

Analysis of harmonic current stability and summation of LED lamps

Jarkovoi, Marek; Iqbal, Muhammad Naveed; Kütt, Lauri 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 / 8 p. : ill <https://doi.org/10.1109/PQ.2019.8818237>

Bivariate stochastic model of current harmonic analysis in the low voltage distribution grid

Iqbal, Muhammad Naveed; Kütt, Lauri; Daniel, Kamran; Jarkovoi, Marek; Asad, Bilal; Shabbir, Noman Proceedings of the Estonian Academy of Sciences 2021 / p. 190–206 : ill <https://doi.org/10.3176/proc.2021.2.08> [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](#)

Case study of non-linear PV inverter devices attached to the LV distribution network

Vinnal, Toomas; Puusepp, Hardi; Shabbir, Noman; Kütt, Lauri; Iqbal, Muhammad Naveed Agronomy research 2020 / p. 2639–2652 : ill <https://doi.org/10.15159/AR.20.233> <https://dspace.emu.ee/xmlui/handle/10492/5955> [Journal metrics at Scopus](#) [Article at Scopus](#)

Comparative analysis of ZigBee based Wireless Sensor Networks (WSNs)

Shabbir, Noman; Hassan, Syed Rizwan; Iqbal, Muhammad Naveed; Kütt, Lauri; Unbreen, Arooj International journal of recent technology and engineering 2019 / p. 980-984 : ill <https://www.ijrte.org/wp-content/uploads/papers/v7i6s/F04000376S19.pdf>

Comparative Analysis of ZigBee Based Wireless Sensor Networks (WSNs)

Shabbir, Noman; Hassan, Syed Rizwan; Iqbal, Muhammad Naveed; Kütt, Lauri Proceeding of the 4th International Conference on Recent Trends in Computer Science and Electronics 2019 2019 / p. 115 http://www.rtcse.org/RTCSE_2019.pdf

Comparative analysis of zigbee based wireless sensor networks (WSNs)

Shabbir, Noman; Hassan, Syed Rizwan; Iqbal, Muhammad Naveed; Kütt, Lauri; Unbreen, Arooj International journal of recent technology and engineering 2019 / p. 980-984 : ill <https://www.ijrte.org/wp-content/uploads/papers/v7i6s/F04000376S19.pdf> [Journal metrics at Scopus](#) [Article at Scopus](#)

Comparison of current harmonic emission by different lighting technologies

Iqbal, Muhammad Naveed; Kütt, Lauri; Shabbir, Noman; Asad, Bilal 2020 IEEE 61st International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON), Riga, Latvia, Nov. 5-7, 2020 : conference proceedings 2020 / 6 p <http://toc.proceedings.com/52742webtoc.pdf>

Complexities associated with modeling of residential electricity consumption

Iqbal, Muhammad Naveed; Kütt, Lauri; Rosin, Argo 59th Annual International Scientific Conference on Power and Electrical Engineering : November 12, 13, 2018, Riga Technical University (RTUCON) : conference proceedings 2018 / 6 p. : ill <https://doi.org/10.1109/RTUCON.2018.8659812>

Current harmonic aggregation cases for contemporary loads

Daniel, Kamran; Kütt, Lauri; Iqbal, Muhammad Naveed; Shabbir, Noman Energies 2022 / art. 437 <https://doi.org/10.3390/en15020437> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Description of practical load harmonic current emission due to voltage harmonic variation

Daniel, Kamran; Kütt, Lauri; Iqbal, Muhammad Naveed; Shabbir, Noman; Jarkovoi, Marek 2021 IEEE 62nd International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON) 2021 / p. 1–6 <https://doi.org/10.1109/RTUCON53541.2021.9711594>

Economic analysis and impact on national grid by domestic photovoltaic system installations in Pakistan

Shabbir, Noman; Usman, Muhammad; Jawad, Muhammad; Zafar, Muhammad H.; Iqbal, Muhammad Naveed; Kütt, Lauri Renewable energy 2020 / p. 509-521 : ill <https://doi.org/10.1016/j.renene.2020.01.114> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Effect of Bulk Capacitor on Harmonics of Energy-Efficient Devices

Daniel, Kamran; Kütt, Lauri; Lehtonen, Matti; Shabbir, Noman; Iqbal, Muhammad Naveed; Martins, Joao; Simson, Päivo IEEE Access 2025

End-user electricity consumption modelling for power quality analysis in residential building

Iqbal, Muhammad Naveed; Kütt, Lauri 2018 19th International Scientific Conference on Electric Power Engineering (EPE 2018) : Brno, Czech Republic, 16-18 May, 2018 2018 / 6 p. : ill <https://doi.org/10.1109/EPE.2018.8396030>

End-user electricity consumption modelling for power quality analysis of residential buildings

Iqbal, Muhammad Naveed; Kütt, Lauri 17th International Symposium "Topical Problems in the Field of Electrical and Power Engineering". Doctoral school of energy and geotechnology. III : Kuressaare, Estonia, January 15-20, 2018 2018 / p. 59-62 : ill http://ise.elnet.ee/record=b2950015~S2*est

Estimation of harmonic emission of electric vehicles and their impact on low voltage residential network

Iqbal, Muhammad Naveed; Kütt, Lauri; Daniel, Kamran; Asad, Bilal; Shams Ghahfarokhi, Payam Sustainability 2021 / art. 8551 <https://doi.org/10.3390/su13158551> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Estimation of peak voltage value and its occurrence timing upon non-sinusoidal supply voltage

Daniel, Kamran; Kütt, Lauri; Iqbal, Muhammad Naveed; Shabbir, Noman; Jarkovoi, Marek 2024 IEEE 18th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2024 / p. 1-6 <https://doi.org/10.1109/CPE-POWERENG60842.2024.10604412>

Fault detection and protection strategy for multi-terminal HVDC grids using wavelet analysis

Kaur, Jashandeep; Jayasooriya, Manilka; Iqbal, Muhammad Naveed; Daniel, Kamran; Shabbir, Noman; Peterson, Kristjan Energies 2025 / art. 1147 <https://doi.org/10.3390/en18051147>

Feasibility investigation for residential battery sizing considering EV charging demand

Shabbir, Noman; Kütt, Lauri; Daniel, Kamran; Astapov, Victor; Raja, Hadi Ashraf; Iqbal, Muhammad Naveed; Husev, Oleksandr Sustainability 2022 / art. 1079 <https://doi.org/10.3390/su14031079> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Forecasting of energy consumption and production using recurrent neural networks

Shabbir, Noman; Kütt, Lauri; Jawad, Muhammad; Iqbal, Muhammad Naveed; Shams Ghahfarokhi, Payam Advances in electrical and electronic engineering 2020 / p. 190–197 <https://doi.org/10.15598/aece.v18i3.3597> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Forecasting short term wind energy generation using machine learning

Shabbir, Noman; Ahmadiahangar, Roya; Kütt, Lauri; Iqbal, Muhammad Naveed; Rosin, Argo 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 <https://doi.org/10.1109/RTUCON48111.2019.8982365>

Impact of cable impedance on the harmonic emission of LED lamps

Iqbal, Muhammad Naveed; Kütt, Lauri; Asad, Bilal; Shabbir, Noman 2020 21st International Scientific Conference on Electric Power Engineering (EPE), October 19-21, 2020, Prague, Czech Republic 2020 / 5 p <https://doi.org/10.1109/EPE51172.2020.9269271>

Impact of LED thermal stability to household lighting harmonic load current modeling

Iqbal, Muhammad Naveed; Jarkovoi, Marek; Kütt, Lauri; Shabbir, Noman 2019 Electric Power Quality and Supply Reliability Conference (PQ) & 2019 Symposium on Electrical Engineering and Mechatronics (SEEM), Kärdla, Estonia, June 12-15, 2019 : proceedings 2019 / 6 p. : ill <https://doi.org/10.1109/PQ.2019.8818226>

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>

Inaccuracies and uncertainties for harmonic estimation in distribution networks

Iqbal, Muhammad Naveed; Kütt, Lauri; Daniel, Kamran; Shabbir, Noman; Amjad, Anas; Awan, Abdul Waheed; Ali, Majid Sustainability 2024 / art. 6523 <https://doi.org/10.3390/su16156523> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Investigation and field measurements for demand side management control technique of smart air conditioners located at residential, commercial, and industrial sites

Masood, Bilal; Guobing, Song; Nebhen, Jamel; Rehman, Ateeq Ur; Iqbal, Muhammad Naveed; Rasheed, Iftikhar; Bajaj, Mohit; Shafiq, Muhammad; Hamam, Habib Energies 2022 / art. 2482, 23 p. : ill <https://doi.org/10.3390/en15072482> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Load current harmonic model complexity reduction through empirical pattern analysis

Daniel, Kamran; Kütt, Lauri; Iqbal, Muhammad Naveed; Shabbir, Noman; Jarkovoi, Marek; Parker, Martin 2023 IEEE 17th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2023 / p. 1-6 <https://doi.org/10.1109/CPE-POWERENG58103.2023.10227474>

Measurement based approach for residential customer stochastic current harmonic modelling = Mõõtmispõhine lähenemine olmetarbijate vooluharmonikute juhusliku esinemise modelleerimiseks

Iqbal, Muhammad Naveed 2021 https://www.ester.ee/record=b5454042*est <https://digikogu.taltech.ee/et/item/cc2248c5-5530-44fb-8150-51de0e7832ad> <https://doi.org/10.23658/taltech.43/2021>

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](#)

Modeling of lighting load for the residential building

Iqbal, Muhammad Naveed 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. 183-184 : ill

https://www.ester.ee/record=b5183874*est

Modeling of lighting load in residential buildings

Iqbal, Muhammad Naveed; Kütt, Lauri; Shabbir, Noman International journal of engineering and advanced technology 2018 / p.

233–236 <https://www.scopus.com/record/display.uri?eid=2-s2.0-85064435587&origin=resultslist>

Modeling of lighting load in residential buildings

Iqbal, Muhammad Naveed; Kütt, Lauri; Shabbir, Noman Proceeding of the 4th International Conference on Recent Trends in

Computer Science and Electronics 2019 2019 / p. 111 http://www.rtcse.org/RTCSE_2019.pdf

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](#)

An overview of measurement standards for power quality

Shabbir, Noman; Kütt, Lauri; Jarkovoi, Marek; Iqbal, Muhammad Naveed; Rassõlkin, Anton; Daniel, Kamran Agronomy

research 2021 / p. 944–960 <https://doi.org/10.15159/ar.21.074> [Journal metrics at Scopus](#) [Article at Scopus](#)

Performance investigation of active, semi-active and passive suspension using quarter car model

Samaroo, Kyle; Awan, Abdul Waheed; Marimuthu, Siva; Iqbal, Muhammad Naveed; Daniel, Kamran; Shabbir, Noman Algorithms

2025 / art. 100 <https://doi.org/10.3390/a18020100>

Probabilistic bivariate modeling of harmonic current

Jarkovoi, Marek; Kütt, Lauri; Iqbal, Muhammad Naveed 2020 19th International Conference on Harmonics and Quality of Power

(ICHQP), 6-7 July 2020, Dubai, UAE 2020 / 6 p <https://doi.org/10.1109/ICHQP46026.2020.9177870>

Requirements to data acquisition and signal analysis for electrical grid condition monitoring

Anijärv, Toomas Erik; Shabbir, Noman; Kütt, Lauri; Iqbal, Muhammad Naveed 2020 IEEE 61st International Scientific

Conference on Power and Electrical Engineering of Riga Technical University (RTUCON), Riga, Latvia, Nov. 5-7, 2020 : conference proceedings 2020 <https://doi.org/10.1109/RTUCON51174.2020.9316487>

A review of harmonic detection, suppression, aggregation and estimation techniques

Daniel, Kamran; Kütt, Lauri; Iqbal, Muhammad Naveed; Shabbir, Noman; Raja, Hadi Ashraf; Sardar, Muhammad Usman

Applied sciences 2024 / art. 10966 <https://doi.org/10.3390/app142310966> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Spectrum analysis for condition monitoring and fault diagnosis of ventilation motor : a case study

Shabbir, Noman; Kütt, Lauri; Asad, Bilal; Jawad, Muhammad; Iqbal, Muhammad Naveed; Daniel, Kamran Energies 2021 / art.

2001 <https://doi.org/10.3390/en14072001> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Steady-state thermal modeling of salient pole synchronous generator

Shams Ghahfarokhi, Payam; Podgornovs, Andrejs; Kallaste, Ants; Cardoso, Antonio J. Marques; Belahcen, Anouar; Vaimann,

Toomas; Kudrjavitsev, Oleg; Asad, Bilal; Iqbal, Muhammad Naveed Energies 2022 / art. 9460 <https://doi.org/10.3390/en15249460>

[Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

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 Advances in

machine fault diagnosis 2022 / p. 27-41 <https://doi.org/10.3390/app10217572>

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](#)

Thermal stability of LED lamps

Iqbal, Muhammad Naveed 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 / p. 187-188 : ill https://www.ester.ee/record=b5291755*est

Time dependency of current harmonics for switch-mode power supplies

Iqbal, Muhammad Naveed; Kütt, Lauri; Asad, Bilal; Vaimann, Toomas; Rassõlkin, Anton; Demidova, Galina Applied sciences 2020 / art. 7806, 12 p. : ill <https://doi.org/10.3390/app10217806> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Time-dependent variations in current harmonic emission by LED lamps in the low-voltage network

Iqbal, Muhammad Naveed; Kütt, Lauri; Asad, Bilal; Shabbir, Noman; Rasheed, Iftikhar Electrical Engineering 2021 / p. 1525-1539 : ill <https://doi.org/10.1007/s00202-020-01175-4> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Travel activity based stochastic modelling of load and charging state of electric vehicles

Iqbal, Muhammad Naveed; Kütt, Lauri; Lehtonen, Matti; Millar, Robert John; Püvi, Verner; **Rassõlkin, Anton; Demidova, Galina** Sustainability 2021 / art. 1550, 14 p. : ill <https://doi.org/10.3390/su13031550> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Waveform variation defined model for harmonic current emissions including cross-order supply voltage harmonics influence

Daniel, Kamran; Kütt, Lauri; Iqbal, Muhammad Naveed; Shabbir, Noman; Jarkovoi, Marek; Parker, Martin IEEE Access 2023 / p. 42276-42289 : ill <https://doi.org/10.1109/ACCESS.2023.3270805> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Wind energy forecasting using recurrent neural networks

Shabbir, Noman; Kütt, Lauri; Jawad, Muhammad; **Ahmadiyahangar, Roya; Iqbal, Muhammad Naveed; Rosin, Argo** 2019 Big Data, Knowledge and Control Systems Engineering (BdKCSE) 2019 / 5 p. : ill <https://doi.org/10.1109/BdKCSE48644.2019.9010593>

Voltage main harmonic level influence on harmonic current emission modeling

Daniel, Kamran; Kütt, Lauri; Iqbal, Muhammad Naveed; Shabbir, Noman; Jarkovoi, Marek; Parker, Martin 2023 International Conference on Future Energy Solutions (FES) 2023 / p. 1-6 <https://doi.org/10.1109/FES57669.2023.10183302>