

Advancing green hydrogen production : synthesizing and analyzing nickel and iron micro-flower shaped electrocatalysts on Ni-mesh for alkaline water electrolysis

Jäger, Rutha; Valk, Peeter; Grozovski, Vitali; **Volobujeva, Olga**; Prits, Alise-Valentine; Maide, Martin; Küngas, Rainer; Lust, Enn; Nerut, Jaak 246th ECS Meeting PRIME 2024; Honolulu, Hawaii, USA; October 6-11, 2024 <https://doi.org/10.1149/MA2024-02422814mtgabs>

Bifunctional multi-metallic nitrogen-doped nanocarbon catalysts derived from 5-methylresorcinol

Kisand, Kaarel; Sarapuu, Ave; Kikas, Arvo; Kisand, Vambola; Rähn, Mihkel; Treshchalov, Alexey; Käärik, Maike; Piirsoo, Helle-Mai; Aruväli, Jaan; **Paiste, Päärn** Electrochemistry communications 2021 / art. 106932 <https://doi.org/10.1016/j.elecom.2021.106932> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Bifunctional oxygen electrocatalyst based on Fe, Co, and nitrogen co-doped graphene-coated alumina nanofibers for Zn-air battery air electrode

Mooste, Marek; Ahmed, Zubair; Kapitulsis, Pavels; **Ivanov, Roman**; Treshchalov, Alexey; Piirsoo, Helle-Mai; Kikas, Arvo; Kisand, Vambola; Kukli, Kaupo; **Hussainova, Irina**; Tammeveski, Kaido Applied Surface Science 2024 / art. 160024 <https://doi.org/10.1016/j.apsusc.2024.160024> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Bimetallic metal-organic-framework-derived porous cobalt manganese oxide bifunctional oxygen electrocatalyst

Yusibova, Gulnara; Assafrei, Jürgen-Martin; **Ping, Kefeng**; Aruväli, Jaan; Paiste, Päärn; Käärik, M.; Leis, J.; Piirsoo, Helle-Mai; Tamm, Aile; **Starkov, Pavel** Journal of electroanalytical chemistry 2023 / art. 117161, 10 p.: ill <https://doi.org/10.1016/j.jelechem.2023.117161> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Electrocatalysis of oxygen reduction on multi-walled carbon nanotube supported copper and manganese phthalocyanines in alkaline media

Kaare, Kätlin; Kruusenberg, Ivar; Merisalu, Maido; Matisen, Leonard; Sammelselg, Väino; Tammeveski, Kaido Journal of solid state electrochemistry 2016 / p. 921–929 : ill <https://doi.org/10.1007/s10008-015-2990-9>

Electrocatalytic oxidation of hydroxide ions by Co₃O₄ and Co₃O₄@SiO₂ nanoparticles both at particle ensembles and at the single particle level

Xie, Ruo-Chen; Volokhova, Maria; Boldin, Aleksei; Seinberg, Liis; Tsujimoto, Masahiko; Yang, Minjun; Rasche, Bertold; Compton, Richard G. ChemElectroChem 2020 / p. 1261– 1276 : ill <https://doi.org/10.1002/celec.202000230>

Electrochemical Reduction of Oxygen on Platinum-Modified Carbon Materials = Elektrokeemiline hapniku redutseerumine plaatinaga modifitseeritud süsinikmaterjalidel

Najafli, Erkin 2025 <https://digikogu.taltech.ee/et/Item/2da3885d-1ab1-4847-8647-ab7629641de8> https://www.ester.ee/record=b5746298*est <https://doi.org/10.23658/taltech.33/2025>

Fabrication of novel metal, nitrogen co-doped carbon materials based on a unique organic ligand = Uue orgaanilise ligandi kasutuselevõtt metalli ja lämmastikuga rikastatud süsinikmaterjalide sünteesimiseks

Alam, Mahboob 2022 <https://doi.org/10.23658/taltech.59/2022> <https://digikogu.taltech.ee/et/Item/c29cf2b3-8776-47b8-82dc-3eb33cb56941> https://www.ester.ee/record=b5524927*est

Fused hybrid linkers for metal–organic framework-derived bifunctional oxygen electrocatalysts

Ping, Kefeng; Braschinsky, Alan; **Alam, Mahboob**; **Bhadoria, Rohit**; **Mikli, Valdek**; **Mere, Arvo**; Aruväli, Jaan; Paiste, Päärn; Vlassov, Sergei; Kook, Mati; Rähn, Mihkel; Sammelselg, Väino; Tammeveski, Kaido; Kongi, Nadežda; **Starkov, Pavel** ACS Applied Energy Materials 2020 / p. 152–157 : ill <https://doi.org/10.1021/acsaem.9b02039> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Fused hybrid linkers for metal–organic frameworks-derived bifunctional oxygen electrocatalysts : [version 1.0] [Online resource]

Ping, Kefeng; Braschinsky, Alan; **Alam, Mahboob**; **Bhadoria, Rohit**; **Mikli, Valdek**; **Mere, Arvo**; **Starkov, Pavel** ChemRxiv 2019 / 10 p., S16 p. : ill <https://doi.org/10.26434/chemrxiv.7687358>

Fused hybrid linkers for metal–organic frameworks-derived bifunctional oxygen electrocatalysts : [version 2.0] [Online resource]

Ping, Kefeng; Braschinsky, Alan; **Alam, Mahboob**; **Bhadoria, Rohit**; **Mikli, Valdek**; **Mere, Arvo**; **Starkov, Pavel** ChemRxiv 2019 / 10 p., S17 p. : ill <https://doi.org/10.26434/chemrxiv.7687358.v2>

Highly active Fe-N/C oxygen electrocatalysts based on silicon carbide derived carbon

Teppor, Patrick; Jäger, Rutha; Hints, J.; **Volobujeva, Olga**; Valk, Peeter; Koppel, Miriam; Lust, Enn Polymer Electrolyte Fuel Cells & Electrolyzers 20 (PEFC & E 20) 2020 / p. 607 - 615 <https://doi.org/10.1149/09809.0607ecst> [Conference Proceedings at Scopus](#) [Article at Scopus](#)

Impact of ball-milling of carbide-derived carbons on the generation of hydrogen peroxide via electroreduction of oxygen in alkaline media

Palm, Iris; Kibena-Pöldsepp, Elo; Lilloja, Jaana; **Paiste, Päärn** Journal of electroanalytical chemistry 2020 / art. 114690

Iron and cobalt containing electrospun carbon nanofibre-based cathode catalysts for anion exchange membrane fuel cell

Sokka, Andri; Mooste, Marek; Käärik, Maike; **Gudkova, Viktoria**; Kozlova, Jekaterina; Kikas, Arvo; Kisand, Vambola; Treshchalov, Alexey; Tamm, Aile; Paiste, Päärn; Aruväli, Jaan; Leis, Jaan; **Krumme, Andres**; Holdcroft, Steven; Cavaliere, Sara; Jaouen, Frederic; Tammeveski, Kaido International Journal of Hydrogen Energy 2021 / p. 31275-31287

<https://doi.org/10.1016/j.ijhydene.2021.07.025> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Iron and cobalt phthalocyanine embedded electrospun carbon nanofiber-based catalysts for anion exchange membrane fuel cell cathode

Muuli, Kaur; Sokka, Andri; Mooste, Marek; Lilloja, Jaana; **Gudkova, Viktoria**; Käärik, Maike; Otsus, Markus; Kikas, Arvo; Kisand, Vambola; Tamm, Aile; Leis, Jaan; **Krumme, Andres** Journal of Catalysis 2023 / p. 117-130 <https://doi.org/10.1016/j.jcat.2023.04.008>

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

Iron triad-based bimetallic M-N-C nanomaterials as highly active bifunctional oxygen electrocatalysts

Alam, Mahboob; Ping, Kefeng; Danilson, Mati; Mikli, Valdek; Käärik, Maike; Leis, Jaan; Aruväli, Jaan; Paiste, Päärn; Rähn, Mihkel; Sammelselg, Väino; Tammeveski, Kaido; Haller, Steffen; Kramm, Ulrike Ingrid; **Starkov, Pavel**; Kongi, Nadezda ACS Applied Energy Materials 2024 / p. 4076 - 4087 <https://doi.org/10.1021/acsaem.4c00366> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Lead and nitrogen co-doped multi-walled carbon nanotube electrocatalyst for oxygen reduction reaction

Zarmehri, Ehsan; Raudsepp, Ragle; Šmits, Krišjānis; Käämbre, Tanel; Šutka, Andris; **Yörük, Can Rüstü**; Zacs, Dzintars; Kruusenberg, Ivar Journal of The Electrochemical Society 2023 / art. 114505, 10 p. : ill <https://doi.org/10.1149/1945-7111/ad0072> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Mechanosynthesis of a bifunctional FeNi-N-C oxygen electrocatalyst via facile mixed-phase templating and preheating-pyrolysis

Kosimov, Akmal; Yusibova, Gulnara; Wojsiat, Ivan Tito; Aruväli, Jaan; Käärik, Maike; Leis, Jaan; Paaver, Peeter; Vlassov, Sergei; Kikas, Arvo; Kisand, Vambola; Piirsoo, Helle-Mai; Kukli, Kaupo; Heinmaa, Ivo; **Kaljuvee, Tiit**; Kongi, Nadezda Journal of Materials Chemistry A 2023 / p. 335 - 342 <https://doi.org/10.1039/d3ta04580c> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

M-N-C materials as heterogeneous catalysts for organic transformations

Ping, Kefeng; Bhadoria, Rohit; Starkov, Pavel; Kongi, Nadezda Coordination Chemistry Reviews 2023 / art. 215412

<https://doi.org/10.1016/j.ccr.2023.215412> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Multi-purpose heterogeneous catalyst material from an amorphous cobalt metal-organic framework

Ping, Kefeng; Alam, Mahboob; Kahnert, Sean Ray; Bhadoria, Rohit; Mere, Arvo; Mikli, Valdek; Käärik, Maike; Aruväli, Jaan; Paiste, Päärn; Kikas, Arvo; Kisand, Vambola; **Järving, Ivar**; Leis, Jaan; Kongi, Nadezda; **Starkov, Pavel** Materials advances 2021 / p. 4009-4015 <https://doi.org/10.1039/D1MA00414J> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Nickel and nitrogen-doped bifunctional ORR and HER electrocatalysts derived from CO₂

Rommel, Anna-Liis; Ratso, Sander; Divitini, Giorgio; **Danilson, Mati; Mikli, Valdek; Uibu, Mai**; Aruväli, Jaan; Kruusenberg, Ivar ACS Sustainable Chemistry and Engineering 2022 / p. 134-145 <https://doi.org/10.1021/acssuschemeng.1c05250> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

Optimizing post-treatment strategies for enhanced oxygen reduction/evolution activity in Co-N-C electrocatalyst

Yusibova, Gulnara; Ping, Kefeng; Käärik, Maike; Leis, Jaan; Aruväli, Jaan; Šmits, Krišjānis; Käämbre, Tanel; Kisand, Vambola; **Karpichev, Yevgen**; Tammeveski, Kaido; Kongi, Nadezda International Journal of Hydrogen Energy 2024 / p. 398-406

<https://doi.org/10.1016/j.ijhydene.2024.07.388> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)

A Pathway to Circular Economy-Converting Li-Ion Battery Recycling Waste into Graphite/rGO Composite Electrocatalysts for Zinc-Air Batteries

Praats, Reio; Sainio, Jani; Vikberg, Milla; Klemettinen, Lassi; Wilson, Benjamin P.; Lundström, Mari; Kruusenberg, Ivar;

Liivand, Kerli Batteries 2025 / art. 165, 18 p. : ill <https://doi.org/10.3390/batteries11040165>

Platinum-free oxygen electrocatalysts and alkaline fuel cell cathodes fabricated from peat

Teppor, Patrick; Jäger, Rutha; Paolo, Maarja; Härmas, Meelis; Adamso, Anu; **Volobujeva, Olga**; Aruväli, Jaan; Palm, Rasmus; Lust, Enn Graduate School of Functional Materials and Technology (GSFMT) Scientific Conference : abstracts 2022 / 61 l. [Graduate School of Functional Materials and Technology \(GSFMT\) Scientific Conference 2022](#)

Rational design of carbonaceous MOF-based materials for chemo- and electrocatalytic applications = Süsinikurikastel, metall-orgaanilistel võrestikel põhinevate materjalide disain ja nende kasutuselevõtt kemo- ja elektrokatalüütistes rakendustes

Ping, Kefeng 2021 https://www.ester.ee/record=b5422148*est <https://digikogu.taltech.ee/et/Item/9e1da64d-2d8b-403d-a7ae-73c023b9602c> <https://doi.org/10.23658/taltech.21/2021>

Shungite-derived graphene as a carbon support for bifunctional oxygen electrocatalysts

Kazimova, Nargiz; **Ping, Kefeng; Alam, Mahboob; Danilson, Mati**; Merisalu, Mäido; Aruväli, Jaan; Paiste, Päärn; Käärrik, Maike; **Mikli, Valdek**; Leis, Jaan; Tammeveski, Kaido; **Starkov, Pavel**; Kongi, Nadežda Journal of catalysis 2021 / p. 178–187

<https://doi.org/10.1016/j.jcat.2021.01.004> Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

Transition metal-containing nitrogen-doped nanocarbon catalysts derived from 5-methylresorcinol for anion exchange membrane fuel cell application

Kisand, Kaarel; Sarapuu, Ave; Danilian, Dmytro; Kikas, Arvo; Kisand, Vambola; Rähn, Mihkel; Treshchalov, Alexey; Käärrik, Maike; Merisalu, Mäido; **Paiste, Päärn** Journal of colloid and interface science 2021 / p. 263-274 <https://doi.org/10.1016/j.jcis.2020.09.114>

Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

Unlocking bifunctional electrocatalytic performance of Co-MOF-Derived catalysts for ORR and OER

Yusibova, Gulnara; Kongi, Nadežda; **Karpichev, Yevgen** 244th ECS Meeting, Gothenburg, Sweden, October 8-12, 2023 2023 / p. I01E-2036 <https://ecs.confex.com/ecs/244/meetingapp.cgi/Paper/180269>

Utilizing waste lithium-ion batteries for the production of graphite-carbon nanotube composites as oxygen electrocatalysts in zinc–air batteries

Praats, Reio; Sainio, Jani; Vikberg, Milla; Klemettinen, Lassi; Wilson, Benjamin P.; Lundström, Mari; Kruusenberg, Ivar; Liivand, Kerli RSC Sustainability 2025 / p. 546–556 : ill <http://dx.doi.org/10.1039/d4su00526k>