/PEMC48073.2021.9432506>

Hilbert transform, an effective replacement of Park's vector modulus for the detection of rotor faults

Asad, Bilal; Vaimann, Toomas; Kallaste, Ants; 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.2019.8818227>

The impact of load on global parameters of electrical machines in case of healthy and broken rotor bars

Kudelina, Karolina; Raja, Hadi Ashraf; Autso, Siarhei; Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Shabbir, Noman 2022 18th Biennial Baltic Electronics Conference (BEC) 2022 / 5 l. <https://doi.org/10.1109/BEC56180.2022.9935614>

Improved diagnostic approach for BRB detection and classification in inverter-driven induction motors employing sparse stacked autoencoder (SSAE) and lightGBM

Khan, Muhammad Amir; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants Electronics (Switzerland) 2024 / art. 1292 <https://doi.org/10.3390/electronics13071292> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Improving legibility of motor current spectrum for broken rotor bars fault diagnostics

Asad, Bilal; Vaimann, Toomas; Kallaste, Ants; Rassõlkin, Anton; Belahcen, Anouar; Iqbal, Muhammad Naveed Scientific Journal of Riga Technical University. Electrical, control and communication engineering 2019 / p. 1–8 : ill <https://doi.org/10.2478/ecce-2019-0001>

Induction motor bearing currents - causes and damages

Kudelina, Karolina; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Asad, Bilal; Demidova, Galina 2021 28th International Workshop on Electric Drives : Improving Reliability of Electric Drives (IWED) 2021 / 5 p <https://doi.org/10.1109/IWED52055.2021.9376354>

Inverter-fed motor drive system : a systematic analysis of condition monitoring and practical diagnostic techniques

Energies 2023 / art. 5628 <https://doi.org/10.3390/en16155628> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Mechanical vibration analysis of induction machine under dynamic rotor eccentricity [Electronic resource]

Sobra, Jan; Vaimann, Toomas; Belahcen, Anouar 2016 17th International Scientific Conference on Electric Power Engineering (EPE) : proceedings 2016 / [4] p. : ill. [USB] <https://doi.org/10.1109/EPE.2016.7521732>

The modeling and investigation of slot skews and supply imbalance on the development of principal slotting harmonics in squirrel cage induction machines

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Khang, Huynh Van; Shams Ghahfarokhi, Payam; Naseer, Muhammad Usman; Iqbal, Muhammad Naveed IEEE Access 2021 / p. 165932-165946 <https://doi.org/10.1109/ACCESS.2021.3134331> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Modified winding function-based model of squirrel cage induction motor for fault diagnostics

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Iqbal, Muhammad Naveed IET electric power applications 2020 / p. 1722-1734 <https://doi.org/10.1049/iet-epa.2019.1002> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

MWFA model based synthetic data creation and utilization for the training of XGBoost based fault diagnostic algorithm of a squirrel cage induction motor

Asad, Bilal; Khan, Muhammad Amir; Raja, Hadi Ashraf; Vaimann, Toomas; Kallaste, Ants; Naseer, Muhammad Usman 2024 International Conference on Electrical Machines (ICEM) 2024 / 7 p <https://doi.org/10.1109/ICEM60801.2024.10700453>

New opportunities in real-time diagnostics of induction machines

Baraškova, Tatjana; Kudelina, Karolina; Shirokova, Veronika Energies 2024 / art. 3265 <https://doi.org/10.3390/en17133265> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Possibilities of decreasing induction motor bearing currents

Kudelina, Karolina; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants 2021 IEEE Open Conference of Electrical, Electronic and Information Sciences (eStream): proceedings of the conference, April 22, 2021, Vilnius, Lithuania 2021 / 5 p. : ill <https://doi.org/10.1109/eStream53087.2021.9431419>

Production quality related propagating faults of induction machines

Kudelina, Karolina; Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants 2020 XI International Conference on Electrical Power Drive Systems (ICEPDS), Saint-Petersburg, Russia, October 4-7, 2020 2020 / p. 311-315 : ill <https://doi.org/10.1109/ICEPDS47235.2020.9249355>

Re-use and recycling of different electrical machines

Rassõlkin, Anton; Kallaste, Ants; Orlova, Svetlana; Gevorgov, Levon; Vaimann, Toomas; Belahcen, Anouar Latvian journal of physics and technical sciences 2018 / p. 13-23 : ill <https://doi.org/10.2478/lpts-2018-0025> [Journal metrics at Scopus](#) [Article at Scopus](#)

Review of electrical machine diagnostic methods applicability in the perspective of Industry 4.0

Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Belahcen, Anouar Scientific Journal of Riga Technical University. Electrical, control and communication engineering 2018 / p. 108–116 : ill <https://doi.org/10.2478/ecce-2018-0013>

Study of bearing currents in induction machine : diagnostic possibilities, fault detection, and prediction

Kudelina, Karolina; Raja, Hadi Ashraf; Naseer, Muhammad Usman; Autsou, Siarhei; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants Electrical engineering 2024 / 14 p. : ill <https://doi.org/10.1007/s00202-024-02411-x> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

A survey of broken rotor bar fault diagnostic methods of induction motor

Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Kallaste, Ants; Belahcen, Anouar Scientific Journal of Riga Technical University. Electrical, control and communication engineering 2018 / p. 117–124 : ill <https://doi.org/10.2478/ecce-2018-0014>

The cluster computation-based hybrid FEM–analytical model of induction motor for fault diagnostics

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Iqbal, Muhammad Naveed Applied sciences 2020 / art. 7572, 15 p. : ill <https://doi.org/10.3390/app10217572> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

The low voltage start-up test of induction motor for the detection of broken bars

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Heidari, Hamidreza 2020 International Conference on Electrical Machines (ICEM), 23-26 august 2020, Gothenburg, Sweden : online : proceedings 2020 / p. 1481-1487 <https://doi.org/10.1109/ICEM49940.2020.9271018>

Transient modeling and recovery of non-stationary fault signature for condition monitoring of induction motors

Asad, Bilal; Vaimann, Toomas; Belahcen, Anouar; Kallaste, Ants; Rassõlkin, Anton; Shams Ghahfarokhi, Payam; Kudelina, Karolina Applied sciences 2021 / 17 p. : ill <https://doi.org/10.3390/app11062806> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Winding function based analytical model of squirrel cage induction motor for fault diagnostics

Asad, Bilal; Vaimann, Toomas; Kallaste, Ants; Rassõlkin, Anton; Belahcen, Anouar 2019 26th International Workshop on Electric Drives : Improvement in Efficiency of Electric Drives (IWED) : Moscow Power Engineering Institute, Moscow, Russia, 30th of January - 2nd of February 2019 : proceedings 2019 / 6 p. : ill <https://doi.org/10.1109/IWED.2019.8664314>