

### **Artificial Intelligence in the hierarchical control of ac, dc and hybrid ac/dc microgrids : A review**

Gutiérrez-Escalona, J.; Roncero-Clemente, C.; Husev, Oleksandr; Matiushkin, Oleksandr; Blaabjerg, Frede IEEE Access 2024 / p. 157227-157246 <https://doi.org/10.1109/ACCESS.2024.3486382> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Bidirectional twisted single-stage single-phase buck-boost DC-AC converter**

Husev, Oleksandr; Matiushkin, Oleksandr; Roncero-Clemente, Carlos; Vinnikov, Dmitri; Chopyk, Vasiliy Energies 2019 / art. 3505, 14 p. : ill <https://doi.org/10.3390/en12183505> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Buck-boost unfold inverter as a novel solution for single-phase PV systems**

Husev, Oleksandr; Matiushkin, Oleksandr; Vinnikov, Dmitri; Roncero, Carlos; Romero-Cadaval, Enrique; Kütt, Lauri IECON 2018 - 44th Annual Conference of the IEEE Industrial Electronics Society : proceedings 2018 / p. 6116-6121 : ill <https://doi.org/10.1109/IECON.2018.8592899>

### **Capacitive vs Inductive Coupling Based DC-DC Converter Operating in MHz Switching Frequency Range**

Pourjafar, Saeed; Mohseni, Parham; Husev, Oleksandr; Strezelecki, Ryszard; Matiushkin, Oleksandr 2025 IEEE Applied Power Electronics Conference and Exposition (APEC) 2025 / p. 2173-2178 <https://doi.org/10.1109/APEC48143.2025.10977156>

### **Closed-loop control system design for wireless charging of low-voltage EV batteries with time-delay constraints**

Shevchenko, Viktor; Pakhaliuk, Bohdan; Zakis, Janis; Veligorskyi, Oleksandr; Luszcz, Jaroslaw; Husev, Oleksandr; Lytvyn, Oksana; Matiushkin, Oleksandr Energies 2021 / art. 3934, 21 p. : ill <https://doi.org/10.3390/en14133934> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Comparative analysis of buck-boost inverters based on unfolding circuit versus H5, H6, HERIC topologies**

Matiushkin, Oleksandr; Husev, Oleksandr; Vinnikov, Dmitri; Vosoughi Kurdkandi, Naser 2022 International Symposium on Power Electronics, Electrical Drives, Automation and Motion (SPEEDAM) 2022 / p. 547-552 <https://doi.org/10.1109/SPEEDAM53979.2022.9842282>

### **Comparative analysis of qZS-based bidirectional DC-DC converter for storage energy application**

Matiushkin, Oleksandr; Husev, Oleksandr; Tytelmaier, Kostiantyn; Kroics, Kaspars; Veligorskyi, Oleksandr; Zakis, Janis Technological Innovation for Smart Systems : 8th IFIP WG 5.5/SOCOLNET Advanced Doctoral Conference on Computing, Electrical and Industrial Systems, DoCEIS 2017, Costa de Caparica, Portugal, May 3–5, 2017 : proceedings 2017 / p. 409-418 [http://dx.doi.org/10.1007/978-3-319-56077-9\\_40](http://dx.doi.org/10.1007/978-3-319-56077-9_40)

### **Comparative evaluation of common-ground converters for dual-purpose application**

Hemmati Shahsavari, Tala; Rahimpour, Saeed; Vosoughi Kurdkandi, Naser; Fesenko, Artem; Matiushkin, Oleksandr; Husev, Oleksandr; Vinnikov, Dmitri Energies 2023 / art. 2977 <https://doi.org/10.3390/en16072977> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Comparative evaluation of dual-purpose converters suitable for application in dc and ac grids**

Husev, Oleksandr; Matiushkin, Oleksandr; Jalakas, Tanel; Vinnikov, Dmitri; Vosoughi Kurdkandi, Naser IEEE journal of emerging and selected topics in power electronics 2024 / p. 1337-1347 <https://doi.org/10.1109/JESTPE.2023.3243857> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Comparative evaluation of the air core magnetic design for MHz+ switching frequency**

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### **Comparative study of the phase-integrated converter as universal power converter**

Husev, Oleksandr; Matiushkin, Oleksandr; Vinnikov, Dmitri; Vosoughi Kurdkandi, Naser; Kouro, Samir Annual IEEE Conference on Applied Power Electronics Conference and Exposition (APEC) 2022 / p. 58-63 <https://doi.org/10.1109/APEC43599.2022.9773553> [Conference Proceedings at Scopus](#) [Article at Scopus](#)

### **Comparison of grid-connected flyback-based microinverter with primary and secondary side decoupling approach**

Afshari, Hossein; Husev, Oleksandr; Vinnikov, Dmitri; Matiushkin, Oleksandr; Vosoughi Kurdkandi, Naser 2022 IEEE 63th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON): conference proceedings 2022 / p. 1-6 <https://doi.org/10.1109/RTUCON56726.2022.9978855>

### **Comprehensive comparison of grid-connected flyback-based microinverter with primary and secondary side decoupling approach**

Afshari, Hossein; Husev, Oleksandr; Matiushkin, Oleksandr; Pourjafar, Saeed; Kurdkandi, Naser Vosoughi; Vinnikov, Dmitri IEEE transactions on industry applications 2024 / p. 9080-9089 <https://doi.org/10.1109/TIA.2024.3452069> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **Comprehensive comparison of isolated high step-up dc-dc converters for low power application**

Pourjafar, Saeed; Afshari, Hossein; Mohseni, Parham; Husev, Oleksandr; Matiushkin, Oleksandr; Shabbir, Noman IEEE

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#### **Cost-effective piggyback forward dc-dc converter**

**Matiushkin, Oleksandr; Husev, Oleksandr; Afshari, Hossein; Vinnikov, Dmitri; Strzelecki, Ryszard** 2024 IEEE Applied Power Electronics Conference and Exposition (APEC) 2024 / p. 2106-2111 <https://doi.org/10.1109/APEC48139.2024.10509355> [Conference proceedings at Scopus](#) [Article at Scopus](#) [Article at WOS](#)

#### **DC-ready flyback-based micro-converter**

**Afshari, Hossein; Husev, Oleksandr; Matiushkin, Oleksandr; Vinnikov, Dmitri; Roncero-Clemente, Carlos** 2024 IEEE 18th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2024 / 6 p <https://doi.org/10.1109/CPE-POWERENG60842.2024.10604344>

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#### **Dead-beat-based model predictive current control for the dual-purpose dc-dc/ac PWM modular power converter**

Roncero-Clemente, Carlos; Escalona, Javier-Gutierrez; Pires, V. Fernao; **Matiushkin, Oleksandr**; Milanés-Montero, Maria Isabel; Romero-Cadaval, Enrique 2024 IEEE 18th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2024 / 6 p <https://doi.org/10.1109/CPE-POWERENG60842.2024.10604328>

#### **Design and experimental validation of a single-stage PV string inverter with optimal number of interleaved buck-boost cells**

Fesenko, Artem; **Matiushkin, Oleksandr; Husev, Oleksandr; Vinnikov, Dmitri**; Strzelecki, Ryszard; Kołodziejek, Piotr Energies 2021 / art. 2448, p., 17 p. : ill <https://doi.org/10.3390/en14092448> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

#### **Design of LCL-filter for grid-connected buck-boost inverter based on unfolding circuit**

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#### **Dual-purpose dc-dc/ac PWM modular power converter as dual-output hybrid converter**

Roncero-Clemente, Carlos; Gutierrez-Escalona, Javier; **Matiushkin, Oleksandr**; Husev, Oleksandr; Romero-Cadaval, Enrique; Fernao Pires, V. Renewable energy and power quality journal 2025 / p. 183-187 <https://doi.org/10.52152/4563>

#### **Dual-purpose dc-dc/ac PWM modular power converter as grid-forming unit in a droop-controlled ac nanogrid**

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#### **Feasibility study of high-power density of modified isolated CLLC DC-DC interface with wide range of voltage/current regulation**

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#### **Feasibility study of interleaving approach for buck-boost inverter with unfolding circuit**

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**Stepenko, Serhii; Husev, Oleksandr; Vinnikov, Dmitri**; Fesenko, Artem; **Matiushkin, Oleksandr** Electronics 2020 / art. 277, 11 p. : ill <https://doi.org/10.3390/electronics9020277> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

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#### **Feasibility study of three-phase modular converter for dual-purpose application in DC and AC microgrids**

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### **Forward-based DC-DC converter with eliminated leakage inductance problem**

**Matiushkin, Aleksandr; Husev, Aleksandr; Afshari, Hossein;** Romero-Cadaval, Enrique; Roncero-Clemente, Carlos IEEE transactions on industrial electronics 2025 / p. 1638-1648 <https://doi.org/10.1109/TIE.2024.3429626>

### **Full SiC three-level T-type quasi-Z source inverter as grid-forming unit in islanded nanogrid**

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### **A high step-up non-isolated dc-dc converter with low voltage stress across transistor**

**Pourjafar, Saeed;** Hemmati Shahsavari, Tala; Hashemzadeh, Seyed Majid; **Husev, Aleksandr; Matiushkin, Aleksandr; Vinnikov, Dmitri** IEEE transactions on industrial electronics 2024 / p. 15755-15767 <https://doi.org/10.1109/TIE.2024.3383025> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

### **High-Frequency Step-Up DC-DC Converter with Integrated Ferrite-less Inductances**

**Matiushkin, Aleksandr;** Husev, Aleksandr; Gutiérrez-Escalona, Javier; Roncero-Clemente, Carlos; Romero-Cadaval, Enrique PCIM Europe 2025 2025 / 7 p

### **Implementation of MPPT hill climbing technique for forward based DC-DC converter**

**Matiushkin, Aleksandr; Husev, Aleksandr;** Romero-Cadaval, Enrique; Roncero-Clemente, Carlos 2024 IEEE 18th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2024 / 6 p <https://doi.org/10.1109/CPE-POWERENG60842.2024.10604422>

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**Mohseni, Parham; Pourjafar, Saeed; Matiushkin, Aleksandr; Husev, Aleksandr; Vinnikov, Dmitri** IEEE transactions on industry applications 2025 / 11 p <https://doi.org/10.1109/TIA.2025.3544985>

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### **Model predictive control of a single-stage flying inductor based buck-boost grid-connected common-ground inverter**

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### **Model-free deep reinforcement learning-based current control for the dual-purpose dc-dc/ac power converter**

Gutiérrez-Escalona, Javier; Roncero-Clemente, Carlos; **Husev, Aleksandr; Matiushkin, Aleksandr;** Barrero-Gonzalez, Fermin; Gonzalez-Romera, Eva 2024 IEEE 18th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2024 / 6 p <https://doi.org/10.1109/CPE-POWERENG60842.2024.10604305>

### **Novel concept of solar converter with universal applicability for DC and AC microgrids**

**Husev, Aleksandr; Matiushkin, Aleksandr; Vinnikov, Dmitri;** Roncero-Clemente, Carlos; Kouro, Samir IEEE transactions on industrial electronics 2022 / p. 4329-4341 : ill <https://doi.org/10.1109/TIE.2021.3086436> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

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**Novel family of single-stage buck-boost inverters based on unfolding circuit**

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**A novel flying inductor based grid-connected inverter with buck-boost ability**

**Vosoughi Kurdkandi, Naser; Husev, Oleksandr; Rahimpour, Saeed;** Roncero-Clemente, Carlos; **Matiushkin, Oleksandr; Vinnikov, Dmitri** IECON 2022 - 48th Annual Conference of the IEEE Industrial Electronics Society 2022 / 6 p <https://doi.org/10.1109/IECON49645.2022.9968954> [Conference proceedings at Scopus](#) [Article at Scopus](#)

**Novel Interlinking Converter Approach for Islanded Hybrid Microgrids based on the Modular Dual-Purpose Power Converter**

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**Novel isolated high step-up DC-DC converter with wide input voltage regulation range**

**Pourjafar, Saeed; Mohseni, Parham; Matiushkin, Oleksandr; Husev, Oleksandr; Vinnikov, Dmitri** 2023 IEEE 64th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCon), Riga, Latvia, October 9-10, 2023 : conference proceedings 2023 / 6 p <https://doi.org/10.1109/RTUCon60080.2023.10413102>

**A novel single-phase common-grounded converter based on switched-capacitor**

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**Novel single-stage buck-boost inverter with unfolding circuit**

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**Optimal LCL-filter study for buck-boost inverter based on unfolding circuit**

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**Optimal tuning of resonant and repetitive based controller for single-phase buck-boost inverter with unfolding circuit**

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**Performance evaluation of the universal photovoltaic string converter during the operation in DC microgrid environment**

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**Photovoltaic string converter with universal compatibility with AC and DC microgrids = Alalis- ja vahelduvvoolu mikrovõrkudega ühilduv universaalne muundur päikese-elektrijaamadele**

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**Reactive power injection capability of buck-boost inverter with unfolding circuit**

Roncero-Clemente, Carlos; **Husev, Oleksandr; Matiushkin, Oleksandr; Vinnikov, Dmitri;** Blaabjerg, Frede IEEE transactions on power electronics 2022 / p. 11876-11886 <https://doi.org/10.1109/TPEL.2022.3179784> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

**Reinforcement Learning-based Energy Management Strategy for Flexible Hybrid ac/dc Microgrid**

Gutiérrez-Escalona, Javier; Roncero-Clemente, Carlos; **Husev, Oleksandr; Matiushkin, Oleksandr;** Barrero-González, Fermín; González-Romera, Eva IECON 2024 - 50th Annual Conference of the IEEE Industrial Electronics Society 2025 / 6 p

**Research development of bidirectional DC-DC/AC converter**

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**A review of hybrid converter topologies**

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**A three-phase unfolding-based PFC topology with two inductors for electric vehicles battery charging**

**Mohseni, Parham; Husev, Oleksandr; Vinnikov, Dmitri; Matiushkin, Oleksandr; Vosoughi Kurdkandi, Naser** 2023 IEEE 64th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON), Riga, Latvia, October 9-11, 2023 : conference proceedings 2023 / 6 p <https://doi.org/10.1109/RTUCON60080.2023.10413182>

**Traction powered multiport DC-DC converter for bidirectional EV charging application – HIL simulation results**

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