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Employment

Assistant Professor

Department of Green Technology (IGT)
University of Southern Denmark
Odense M
15. Jan 2020 → 31. Mar 2023

Assistant Professor

SDU Chemical Engineering
University of Southern Denmark
Odense M
14. Jan 2020 → 31. Mar 2023

Research outputs

Spent fuel cell electrocatalyst recycling through potentiodynamic dissolution of platinum

Sharma, R. & Andersen, S. M., 4. Oct 2020.

Research output: Contribution to conference without publisher/journal › Poster › Research

Electrochemical Dissolution of PtRu Nanoparticles: Electrocatalyst Stability During Operation and Recycling of Spent Catalysts

Sharma, R., Gyergyek, S., Morgen, P. & Andersen, S. M., 30. Aug 2020. 1 p.

Research output: Contribution to conference without publisher/journal › Poster › Research

Platinum recycling through electroless dissolution under mild conditions using a surface activation assisted Pt-complexing approach

Sharma, R., Morgen, P. & Andersen, S. M., 17. Jun 2020, In: Physical chemistry chemical physics : PCCP. 22, 23, p. 13030-13040

Research output: Contribution to journal › Journal article › Research › peer-review

On the Electrochemical Stability of PtRu Alloy Electrodes in Aqueous Acidic Baths: A Strategy for Recycling Pt and Ru

Sharma, R., Gyergyek, S., Morgen, P. & Andersen, S. M., 5. Feb 2020, In: Journal of The Electrochemical Society. 167, 2, 9 p., 024521.

Research output: Contribution to journal › Journal article › Research › peer-review

Method for dissolving precious metals

Andersen, S. M. & Sharma, R., 7. Nov 2019, IPC No. C22B3/00, C25C5/02, Patent No. WO2019211318 (A1), 1. May 2019, Priority date 2. May 2018, Priority No. EP20180170312 20180502

Research output: Patent

Inhibition of Ostwald ripening through surface switching species during potentiodynamic dissolution of platinum nanoparticles as an efficient strategy for platinum group metal (PGM) recovery

Sharma, R., Simonsen, S. B., Morgen, P. & Andersen, S. M., 20. Oct 2019, In: Electrochimica Acta. 321, 11 p., 134662.

Research output: Contribution to journal › Journal article › Research › peer-review

Particle Size-Controlled Growth of Carbon-Supported Platinum Nanoparticles (Pt/C) through Water-Assisted Polyol Synthesis

Sharma, R., Wang, Y., Li, F., Chamier, J. & Andersen, S. M., 24. Sep 2019, In: ACS Omega. 4, 13, p. 15711-15720
Research output: Contribution to journal › Journal article › Research › peer-review

Synthesis of Pt/C electrocatalyst from a user-friendly Pt precursor - ammonium hexachloroplatinate through microwave-assisted polyol synthesis

Sharma, R., Wang, Y., Li, F., Chamier, J. & Andersen, S. M., 23. Sep 2019, In: ACS Applied Energy Materials. 2, 9, p. 6875-6882
Research output: Contribution to journal › Journal article › Research › peer-review

Sustainable platinum recycling through electrochemical dissolution of platinum nanoparticles from fuel cell electrodes

Sharma, R., Rode Nielsen, K., Lund, P. B., Simonsen, S. B., Grahl-Madsen, L. & Andersen, S. M., 2. Sep 2019, In: ChemElectroChem. 6, 17, p. 4471-4482
Research output: Contribution to journal › Journal article › Research › peer-review

Pt/C Electrocatalyst Synthesis from Recycling of the Spent PEMFC Membrane Electrode Assembly: A Closed Loop Circular Economy

Sharma, R., Andreasen, S. J., Chamier, J. & Andersen, S. M., 22. Aug 2019, In: Journal of The Electrochemical Society. 166, 13, p. F963-F970 8 p.
Research output: Contribution to journal › Journal article › Research › peer-review

Evolution of the degradation mechanisms with the number of stress cycles during an accelerated stress test of carbon supported platinum nanoparticles

Sharma, R., Gyergyek, S., Li, Q. & Andersen, S. M., 1. Apr 2019, In: Journal of Electroanalytical Chemistry. 838, p. 82-88
Research output: Contribution to journal › Journal article › Research › peer-review

Influence of dispersion media on Nafion® ionomer distribution in proton exchange membrane fuel cell catalyst carbon support

Sharma, R., Grahl-Madsen, L. & Andersen, S. M., 15. Mar 2019, In: Materials Chemistry and Physics. 226, p. 66-72
Research output: Contribution to journal › Journal article › Research › peer-review

Accurate determination of catalyst loading on classy carbon disk and its impact on thin film rotating disk electrode for oxygen reduction reaction

Chourashiya, M., Sharma, R. & Andersen, S. M., Dec 2018, In: Analytical Chemistry. 90, 24, p. 14181-14187
Research output: Contribution to journal › Journal article › Research › peer-review

An opinion on catalyst degradation mechanisms during catalyst support focused accelerated stress test (AST) for proton exchange membrane fuel cells (PEMFCs)

Sharma, R. & Andersen, S. M., Dec 2018, In: Applied Catalysis B: Environmental. 239, p. 636-643
Research output: Contribution to journal › Journal article › Research › peer-review

Environmentally and industrially friendly recycling of platinum nanoparticles through electrochemical dissolution–electrodeposition in acid-free/dilute acidic electrolytes

Sharma, R., Gyergyek, S. & Andersen, S. M., 11. Sep 2018, In: ChemSusChem (Print). 11, 21, p. 3742-3750
Research output: Contribution to journal › Journal article › Research › peer-review

Accurate determination of catalyst loading on glassy carbon disk and its impact on thin film rotating disk electrode for oxygen reduction reaction.

Chourashiya, M., Sharma, R. & Andersen, S. M., 18. Jul 2018.
Research output: Contribution to conference without publisher/journal › Poster › Research › peer-review

Probing the electrolyte/electrode interface of half-cells using electrochemical impedance spectroscopy

MEDINA, J., Chourashiya, M., Sharma, R. & Andersen, S. M., 2018, p. 32. 32 p.
Research output: Contribution to conference without publisher/journal › Poster › Research › peer-review

Quantification on Degradation Mechanisms of Polymer Electrolyte Membrane Fuel Cell Catalyst Layers during an Accelerated Stress Test

Sharma, R. & Andersen, S. M., 2018, In: ACS Catalysis. 8, 4, p. 3424-3434

Research output: Contribution to journal > Journal article > Research > peer-review

Zoom in catalyst/ionomer interface in polymer electrolyte membrane fuel cell electrodes: Impact of catalyst/ionomer dispersion media/solvent

Sharma, R. & Andersen, S. M., 2018, In: A C S Applied Materials and Interfaces. 10, 44, p. 38125-38133

Research output: Contribution to journal > Journal article > Research > peer-review

Effects of Ni doping induced band modification and Ni₃Se₂ nanoinclusion on thermoelectric properties of PbSe

Gayner, C., Sharma, R., Das, M. K. & Kar, K. K., 2017, In: Journal of Alloys and Compounds. 699, p. 679-689

Research output: Contribution to journal > Journal article > Research > peer-review

Functionally graded elastomeric composites as microwave shielding media

Sharma, R., Ahankari, S. S., Kar, K. K., Biswas, A. & Srivastav, K. V., 2017, In: Journal of Elastomers and Plastics. 49, 1, p. 37-46

Research output: Contribution to journal > Journal article > Research > peer-review

Structural and ion transport properties of [(AgI)_x(AgBr)_{0.4-x}](LiPO₃)_{0.6} and (AgBr)_x(LiPO₃)_(1-x) solid electrolytes

Kumar, A., Sharma, R., Gayner, C., Rao, S. N., Singh, D. P., Das, M. K. & Kar, K. K., 2017, In: International Journal of Applied Glass Science. 8, 1, p. 97-104

Research output: Contribution to journal > Journal article > Research > peer-review

Structural and ion transport properties of lithium triflate/poly(vinylidene fluoride-co-hexafluoropropylene)-based polymer electrolytes

Kumar, A., Sharma, R., Suresh, M., Das, M. K. & Kar, K. K., 2017, In: Journal of Elastomers and Plastics. 49, 6, p. 513-526

Research output: Contribution to journal > Journal article > Research > peer-review

Synthesis and Characterization of Layered Double Hydroxides Containing Optically Active Transition Metal Ion

Tyagi, S. B., Kharkwal, A., Nitu, Kharkwal, M. & Sharma, R., 2017, In: Solid State Sciences. 63, p. 93-102

Research output: Contribution to journal > Journal article > Research > peer-review

Effects of surface microstructure and chemical state of featherfiber-derived multidoped carbon fibers on the adsorption of organic water pollutants

Benjwal, P., Sharma, R. & Kar, K. K., 15. Nov 2016, In: Materials and Design. 110, p. 762-774

Research output: Contribution to journal > Journal article > Research > peer-review

Boost in room temperature thermoelectric performance of PbSe: Al_x through band modification and low densification

Gayner, C., Sharma, R., Das, M. K. & Kar, K. K., 21. Oct 2016, In: Journal of Applied Physics. 120, 15, 155106.

Research output: Contribution to journal > Journal article > Research > peer-review

Impacts of ceramic filler and the crystallite size of polymer matrix on the ionic transport properties of lithium triflate/poly(vinylidene fluoride-co-hexafluoropropene) based polymer electrolytes

Kumar, A., Sharma, R., Das, M. K., Gajbhiye, P. & Kar, K. K., 10. Oct 2016, In: Electrochimica Acta. 215, p. 1-11

Research output: Contribution to journal > Journal article > Research > peer-review

Helically coiled carbon nanotube electrodes for flexible supercapacitors

Cherusseri, J., Sharma, R. & Kar, K. K., 1. Aug 2016, In: Carbon. 105, p. 113-125

Research output: Contribution to journal > Journal article > Research > peer-review

Exploring the doping effects of copper on thermoelectric properties of lead selenide

Gayner, C., Sharma, R., Mallik, I., Das, M. K. & Kar, K. K., 21. Jun 2016, In: Journal of Physics D: Applied Physics. 49, 28, 285104.

Research output: Contribution to journal > Journal article > Research > peer-review

Li-ion transport, structural and thermal studies on lithium triflate and barium titanate incorporated poly(vinylidene fluoride-co-hexafluoropropene) based polymer electrolyte

Kumar, A., Logapperumal, S., Sharma, R., Das, M. K. & Kar, K. K., 1. Jun 2016, In: *Solid State Ionics*. 289, p. 150-158
Research output: Contribution to journal › Journal article › Research › peer-review

Effects of Surface Roughness and N-content on Oxygen Reduction Reaction Activity for the Carbon-based Catalyst Derived from Poultry Featherfiber

Sharma, R. & Kar, K. K., 10. Feb 2016, In: *Electrochimica Acta*. 191, p. 876-886
Research output: Contribution to journal › Journal article › Research › peer-review

Advanced carbon-carbon composites: Processing properties and applications

Sharma, R., Ravikumar, N. L., Dasgupta, K., Chakravarty, J. K. & Kar, K. K., 1. Jan 2016, *Composite Materials: Processing, Applications, Characterizations*. Springer Science+Business Media, p. 315-367
Research output: Chapter in Book/Report/Conference proceeding › Book chapter › Research › peer-review

Carbon nanotube-/graphene-reinforced ceramic composites

Sharma, R. & Kar, K. K., 1. Jan 2016, *Composite Materials: Processing, Applications, Characterizations*. Springer Science+Business Media, p. 599-625
Research output: Chapter in Book/Report/Conference proceeding › Book chapter › Research › peer-review

Effect of concentration gradient on the magnetic properties of functionally graded styrene butadiene rubber composites

Sharma, R., Ahankari, S. S. & Kar, K. K., 1. Jan 2016, *Composite Materials: Processing, Applications, Characterizations*. Springer Science+Business Media, p. 413-432
Research output: Chapter in Book/Report/Conference proceeding › Book chapter › Research › peer-review

Mangifera indica, Ficus religiosa and Polyalthia longifolia leaf extract-assisted green synthesis of graphene for transparent highly conductive film

Chamoli, P., Sharma, R., Das, M. K. & Kar, K. K., 1. Jan 2016, In: *RSC Advances*. 6, 98, p. 96355-96366
Research output: Contribution to journal › Journal article › Research › peer-review

Nanocomposites based on carbon nanomaterials and electrically nonconducting polymers

Banerjee, S., Sharma, R. & Kar, K. K., 1. Jan 2016, *Composite Materials: Processing, Applications, Characterizations*. Springer Science+Business Media, p. 251-280
Research output: Chapter in Book/Report/Conference proceeding › Book chapter › Research › peer-review

Short carbon fiber-reinforced polycarbonate composites

Sharma, R., Kar, K. K., Das, M. K., Gupta, G. K. & Kumar, S., 1. Jan 2016, *Composite Materials: Processing, Applications, Characterizations*. Springer Science+Business Media, p. 199-221
Research output: Chapter in Book/Report/Conference proceeding › Book chapter › Research › peer-review

Superhydrophobic and superoleophobic surfaces in composite materials

Manna, O., Das, S. K., Sharma, R. & Kar, K. K., 1. Jan 2016, *Composite Materials: Processing, Applications, Characterizations*. Springer Science+Business Media, p. 647-686
Research output: Chapter in Book/Report/Conference proceeding › Book chapter › Research › peer-review

Oxygen reduction reaction activity of nitrogen, oxygen and sulphur containing carbon derived from low-temperature pyrolysis of poultry featherfiber

Sharma, R. & Kar, K. K., 11. Aug 2015, In: *Electrochimica Acta*. 176, p. 1054-1064 11 p., 25390.
Research output: Contribution to journal › Journal article › Research › peer-review

Hierarchically structured catalyst layer for the oxygen reduction reaction fabricated by electrodeposition of platinum on carbon nanotube coated carbon fiber

Sharma, R. & Kar, K. K., 24. Jul 2015, In: *RSC Advances*. 5, 82, p. 66518-66527 10 p.
Research output: Contribution to journal › Journal article › Research › peer-review

Effects of structural disorder and nitrogen content on the oxygen reduction activity of polyvinylpyrrolidone-derived multi-doped carbon

Sharma, R. & Kar, K. K., 14. Jun 2015, In: *Journal of Materials Chemistry A*. 3, 22, p. 11948-11959 12 p.

Research output: Contribution to journal › Journal article › Research › peer-review

Particle size and crystallographic orientation controlled electrodeposition of platinum nanoparticles on carbon nanotubes

Sharma, R. & Kar, K. K., 20. Feb 2015, In: *Electrochimica Acta*. 156, p. 199-206 8 p.

Research output: Contribution to journal › Journal article › Research › peer-review

Nanotechnology advancements on carbon nanotube/polypyrrole composite electrodes for supercapacitors

Cherusseri, J., Sharma, R. & Kar, K. K., 1. Jan 2015, *Handbook of Polymer Nanocomposites. Processing, Performance and Application: Volume B: Carbon Nanotube Based Polymer Composites*. Springer Science+Business Media, p. 479-510 32 p.

Research output: Chapter in Book/Report/Conference proceeding › Book chapter › Research › peer-review

Polymer electrolyte membrane fuel cells: Role of carbon nanotubes/graphene in cathode catalysis

Sharma, R., Cherusseri, J. & Kar, K. K., 1. Jan 2015, *Handbook of Polymer Nanocomposites. Processing, Performance and Application: Volume B: Carbon Nanotube Based Polymer Composites*. Springer Science+Business Media, p. 361-390 30 p.

Research output: Chapter in Book/Report/Conference proceeding › Book chapter › Research › peer-review

Viscoelastic properties of coil carbon nanotube-coated carbon fiber-reinforced polymer nanocomposites

Sharma, R., Yadav, A. K., Panwar, V. & Kar, K. K., 1. Jan 2015, In: *Journal of Reinforced Plastics and Composites*. 34, 12, p. 941-950 10 p.

Research output: Contribution to journal › Journal article › Research › peer-review

Carbon nanotube coated carbon fiber based composite filaments for luminescent bulbs

Sharma, R. & Kar, K. K., 15. Dec 2014, In: *Materials Letters*. 137, p. 150-152 3 p.

Research output: Contribution to journal › Journal article › Research › peer-review

INCANDESCENT LAMP

Kar, K. K., Sharma, R., Rahman, A. & Agarwal, S., 1. Mar 2012

Research output: Patent

Activities

Study of the catalyst/ionomer interface in PEMFC electrodes through quantification of the degradation mechanisms during an accelerated stress test

Raghunandan Sharma (Speaker) & Shuang Ma Andersen (Other)

31. Oct 2019 → 1. Nov 2019

Hahn-Meitner-Institut, Berlin, Germany

Raghunandan Sharma (Visiting researcher)

2. Jul 2018 → 5. Jul 2018

Hahn-Meitner-Institut, Berlin, Germany

Raghunandan Sharma (Visiting researcher)

11. Jun 2018 → 16. Jun 2018

Electrochemistry and Battery testing Workshop

Raghunandan Sharma (Participant)

30. May 2018

Danish IP Fair 2018

Raghunandan Sharma (Participant)
29. May 2018

Neutron and Synchrotron Sample Environment Workshop

Raghunandan Sharma (Participant)
2. May 2018 → 3. May 2018

Quantification on degradation mechanisms of polymer electrolyte membrane fuel cell catalyst layers during accelerated stress test

Raghunandan Sharma (Speaker)
25. Apr 2018 → 27. Apr 2018

Den danske brint- og brændselscelledag 2017

Raghunandan Sharma (Participant)
28. Nov 2017

Probing the ionomer/catalyst layer interface at PEMFC cathode

Raghunandan Sharma (Speaker)
2. Nov 2017 → 3. Nov 2018

Danscatt annual meeting 2017

Raghunandan Sharma (Participant)
1. Jun 2017 → 2. Jun 2018