Alexey SEROV

Oak Ridge National Laboratory
US Citizen
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EDUCATION

UNIVERSITY OF BERN, Bern, Switzerland 10-2006 / 10-2010
Department of Chemistry and Biochemistry
Physical Chemistry Program
- **Doctor of Philosophy**

Moscow State University, Moscow, Russia 09-1995 / 06-2000
Chemistry Department
Inorganic Chemistry Program
- **Master of Science** (with thesis) and Honorable Medal for Academic Achievements

RESEARCH APPOINTMENT and EXPERIENCE

Senior R&D Staff 04-2021 / Present
Oak Ridge National Laboratory

- Manage ORNL activity on DOE H2NEW consortium
- Support research in ORNL DOE M2FCT consortium
- PI on CO2RR using advanced electrocatalysts and electrodes
- Development electrocatalysts for low temperature water electrolysis

Deputy Director of R2R Consortium 10-2023 / Present
Oak Ridge National Laboratory

- Manage DOE R2R consortium
- Participate in development of consortium mission
- Evaluate and assess consortium progress

Chief Scientist 04-2017 / 04/2021
Pajarito Powder, LLC

- Design of novel PGM-free oxygen reduction reaction electrocatalysts for PEMFC and Alkaline Membrane Fuel Cells application.
- Development of highly active Hydrogen Oxidation Reaction (HOR) electrocatalysts for Anion Exchange Membrane Fuel Cells.
- Scale-up of electrocatalysts and supports for fuel cells to the level of 1 kilogram per batch.
- Managing several projects funded by ARPA-E, DOE EERE, SBIR and industry sponsored research.

Research Associate Professor 09-2015 / 03-2017
UNIVERSITY OF NEW MEXICO (UNM)
Department of Chemical and Biological Engineering
UNM Center for Micro-Engineered Materials (CMEM)

- Studying novel highly active and durable PGM-free oxygen reduction reaction electrocatalysts for PEMFC and Alkaline Membrane Fuel Cells application.
- Design of supported and unsupported palladium-based electrocatalysts for liquid-fed fuel cells, electrochemical reactors, electrochemical synthesis of value-added products.
- Development of new synthetic approached for preparation of materials with controlled morphology, surface speciations and improved catalytic activity

Research Assistant Professor 02-2013 / 08-2015
UNIVERSITY OF NEW MEXICO (UNM)
Department of Chemical and Biological Engineering
UNM Center for Micro-Engineered Materials (CMEM)

- Design of electrocatalysts for oxidation of small organic molecules for application of fuel cells and regenerative chemical storage system.
- Research in the field of Membrane Electrode Assembly (MEA) design and optimization of catalyst layer in MEAs.
- Electrochemical synthesis of carbon-contained molecules from CO_2.
- Synthesis of alternative to carbon supports for fuel cell application

Post-Doctoral Fellow 12-2010 / 01-2013
UNIVERSITY OF NEW MEXICO (UNM)
Advisor: Prof. Plamen Atanassov, University of New Mexico
Department of Chemical and Biological Engineering
UNM Center for Emerging Energy Technologies (CEET)

- Design of PGM-free oxygen reduction reaction electrocatalysts, integration of PGM-free catalysts with different types of ionomers and MEAs fabrication
- Scaling-up synthetic approaches up to 100g batches at laboratory scale.

Vacation

11-2010 / 12-2010

Moscow, Russian Federation
Waiting for the processing documents at USA Embassy for the obtaining USA visa.

Doctorate Research

10-2006 / 10-2010

UNIVERSITY OF BERN (UniBe)

Advisor: Prof. Heinz Gaeggeler, University of Bern, Bern, Switzerland
Department of Chemistry and Biochemistry
Paul Scherrer Institute (PSI)

Ph.D. Degree Thesis Title: Model experiment in preparation to study of Element E113

- Radiochemical study on different isotopes of In, Bi, Pb and At.
- Design of vacuum set-up for fast chemical detection of short-lived isotopes.
- Development of radiochemical methods for separation of different isotopes by thermo- and chemical chromatography.
- Participation in world-first experiments on determination the chemical properties of element Cn.
- Participation in world-first experiment on determination of chemical properties of element Fl.

Senior Researcher

02-2005 / 09-2006

SAMSUNG SDI LTD.

Fuel Cell Team, Samsung SDI, Suwon, South Korea

- Development ruthenium and palladium electrocatalysts for oxygen reduction reaction.
- Design of alternative types of fuel cells based on utilization of Mixed-Reactant Fuel Cells technology
- Establishing structure-to-properties correlations between physical-chemical properties and electrocatalytic activity.
- MEA fabrication methods: hand-spraying, decal method, Dr. Blade, robotic spraying.
- Scaling-up Ru and Pd-based catalyst to the 25g batch level.

Researcher

10-2000 / 01-2005

MOSCOW STATE UNIVERISTY (MSU)

Advisor: Prof. Boris Popovkin, Moscow State University, Moscow, Russia
Chemistry Department

- Synthesis and characterization of Ni-Ga-Ch (Ch=S, Se, Te) materials with short metallic bond between Ni-Ga.
- DFT calculations of synthesized structure in order to determine electronic and magnetic properties.
- Implementation of obtained materials for crude oil desulfurization.
- Synthesis of hydrogen storage materials based on modified carbon nanotubes.

Vacation 06-2000 / 09-2000
Moscow, Russian Federation
Preparation for admission to MSU as a Researcher

Master Research 09-1995 / 05-2000
MOSCOW STATE UNIVERISTY (MSU) and Haldor Topsoe
Advisor: Asst. Prof. Eugenia Turevskaya, Moscow State University, Moscow, Russia
Chemistry Department

M.S. Degree Thesis Title: *Preparation of Fe and Ru oxoacetates as precursors for highly active catalysts for synthesis of ammonium*

- Development methods for synthesis bi-metallic Fe-Ru oxoacetates.
- Separation of oxoacetates by column chromatography.
- Preparation zeolite supported FeRu nanoparticles
- Evaluation of heterogeneous catalytic reactions using FeRu/Zeolite nanoparticles

Vacation 06-1995 / 08-1995
Chernyshkovsky, Russian Federation
Preparation for admission to Moscow State University, Chemistry Department

High School Student 09-1993 / 06-1995
Chernyshkovsky, Russian Federation
High School Student

Professional Skills

Synthesis techniques: conventional wet-chemical methods, co-precipitation, sol-gel techniques, derived from the polymer-solvent systems, solid state ampoule synthesis. Membrane Electrode Assembly (MEA) preparation by hand-spraying, Dr. Blade and slurry-coating techniques, MEA hot pressing.
Characterization techniques: X-ray Diffraction: crystal structure refinement by Rietveld method; line broadening analysis (domain size and microstrains)
Microscopy: optical (common and polarized), scanning (SEM) and transmission electron microscopy (TEM).
Spectroscopy: IR-spectroscopy, Raman.
Thermal analysis: TG/DTA analysis.
Particle analysis: size and distribution.
Electro-catalytic properties: RDE, RRDE, half-cell test, single cell and stack tests.

TEACHING EXPERIENCE

Physical Chemical Laboratory Class *(UNDERGRAD COURSE)* Spring 2007-2010
Department of Chemistry and Biochemistry – University of Bern
Laboratory Group Leader on: i) kinetics; ii) electrochemistry

Radiochemical Laboratory Class *(UNDERGRAD COURSE)* Spring 2007-2010
Department of Chemistry and Biochemistry – University of Bern

Laboratory Group Leader on: i) isotop detection; ii) radiation class

Radiochemical Laboratory Class *(GRAD COURSE)* Spring 2007-2010
Department of Chemistry and Biochemistry – University of Bern
Laboratory Group Leader on: i) isotopes separation; ii) learning detectors

Inorganic Chemical Laboratory Class *(UNDERGRAD COURSE)* Spring 2000-2001
Chemistry Department – Moscow State University
Laboratory Assistant on: i) properties of inorganic compounds

AWARDS and FELLOWSHIP

ORNL Team Excellence Award 2024

Team with a highest number of highly cited publications in FY23

STC.UNM Inventor Honoree 2017
Award for 6 issued US patents: **9,359,681; 9,425,464; 9,502,719; 9,515,323; 9,570,761; 9,579,636**

STC.UNM Inventor Honoree 2016
Award for issued US patent **US 9,180,443** "Imidazole-derived materials", November 10, (2015).

UNM "Wall of Fame" Honoree 2014
http://geo.unm.edu/featured_oips.html

Silver Medal on RadChem 2010 Conference 2010
Students Poster Competition**,** 16th Radiochemical Conference (Radchem 2010) 18-23 April, 2010

Swiss National Science Foundation 2006-2010
PhD fellowships
Department of Chemistry and Biochemistry, University of Bern

Best Foreign Researcher 2005
Samsung SDI Ltd, Suwon, South Korea

Gold Prize on "Lomonosov 2000" Conference 2000
Chemistry Department, Moscow State University

Gold Prize on "Lomonosov 19`98" Conference 1998
Chemistry Department, Moscow State University

Gold Prize on "Lomonosov 1997" Conference 1997
Chemistry Department, Moscow State University

"Soros Student" Scholarship 1997
Chemistry Department, Moscow State University

Award for Excellence on Research Defense 1996
Chemistry Department, Moscow State University

"Soros Student" Scholarship 1996
Chemistry Department, Moscow State University

FUNDING OBTAINED: Since 2021 ~$2.5M/year

PI

[8] R2R Consortium: Materials and Electrodes Scale-up.
Sponsor: US Department of Energy (DOE). **Budget: $1M/year**. Start: October 2023. Duration: 5 years. **Consortium Deputy Director. Active Project**
[7] H2NEW Consortium: Components Integration in the MEAs.
Sponsor: US Department of Energy (DOE). **Budget: $1M/year**. Start: October 2020. Duration: 5 years. **ORNL Liaison. Active Project**
[6] Design of Porous Transport Layers for PEM Electrolyzers.
Sponsor: US Department of Energy (DOE). **Budget: $275/year**. Start: October 2021. Duration: 4 years. **PI. Active Project**
[5] M2FCT Consortium: MEA Manufacturing.
Sponsor: US Department of Energy (DOE). **Budget: $125k/year**. Start: October 2020. Duration: 5 years. **PI. Active Project**
[4] ElectroCat Consortium.
Sponsor: US Department of Energy (DOE). **Budget: $75/year**. Start: October 2020. Duration: 5 years. **PI. Active Project**
[3] Active and Durable PGM-free Cathodic Electrocatalysts for Fuel Cell Application. Sponsor: US Department of Energy (DOE). **Budget: $1M** 2-years project. Start: January 2019. Duration: 2 years. **PI. Ended**
[2] Development of PGM-free Catalysts for Hydrogen Oxidation Reaction in Alkaline Media. Sponsor: Department of Energy (DOE). **Budget: $1M** 2-years project. Start: June 2015. Duration: 2 years. **PI. Ended**
[1] Development of Durable and Manufacturable Non-Platinum Catalysts.
Sponsor: Pajarito Powder LLC. **Budget: 30k**/0.5 year Start: April 2013. Duration: 0.5 years. **PI. Ended**

co-PI

[9] Scale-up PGM Catalysts for Heavy Duty Trucks.
Sponsor: US Department of Energy (DOE). **Budget: $300k/year**. Start: October 2024. Duration: 4 years. **Active Project**
[8] Design of PGM-free Structured Electrodes for Alkaline Water Electrolysis.

Sponsor: US Department of Energy (DOE). **Budget: $650k/year**. Start: January 2024. Duration: 3 years. **Active Project**

[7] Commercializing Active and Durable Materials and Electrodes for Fuel Cell and Electrolyzer Applications.
Sponsor: NSF PFI-RP. **Budget**: $25k/year. Start: October 2019. Duration: 3 years. **Ended**

[6] Corrosion-resistant non-carbon support materials for PEFCs.
Sponsor: Department of Energy (DOE). **Budget**: 250k/year. Start: March 2016. Duration: 3 years. **Co-PI. Ended**

[5] Precious Metal Free Regenerative Hydrogen Electrode.
Sponsor: Department of Energy (DOE). **Budget**: 154k/year. Start: May 2016. Duration: 3 years. **Co-PI. Ended**

[4] High Performance Platinum Group Metal Free Membrane Electrode Assemblies through Control of Interfacial Processes.
Sponsor: Department of Energy (DOE). Start: May 2015. **Budget**: 60k/year. Duration: 2 years. **Co-PI. Ended**

[3] Innovative Non PGM Catalysts for CHP Relevant Proton Exchange Membrane Fuel Cells.
Sponsor: Department of Energy (DOE). **Budget**: 80k/year Start: July 2015. Duration: 2 years. **Co-PI**.

[2] Novel Electrocatalysts for Oxygen Reduction (ORR) in Alkaline Media.
Sponsor: Daihatsu Motor Company. **Budget**: 200k/year Start: October 2014. Duration: 4 years. **Co-PI**.

[1] PGM/C Hybrid Catalysts.
Sponsor: AFCC Automotive Fuel Cell Cooperation Corp. **Budget**: 50k/0.5 year Start: September 2013. Duration: 0.5 years. **Co-PI**.

PROFESSIONAL ACTIVITIES

Professional memberships

- ✓ **ECS** - Electrochemical Society
- ✓ **ACS** - American Chemical Society
- ✓ **ISE** - International Society of Electrochemistry

Journal review boards

Elsevier: Electrochemistry Communication, Electrochimica Acta, International Journal of Hydrogen Energy, Journal of Power Sources, Applied Catalysis B: Environmental, Nature Catalysis, Nature Energy

ACS Publications: JACS, ACS Catalysis

ECS: Electrochemical and Solid-State Letters, JES

BOOKS and BOOKS CHAPTERS

[1] S. Kabir, **A. Serov** "Anodic materials for electrooxidation of alcohols in alkaline media" Electrochemistry: Volume 14, edited by Craig Banks, Steven McIntosh, RSC 2017.

SPECIAL ISSUES and SECTIONS EDITOR

[1] Special Section: Alkaline membrane fuel cells: state-of-the-art and remaining challenges; Edited by **Dr. Alexey Serov**, Dr. Christopher G. Arges, Dr. Iryna V. Zenyuk and Prof. Marian Chatenet; Journal of Power Sources | Vol 375 (2018)

JOURNAL PUBLICATION: *(ORCID: 0000-0003-3182-4726)*

Published (183) – First author (32) – Corresponding author (42)
2018 (25); 2019 (9); 2020 (6); 2021 (10); 2022 (11); 2023 (17); 2024 (1)

H-index = 70; i_{10}-index = 175; Citations = 14955 (Google Scholar)

Electrocatalysts/Materials/Energy Related

2024

[183] Z. Li, P. Wang, X. Lyu, V. Krishna Reddy Kondapalli, S. Xiang, J. D Jimenez, L. Ma, T. Ito, T. Zhang, J. Raj, Y. Fang, Y. Bai, J. Li, **A. Serov**, V. Shanov, A. I Frenkel, S. D Senanayake, S. Yang, T. P Senftle, J. Wu "Directing CO_2 electroreduction pathways for selective C2 product formation using single-site doped copper catalysts" Nature Chemical Engineering 1 (2024) 159-169. DOI: https://doi.org/10.1038/s44286-023-00018-w
(IF = Pending)

2023

[182] R. Ezhov, O. Maximova, X. Lyu, D. Leshchev, E. Stavitski, **A. Serov**, Y. Pushkar "Spectroscopic Characterization of Highly Active Fe–N–C Oxygen Reduction Catalysts and Discovery of Strong Interaction with Nafion Ionomer" ACS Applied Energy Materials 7 (2023) 604-613. DOI: https://doi.org/10.1021/acsaem.3c02522
(IF = 6.4)
[181] D. Sebastián, S. Trocino, C. L. Vecchio, **A. Serov**, P. Atanassov, V. Baglio "Dye-sensitized solar cells based on critical raw material-free Fe–N–C counter electrodes" Materials for Renewable and Sustainable Energy (2023) DOI: https://doi.org/10.1007/s40243-023-00241-8
(IF =4.2)
[180] X. Lyu, J. Li, J. Yang, **A. Serov** "Significance of Slight Ambient Temperature Variation on the Electrocatalyst Performance toward Oxygen Evolution Reaction" Journal of Environmental Chemical Engineering (2023) DOI: https://doi.org/10.1016/j.jece.2023.111492
(IF =7.7)
[179] A. Pedersen, J. Pandya, G. Leonzio, **A. Serov**, A. Bernardi, I. Stephens, M.-M. Titirici, C. Petit, B. Chachuat "Comparative techno-economic and life-cycle analysis of precious versus non-precious

metal electrocatalysts: The case of PEM fuel cell cathodes" Green Chem (2023) DOI: https://doi.org/10.1039/D3GC03206J
(**IF = 9.8**)
[178] X. Xu, N. Kang, B. Zulevi, **A. Serov**, P.N. Pintauro "Highly durable platinum group metal-free catalyst fiber cathode MEAs for proton exchange membrane fuel cells" J. Power Sources 586 (2023) 233679. DOI: https://doi.org/10.1016/j.jpowsour.2023.233679
(**IF = 9.2**)
[177] X. lyu, **A. Serov** "Cutting-edge methods for amplifying the oxygen evolution reaction during seawater electrolysis: a brief synopsis" Ind. Chem. Mater., (2023) DOI: https://doi.org/10.1039/D3IM00071K
(**IF = Pending**)
[176] M. J. Zachman, **A. Serov**, X. Lyu, S. McKinney, H. Yu, M. P. Oxley, L. Spillane, E. F. Holby, D. A. Cullen " Probing individual single atom electrocatalyst sites by advanced analytical scanning transmission electron microscopy" Electrochim. Acta 469 (2023) 143205. DOI: https://doi.org/10.1016/j.electacta.2023.143205
(**IF = 7.336**)
[175] X. Lyu, J. Foster, R. Rice, E. Padgett, E. B. Creel, J. Li, H. Yu, D. A. Cullen, N. N. Kariuki, J. H. Park, D. J. Myers, S. Mauger, G. Bender, S. Pylypenko, **A. Serov** "Aging gracefully? Investigating iridium oxide ink's impact on microstructure, catalyst/ionomer interface, and PEMWE performance" J. Power Sources 581 (2023) 233503. DOI: https://doi.org/10.1016/j.jpowsour.2023.233503
(**IF = 9.794**)
[174] X. Lyu, D. Anastasiadou, J. Raj, J. Wu, Y. Bai, J. Li, D. A. Cullen, J. Yang, L. PL Gonçalves, O. I. Lebedev, Y. V. Kolen'ko, M. Costa Figueiredo, **A. Serov** "Large-scale Synthesis of Metal/Nitrogen Co-doped Carbon Catalysts for CO_2 Electroreduction" Electrochim. Acta 455 (2023) 142427. DOI: https://doi.org/10.1016/j.electacta.2023.142427
(**IF = 7.336**)
[173] X. Lyu, Y. Bai, J. Li, R. Tao, J. Yang, **A. Serov** "Investigation of oxygen evolution reaction with 316 and 304 stainless-steel mesh electrodes in natural seawater electrolysis" J. of Environmental Chemical Engineering 11 (2023) 109667. DOI: https://doi.org/10.1016/j.jece.2023.109667
(IF =7.968)
[172] K. Muuli, X. Lyu, M. Mooste, M. Käärik, B. Zulevi, J. Leis, H. Yu, D. A. Cullen, **A. Serov**, K. Tammeveski "Outstanding Platinum Group Metal-free Bifunctional Catalysts for Rechargeable Zinc-Air Batteries" Electrochim. Acta (2023) DOI: https://doi.org/10.1016/j.electacta.2023.142126
(**IF = 7.336**)
[171] X. Lyu, T. Zhang, Z. Li, C.J. Jafta, **A. Serov**, I-H. Hwang, C. Sun, D.A. Cullen, J. Li, J. Wu "Trace level of atomic copper in N-doped graphene quantum dots switching the selectivity from C1 to C2 products in CO electroreduction" Materials Today Chemistry 29 (2023) 101398. DOI: https://doi.org/10.1016/j.mtchem.2023.101398
(**IF = 7.613**)
[170] C.L. Vecchio, X. Lyu, I. Gatto, B. Zulevi, **A. Serov**, V. Baglio "Performance investigation of alkaline direct methanol fuel cell with commercial PGM-free cathodic materials" J. Power Sources 561 (2023) 232732. DOI: https://doi.org/10.1016/j.jpowsour.2023.232732
(**IF = 9.794**)
[169] V. CA Ficca, C. Santoro, E. Placidi, F. Arciprete, **A. Serov**, P. Atanassov, B. Mecheri "Exchange Current Density as an Effective Descriptor of Poisoning of Active Sites in Platinum Group Metal-free Electrocatalysts for Oxygen Reduction Reaction" ACS Catalysis 13 (2023) 2162-2175. DOI: https://doi.org/10.1021/acscatal.2c05222
(**IF = 13.700**)
[168] A. M. Díez, X. Lyu, M. Pazos, M. Á. Sanromán, G. McCool, O. I. Lebedev, Y. V. Kolen'ko, **A. Serov** "Retrofitting of Carbon-Supported Bimetallic Ni-based Catalysts by Phosphorization for

Hydrogen Evolution Reaction in Acidic Media" Electrochim. Acta 443 (2023) 141923. DOI: https://doi.org/10.1016/j.electacta.2023.141923
(**IF = 7.336**)
[167] X. Lyu, J. Li, T. Zhang, Z. Li, I.-H. Hwang, C. Sun, C. J. Jafta, J. Yang, T. J. Toops, D. A. Cullen, **A. Serov**, J. Wu "Revealing the activity and selectivity of ppm level copper in gas diffusion electrodes towards CO and CO_2 electroreduction" EES Catalysis (2023) DOI: https://doi.org/10.1039/D2EY00071G
(**IF = Pending**)
[166] X. Lyu, T. Van Cleve, E. Young, J. Li, H. Yu, D.A. Cullen, KC Neyerlin, **A. Serov** "Design of graded cathode catalyst layers with various ionomers for fuel cell application" J. Power Sources 556 (2023) 232530. DOI: https://doi.org/10.1016/j.jpowsour.2022.232530
(**IF = 9.794**)

2022

[167] **A. Serov** "Nickel catalysts for affordable fuel cells", Nature Catalysis 5 (2022) 971-972. DOI: https://doi.org/10.1038/s41929-022-00872-6
(**IF = 40.706**)
[166] K. Artyushkova, T. Reshetenko, C. Roth, C. Santoro, **A. Serov**, J. André, M. Chatenet "Editorial for the Virtual Special Issue of Journal of Power Sources" Low temperature fuel cells and electrolysers" - Science and engineering: Let's play this game hand in hand!" J. Power Sources 550 (2022) 232123. DOI: https://doi.org/10.1016/j.jpowsour.2022.232123
(**IF = 9.794**)
[165] J. Sharma, X. Lyu, T. Reshetenko, G. Polizos, K. Livingston, J. Li, D. L. Wood, **A. Serov** "Catalyst layer formulations for slot-die coating of PEM fuel cell electrodes" Int. Journal of Hydrogen Energy 47 (2022) 35838-35850. DOI: https://doi.org/10.1016/j.ijhydene.2022.08.157
(IF =7.139)
[164] X. Lyu, J. Li, C.J. Jafta, Y. Bai, C.P. Canales, F. Magnus, Á.S. Ingason, **A. Serov** "Investigation of oxygen evolution reaction with Ni foam and stainless-steel mesh electrodes in alkaline seawater electrolysis" Journal of Environmental Chemical Engineering 10 (5) (2022) 108486. DOI: https://doi.org/10.1016/j.jece.2022.108486
(IF =7.968)
[163] A. Sveinbjörnsson, A. B. Gunnarsdóttir, E. B. Creel, C. P. Canales, B. Zulevi, X. Lyu, C. J. Jafta, E. Skúlason, **A. Serov**, H. D. Flosadóttir "Demonstration of no catalytical activity of Fe-N-C and Nb-N-C electrocatalysts toward nitrogen reduction using in-line quantification" SusMat (2022) DOI: https://doi.org/10.1002/sus2.81
(IF=Pending)
[162] E. Creel, X. Lyu, G. McCool, R. J. Ouimet, **A. Serov** "Protocol for Screening Water Oxidation or Reduction Electrocatalyst Activity in a Three-Electrode Cell for Alkaline Exchange Membrane Electrolysis" Front. Energy Res. (2022). DOI: https://doi.org/10.3389/fenrg.2022.871604
(IF=4.008)
[161] T. Reshetenko, M. Odgaard, G. Randolf, K. K. Ohtaki, J. P. Bradley, B. Zulevi, X. Lyu, D. A. Cullen, C. J. Jafta, **A. Serov**, A. Kulikovsky "Design of PGM-free Cathodic Catalyst Layers for Advanced PEM Fuel Cells" Applied Catalysis B: Environmental 312 (2022) 121424. DOI: https://doi.org/10.1016/j.apcatb.2022.121424
(**IF= 24.319**)
[160] A. Kiessling, J. C. Fornaciari, G. Anderson, X. Peng, A. Gerstmayr, M. R. Gerhardt, S. E. Mckinney, **A. Serov**, A. Z. Weber, Y. S. Kim, B. Zulevi, N. Danilovic "Influence of Supporting Electrolyte on Hydroxide Exchange Membrane Water Electrolysis Performance: Catholyte" Journal of The Electrochemical Society 169 (2022) 024510. DOI: https://doi.org/10.1149/1945-7111/ac4fed
(**IF=4.316**)

[159] S. Akula, M. Mooste, B. Zulevi, S. McKinney, A. Kikas, H.-M. Piirsoo, M. Rähn, A. Tamm, V. Kisand, **A. Serov**, E. B. Creel, D. A. Cullen, K. C. Neyerlin, H. Wang, M. Odgaard, T. Reshetenko, K. Tammeveski "Mesoporous textured Fe-N-C electrocatalysts as highly efficient cathodes for proton exchange membrane fuel cells" J. Power Sources 520 (2022) 230819. DOI: https://doi.org/10.1016/j.jpowsour.2021.230819
(**IF= 9.794**)
[158] E. B. Creel, K. Tjiptowidjojo, J. A. Lee, K. M. Livingston, P. R. Schunk, N. S. Bell, **A. Serov**, D. L. Wood III "Slot-Die-Coating Operability Windows for Polymer Electrolyte Membrane Fuel Cell Cathode Catalyst Layers" J. of Colloid and Interface Science 610 (2022) 474-485. DOI: https://doi.org/10.1016/j.jcis.2021.11.047
(**IF: 9.965**)
[157] V. CA Ficca, C. Santoro, E. Marsili, W. Da Silva Freitas, **A. Serov**, P. Atanassov, B. Mecheri "Sensing nitrite by iron-nitrogen-carbon oxygen reduction electrocatalyst" Electrochim. Acta 402 (2022) 139514. DOI: https://doi.org/10.1016/j.electacta.2021.139514
(**IF: 6.901**)

2021

[156] L. P.L. Gonçalves, **A. Serov**, G. McCool, M. Dicome, J. P.S. Sousa, O. S. G.P. Soares, O. Bondarchuk, D. Y. Petrovykh, O. I. Lebedev, M. F. R. Pereira, Y. Kolen'ko "New Opportunity for Carbon-Supported Ni-based Electrocatalysts: Gas-phase CO_2 Methanation" ChemCatChem (2021) DOI: https://doi.org/10.1002/cctc.202101284
(**IF: 5.686**)
[155] M. J. Dzara, A. O. Godoy, M. Odgaard, B. Zulevi, **A. Serov**, J. Jankovic, S. Pylypenko "Physicochemical Properties of ECS Supports and Pt/ECS Catalysts" ACS Appl. Energy Mater. (2021) DOI: https://doi.org/10.1021/acsaem.1c01392
(**IF: 6.024**)
[154] C. L. Vecchio, **A. Serov**, M. Dicome, B. Zulevi, A. S. Aricò, V. Baglio "Investigating the durability of a direct methanol fuel cell equipped with commercial Platinum Group Metal-free cathodic electro-catalysts" Electrochimica Acta (2021) DOI: https://doi.org/10.1016/j.electacta.2021.139108
(**IF: 6.901**)
[153] A. Kiessling, J. C. Fornaciari, G. Anderson, X. Peng, A. Gerstmayr, M. R. Gerhardt, S. E. Mckinney, **A. Serov**, Y. S. Kim, B. Zulevi, A. Z. Weber, N. Danilovic "Influence of Supporting Electrolyte on Hydroxide Exchange Membrane Water Electrolysis Performance: Anolyte" J. of The Electrochemical Society 168 (2021) 084512. DOI: https://doi.org/10.1149/1945-7111/ac1dcd
(**IF: 4.316**)
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