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Personal details:

Born on 23-02-1985, Male, Indian, Married

Languages:

English, Hindi & Bengali

Webpages:

CSIR-CIMFR:

https://cimfr.nic.in/division/water-resource-management.html

Research id:

http://www.researcherid.com/rid/G-5566-2011

Google scholar id:

http://scholar.google.co.in/citations?user=B2MtDzYAAAAJ&hl=en

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http://orcid.org/0000-0002-4413-4700

Scopus:

https://www.scopus.com/authid/detail.uri?authorId=36174242400

Scientific contribution

- *No. of Research Articles:* 48
- *No. of patents:* 4
- *No. book chapter :* 4
- *Sponsored Project:* 01

  Title: Reduced TiO_2-based materials for solar energy utilization (DST-INSPIRE)
  Funding agency: DST, INDIA
  Duration: 5y
  Budget: ₹ 35 lakh
  Status: Completed

Dr. Apurba Sinhamahapatra

Senior Scientist, CSIR-CIMFR, Dhanbad, India

EXPERIENCE

Senior Scientist (Nov, 2022-to date)

Water Resource Management, CSIR-Central Institute of Mining and Fuel Research (CIMFR), Dhanbad, India

DST-INSPIRE Faculty (Dec 2017 - Oct 2022)

Department of Chemical Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, India

Postdoctoral Researcher (Mar - Aug 2017)

School of Urban and Environmental Engineering, Ulsan National Institute of Science and Technology (UNIST), Ulsan, South Korea

Postdoctoral Researcher (Mar 2015 - Mar 2017)

Department of Energy Systems Engineering, Daegu Gyeongbuk Institute of Science and Technology (DGIST), South Korea

Research Professor (Jun 2014 – Feb 2015)

Department of Advanced Materials Chemistry, Korea University, Sejong Campus, Sejong City, South Korea

CSIR-Senior Research Fellow (April 2013 – Feb 2014)

Department of Inorganic Materials and Catalysis, CSIR-Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar, India

Project Assistant II (Aug 2008 to Mar 2012| May 2012 - April 2013)

Department of Inorganic Materials and Catalysis, CSIR-Central Salt and Marine Chemicals Research Institute (CSMCRI), Bhavnagar, India

RESEARCH INTEREST

- Nanoscale materials: Fabrication and characterization
- Water quality monitoring, Water treatment, Mine-water, Sea water, Industrial water, Heavy metal removal, Advanced oxidation, Oil-water separation, Solar evaporation
- Wastewater/mine effluent to hydrogen generation
- Artificial photosynthesis, Solar energy utilization, photocatalysis.

- CSIR Funded Project:-01
  Title: Single-atom photocatalyst (M1-TiO2) for photocatalytic hydrogen generation from mine water.
  Funding agency: CSIR
  Duration: 2y
  Budget: ₹ 29.9 lakh
  Status: Ongoing
- Inhouse Project:-01
  Title: Alternative Treatment Approach to Treat Mine Wastewater for Utilization and Valorization
  Funding agency: CSIR-CIMFR
  Duration: 2y
  Budget: ₹ 86.928 Lakh
  Status: Ongoing

Citation Metrics (June 2024):

Google Scholar

- *Total Citation:* 2936
- *H Index:* 29
- *i10 Index:* 39

Web of Science

- *Total Citation:* 2388
- *H Index:* 28

Scopus

- *Total Citation:* 2463
- *H Index:* 28

Thesis Supervised/Supervising:

- Master: **10**
- Doctorate: **1** (ongoing)

Recognitions, Memberships, and Awards:

- Member of ACS Chemical Societies
- Awarded as **SRF** (Senior Research Fellow) by **CSIR-INDIA** (April 2013)
- **DST INSPIRE Faculty** by **DST, INDIA** (July 2017)

EDUCATION

Ph.D. (Chemical Science)/2014

From Central Salt and marine chemical research institute (CSIR-CSMCRI)-Bhavnagar/Academy of Scientific & Innovative Research (AcSIR), India.

Thesis: Zirconia based mesoporous materials: Synthesis, Characterization and Heterogeneous Catalysis

M.Sc. (Chemistry)/ 2008

IIT (ISM) Dhanbad (previously Indian School of Mines University)

B.Sc. (Chemistry)/2006

Ramananda College, Bishnupur/ the University of Burdwan, Burdwan.

HS examination (10th +2) (Science)/2002

Simlapal M. M. High School, Simlapal / West Bengal Council of Higher Secondary Education (WBCHSE).

Madhyamik examination (10th)/2000

Simlapal M. M. High School, Simlapal / West Bengal Board of Secondary Education (WBBSE).

TECHNICAL SKILLS

- An enthusiastic and motivated researcher with broad experience in designing and fabricating task-specific nanostructured materials
- Experience in water quality monitoring, freshwater generation from waste-water and seawater; Removal of heavy metals from industrial water
- Experience in heterogeneous catalysis, electrocatalysis, photocatalysis, water splitting, bio-sensing, battery and supercapacitor, and identification of the organic molecules
- Expertise in surface modification and characterization
- Expertise in designing organic and photocatalysis reactions and reactor
- Extensive experience in design, synthesis (micro & macro scale), lead identification & optimization of different nanostructured metal oxides, sulfides, and phosphates
- Instrumental analysis for characterization of materials, like p-XRD, Surface area analyzer, XPS, IR, Raman, MPMS, ESR, Solid MAS NMR, TPD/R/O, ICP, UV, SEM, TEM, and for application, GC, GC-MS, NMR, MS, electrochemical workstation

PUBLICATIONS

Journals

48. Aniruddha Mondal, Muthuraja Velpandian, Himadri Tanaya Das, **Apurba Sinhamahapatra**, Suddhasatwa Basu, Mohd Afzal, *"Fabrication of defective mesoporous cerium oxide nanostructure for promoting an efficient and stable electrocatalytic oxygen evolution reaction"*, **Next Materials** Volume 3, April 2024, 100169, | DOI: 10.1016/j.nxmate.2024.100169

47. Muthuraja Velpandian, **Apurba Sinhamahapatra**, Suddhasatwa Basu, *"Environmental and economic benefits of single-atom catalysts in energy conversion and storage"* **Oxford Open Energy**, Volume 2, 2023, oiad015, | DOI: 10.1093/ooenergy/oiad015

46. Aniruddha Mondal, Himadri Tanaya Das, Elango Balaji T, Nigamananda Das, Mohd Afzal, Arnab Kanti Giri, **Apurba Sinhamahapatra**, and Kotesh Kumar Mandari, "*Facile Synthesis of Crystalline Molybdenum Carbide (Mo2C) Nanoparticles Coupled with a N-Doped Porous Carbon Sheet: A Synergistic Effect on the Electrocatalytic Hydrogen Evolution Reaction"* **Energy Fuels** 2023, 37, 24, 19801–19811 | DOI: 10.1021/acs.energyfuels.3c03345

45. Srishti, **Apurba Sinhamahapatra**, Aditya Kumar, "*Assessing the non-wettability and sustainability of cellulosic jute for roadway applications". Cellulose., 2023,* ***30****, 7839-7852DOI: https://doi.org/10.1007/s10570-023-05358-7*

44. Srishti, **Apurba Sinhamahapatra**, Aditya Kumar, "*Review of the progress of solar-driven interfacial water evaporation (SIWE) toward a practical approach". Energy Adv., 2023,* ***2****, 574-605 DOI: 10.1039/D3YA00028A*

43. Sapan Kumar Pandit, Poonam Chauhan, **Apurba Sinhamahapatra**, Yash Parekh, M. Ghalib Enayathullah, Kiran Kumar Bokara, Aditya Kumar, *COVID-19 repellent cloth,* **Frontiers in Chemical Engineering, Surface and Interface Engineering,** 4, 2022 | https://doi.org/10.3389/fceng.2022.1066184

42. Srishti, Khushi Khandelwal, Aditya Kumar and **Apurba Sinhamahapatra**, *Progress on TiO_2 -based materials for Solar Water Interfacial evaporation*, **Frontiers in Chemical Engineering, Surface and Interface Engineering,** 4, 2022 | https://doi.org/10.3389/fceng.2022.1046019

41. Anita Samage, Pooja Gupta, Mahaveer A. Halakarni, Sanna Kotrappanavar Nataraj, and Apurba Sinhamahapatra. "*Progress in the Photoreforming of Carboxylic Acids for Hydrogen Production*" **Photochem** 2022, 2, no. 3: 580-608.| DOI: 10.3390/photochem2030040

40. MD Shakir, Manohar Prasad, Koustav Ray, Siddhartha Sengupta, **Apurba Sinhamahapatra**, Shaomin Liu, Hari Vuthaluru, "*$NaBH_4$-Assisted Synthesis of B–(Ni–Co)/$MgAl_2O_4$ Nanostructures for the Catalytic Dry Reforming of Methane*", **ACS Applied Nano Materials** 2022, 5, 8, 10951–10961|DOI: 10.1021/acsanm.2c02213, (IF: 6.14|Q2).

39. MD Shakir, Siddhartha Sengupta, **Apurba Sinhamahapatra**, Shaomin Liu, Hari Vuthaluru "*B-Ni/$MgAl_2O_4$ catalyzed dry reforming of methane: The role of boron to resist the formation of graphitic carbon*", **Fuel** 2022, 123950,| DOI:10.1016/j.fuel.2022.123950, (IF: 8.035|Q1).

38. Manohar Prasad, Koustuv ray, **Apurba Sinhamahapatra**, Siddhartha Sengupta *Ni/$Ce_xZr_{1-x}O_2$ catalyst prepared via one-step co-precipitation for CO_2 reforming of CH_4 to produce syngas: role of oxygen storage capacity (OSC) and oxygen vacancy formation energy (OVFE).*, **Journal of Materials Science**. 2022, 57, 2839–2856 |DOI : 10.1007/s10853-021-06720-5, (IF: 4.682|Q2)

37. Aditya Kumar, Kalpita Nath, Yash Parekh, M. Ghalib Enayathullah, Kiran Kumar Bokara, **Apruba Sinhamahapatra**, *Antimicrobial silver nanoparticle-photodeposited fabrics for SARS-CoV-2 destruction*, **Colloids and Interface Science Communications** 2021, 45, 100542| DOI:10.1016/j.colcom.2021.100542 (IF: 5.633|Q1)

36. Shreya Singh, Arindam Modak, Kamal Kishore Pant, **Apurba Sinhamahapatra**, and Pratim Biswas, *MoS_2–Nanosheets-Based Catalysts for Photocatalytic CO_2 Reduction: A Review*, **ACS Applied Nano Materials** 2021, 4, 9, 8644–8667| DOI: 10.1021/acsanm.1c00990. (IF: 6.14|Q2)

35. Shubham Biswas, Ha-Young Lee, Manohar Prasad, Abhishek Sharma, Jong-Sung Yu, Siddhartha Sengupta, Devendra Deo Pathak, **Apurba Sinhamahapatra**, *Black TiO_{2-x} Nanoparticles Decorated with Ni Nanoparticles and Trace Amounts of Pt Nanoparticles for Photocatalytic Hydrogen Generation*, **ACS Applied Nano Materials** 2021, 4, 5, 4441–4451, DOI:10.1021/acsanm.0c03484. (IF: 6.14|Q2)

34. Aniruddha Mondal, Shubham Biswas, Aditya Kumar, Jong-Sung Yu, **Apurba Sinhamahapatra**, *Sub 10 nm CoO nanoparticle-decorated graphitic carbon nitride for solar hydrogen generation via efficient charge separation*, **Nanoscale Advances**, 2020, 2, 4473-4481, DOI: 10.1039/D0NA00508H. (IF: 5.598|Q2)

33. Balraj Krishnan Tudu, Apurba Sinhamahapatra, Aditya Kumar, *Surface Modification of Cotton Fabric Using TiO2 Nanoparticles for Self-Cleaning, Oil–Water Separation, Antistain, Anti-Water Absorption, and Antibacterial Properties*, **ACS omega,** 2020, 5, 7850-7860**,** DOI:10.1021/acsomega.9b04067 (IF: 4.132|Q2)

32. Kiran Pal Singh, Cheol-Hwan Shin, Ha-Young Lee, Fatemeh Razmjooei, **Apurba Sinhamahapatra**, Joonhee Kang, Jong-Sung Yu, *TiO_2/ZrO_2 Nanoparticle Composites for Electrochemical Hydrogen Evolution*, **ACS Applied Nano Materials** 2020, 3, 3634-3645, DOI: 10.1021/acsanm.0c00346 (IF: 6.14|Q2)

31. Balraj Krishnan Tudu, Varun Gupta, Aditya Kumar, **Apurba Sinhamahapatra**, *Freshwater production via efficient oil-water separation and solar-assisted water evaporation using black titanium oxide nanoparticles* **Journal of Colloid and Interface Science** 2020, 566, 183-193 DOI: 10.1016/j.jcis.2020.01.079 (IF: 9.965|Q1)

30. M K Meena, **A Sinhamahapatra**, A Kumar, *Superhydrophobic polymer composite coating on glass via spin coating technique*, **Colloid and Polymer Science**, 2019, 297, 1499-1505 DOI: 10.1007/s00396-019-04560-z **(**IF: **2.434|Q3)**

29. **Apurba Sinhamahapatra**, Ha-Young Lee, Shaohua Shen, Samuel S. Mao, and Jong-Sung, Yu, *H-doped TiO_{2-x} prepared with MgH_2 for highly efficient solar-driven hydrogen production***, Applied Catalysis B: Environmental,** 2018**,** 237**,** 613-621**,** DOI:10.1016/j.apcatb.2018.06.030**, (**IF: 24.319| Q1)

28. Arka Saha, **Apurba Sinhamahapatra** (co-first author), Tong-Hyun Kang, Subhash Chandra Ghosh, Jong-Sung Yu and Asit Baran Panda, *Hydrogenated MoS_2 QD-TiO_2 heterojunction mediated efficient solar hydrogen production***, Nanoscale,** 2017**,** 9**,** 17029-17036**,** DOI:10.1039/C7NR06526D**, (**IF: 8.307|Q1)

27. Abdul Razzaq, **Apurba Sinhamahapatra**, Tong-Hyung Kang, Craig A. Grimes, Jong-Sung Yu, Su-Il In, *Efficient Solar Light Photoreduction of CO_2 to Hydrocarbon Fuels via Magnesiothermally Reduced TiO_2 Photocatalyst***, Applied Catalysis B: Environmental,** 2017**,** 215**,** 28-35**,** DOI:10.1016/j.apcatb.2017.05.028**, (**IF: 24.319| Q1)

26. **Apurba Sinhamahapatra**, Jong Pil Jeon, and Jong-Sung Yu, *Oxygen-Deficient Zirconia (ZrO_{2-x}): A New Material for Solar Light Absorption***, Scientific Reports,** 2016**,** 6**,** 27218**,** DOI:10.1038/srep27218**, (**IF: 4.996|Q2)

25. **Apurba Sinhamahapatra**, Jong Pil Jeon, and Jong-Sung Yu, *A new approach to prepare highly active and stable black titania for visible light-assisted hydrogen production***, Energy & Environmental Science,** 2015**,** 8**,** 3539-3544**,** DOI:10.1039/C5EE02443A**, (**IF: 39.714|Q1)

24. Dhrubajyoti Bhattacharjya, **Apurba Sinhamahapatra**, Jaejung Ko and Jong-Sung Yu, *High capacity and exceptional cycling stability of ternary metal sulfide nanorods as Li ion battery anode***, Chemical Communication,** 2015**,** 51**,** 13350-13353**,** DOI:10.1039/C5CC04289E**, (**IF: 6.065|Q2)

23. **Apurba Sinhamahapatra**, Dhrubajyoti Bhattacharjya and Jong-Sung Yu, *Green fabrication of 3-dimensional flower-shaped zinc glycerolate and ZnO microstructures for p-nitrophenol sensing***, RSC Advances,** 2015**,** 5**,** 37721-37728**,** DOI:10.1039/C5RA06286A**, (**IF: IF: 4.036|Q2)

22. Sandip Kumar Pahari, Provas Pal, **Apurba Sinhamahapatra**, Arka Saha, Chiranjit Santra, Subhash C Ghosh, Biswajit Chowdhury, Asit Baran Panda, *Efficient oxidation of hydrocarbons over nanocrystalline $Ce_{1-x}Sm_xO_2$ (x=0–0.1) synthesized using supercritical water*, **RSC Advances,** 2015, 5, 45144-45151, DOI:10.1039/C5RA05441A, (IF: 4.036|Q2)

21. **Apurba Sinhamahapatra**, Provas Pal, Abhijit Tarafdar, Hari Chand Bajaj, Asit Baran Panda, *Mesoporous borated zirconia: A novel solid acid-base bi-functional catalyst*, **ChemCatChem,** 2013, 5, 331-338, 10.1002/cctc.201200440, (IF: 5.497|Q2)

20. Arnab Kanti Giri, **Apurba Sinhamahapatra**, S. Prakash, Jayesh Chaudhari, Vinod Kumar Shahi, Asit Baran Panda, *Porous ZnO microtubes with excellent cholesterol sensing and catalytic properties*, **Journal of Materials Chemistry A,** 2013, 1, 814-822, DOI:10.1039/C2TA00107A, (IF: 14.511|Q1)

19. Provas Pal, Sandip Kumar Pahari, **Apurba Sinhamahapatra**, Muthirulandi Jayachandran, G. V. Manohar Kiruthika, Hari C. Bajaj, Asit Baran Panda, *CeO_2 nanowires with high aspect ratio and excellent catalytic activity for selective oxidation of styrene by molecular oxygen*, **RSC Advances,** 2013, 3, 10837-10847, DOI:10.1039/C3RA23485A, (IF: 4.036|Q2)

18. Provas Pal, Sandip Kumar Pahari, **Apurba Sinhamahapatra**, Arnab Kanti Giri, Hari C. Bajaj, Asit Baran Panda, *Porous cesium impregnated MgO (Cs–MgO) nanoflakes with excellent catalytic activity for highly selective rapid synthesis of flavanone*, **RSC Advances,** 2013, 3, 2802-2811, DOI:10.1039/C2RA23171A, (IF: 4.036|Q2)

17. **Apurba Sinhamahapatra**, Arnab Kanti Giri, Provas Pal, Sandip Kumar Pahari, Hari C. Bajaj, Asit Baran Panda, *A rapid and green synthetic approach for hierarchically assembled porous ZnO nanoflakes with enhanced catalytic activity*, **Journal of Materials Chemistry,** 2012, 22, 17227-17235, DOI:10.1039/C2JM32998K, (IF: 14.511|Q1)

16. **Apurba Sinhamahapatra**, Ankita Sinha, Sandip Kumar Pahari, Narottam Sutradhar, Hari Chand Bajaj, Asit Baran Panda, *Room temperature Baeyer-Villiger oxidation using molecular oxygen over mesoporous zirconium phosphate*, **Catalysis Science & Technology,** 2012, 2, 2375-2382, DOI:10.1039/C2CY20404E, (IF: 6.177|Q2)

15. Soumitra Ghorai, **Apurba Sinhamahpatra,** Asish Sarkar, Asit Baran Panda, Sagar Pal, *Novel biodegradable nanocomposite based on XG-g-PAM/SiO2: Application of an efficient adsorbent for Pb^{2+} ions from aqueous solution*, **Bioresource Technology,** 2012, 119, 181-190, DOI:10.1016/j.biortech.2012.05.063, (IF: 11.889|Q1)

14. Sandip Kumar Pahari, **Apurba Sinhamahapatra**, Narottom Sutradhar, Hari Chand Bajaj, Asit Baran Panda, *Onion slice shaped assembled ZnS quantum wires*, **Chemical Communication,** 2012, 48, 850-852, DOI:10.1039/C1CC14405G, (IF: 6.065|Q2)

13. Narottam Sutradhar, **Apurba Sinhamahapatra**, Sandip Kumar Pahari, Hari C. Bajaj, Asit Baran Panda, *Room temperature synthesis of protonated layered titanate sheets using peroxo titanium carbonate complex solution*, **Chemical Communication,** 2011, 47, 7731-7733, DOI:10.1039/c1cc12116b, (IF: 6.065|Q2)

12. **Apurba Sinhamahapatra**, Narottam Sutradhar, Sandip K. Pahari, Provas Pal, Dr. Hari C. Bajaj, Muthirulandi Jayachandran, Asit Baran Panda, *Allylic and Benzylic Oxidation over Cr(III)-Incorporated Mesoporous Zirconium Phosphate with 100% Selectivity*, **ChemCatChem,** 2011, 3, 1447-1450, DOI:10.1002/cctc.201100148, (IF: 5.497|Q2)

11. Apurba Sinhamahapatra, Narottam Sutradhar, Biplab Roy, Provas Pal, Hari C. Bajaj, Asit Baran Panda, *Microwave assisted synthesis of fine chemicals in solvent-free conditions over mesoporous zirconium phosphate*, **Applied Catalysis B: Environmental,** 2011, 103, 378-387, DOI:10.1016/j.apcatb.2011.01.045, (IF: 19.503|Q1)

10. **Apurba Sinhamahapatra**, Narottom Sutradhar, Malay Ghosh, Hari C. Bajaj, Asit B. Panda, *Mesoporous sulfated zirconia mediated acetalization reactions*, **Applied Catalysis A: General,** 2011, 402, 87-93, DOI:10.1016/j.apcata.2011.05.032, (IF: 24.319|Q2)

09. **Apurba Sinhamahapatra**, Narottam Sutradhar, Sandip Pahari, Hari C. Bajaj, Asit Baran Panda, *Mesoporous zirconium phosphate: An efficient catalyst for the synthesis of coumarin derivatives through Pechmann condensation reaction*, **Applied Catalysis A: General,** 2011, 394, 93-100, DOI:10.1016/j.apcata.2010.12.027, (IF: 5.723|Q2)

08. **Apurba Sinhamahapatra**, Sandip Kumar Pahari, Provas Pal, Hari C. Bajaj, Indrajit Mukhopadhyay, Asit Baran Panda, *Controlled Synthesis of Different Morphologies of MgO and Their Use as Solid Base Catalysts*, Narottom Sutradhar, **Journal of Physical Chemistry C,** 2011, 115, 12308-12316, DOI:10.1021/jp2022314, (IF: 4.177|Q2)

07. Narottam Sutradhar, **Apurba Sinhamahapatra**, Sandip Pahari, Muthirulandi Jayachandran, Balasubramanian Subramanian, Hari C. Bajaj, Asit Baran Panda, *Facile Low-Temperature Synthesis of Ceria and Samarium-Doped Ceria Nanoparticles and Catalytic Allylic Oxidation of Cyclohexene*, **Journal of Physical Chemistry C,** 2011, 115, 7628-7637, DOI:10.1021/jp200645q, (IF: 4.177|Q2)

06. Narottam Sutradhar, **Apurba Sinhamahapatra**, Biplab Roy, Hari C. Bajaj, Indrajit Mukhopadhyay, Asit Baran Panda, *Preparation of MgO nano-rods with strong catalytic activity via hydrated basic magnesium carbonates*, **Materials Research Bulletin,** 2011, 46, 2163-2167, DOI:10.1016/j.materresbull.2011.02.024, (IF: 5.6|Q2)

05. Bikash Karmakar, **Apurba Sinhamahapatra**, Asit Baran Panda, Julie Banerji, Biswajit Chowdhury, Ga-TUD-1: *A new heterogeneous mesoporous catalyst for the solventless expeditious synthesis of alpha-aminonitriles*, **Applied Catalysis A: General,** 2011, 392, 111-117, DOI:10.1016/j.apcata.2010.10.030, (IF: 5.723|Q2)

04. T. Selvamani, **Apurba Sinhamahapatra**, Dhurbajyoti Bhattacharjya, Indrajit Mukhopadhyay, *Rectangular MgO microsheets with strong catalytic activity*, **Materials Chemistry and Physics,** 2011, 129, 853-861, DOI:10.1016/j.matchemphys.2011.05.055, (IF: 4.778|Q2)

03. Sandip Kumar Pahari, Narottom Sutradhar, **Apurba Sinhamahapatra**, Provas Pal, Asit Baran Panda, *Synthesis of nearly monodispersed metal oxide nanoparticles in water*, **New Journal of Chemistry,** 2011, 35, 1460-1465, DOI:10.1039/c1nj20221a, (IF: 3.925|Q2)

02. Sandip Mandal, **Apurba Sinhamahapatra**, Batchu Rakesh, Rawesh Kumar, Asit Panda, Biswajit Chowdhury, *Synthesis, characterization of Ga-TUD-1 catalyst and its activity towards styrene epoxidation reaction*, **Catalysis Communications,** 2011, 12, 734-738, DOI:10.1016/j.catcom.2011.01.004, (IF: 3.51|Q2)

01. **Apurba Sinhamahapatra**, Narottam Sutradhar, Biplab Roy, Abhijit Tarafdar, Hari C. Bajaj, Asit Baran Panda, *Mesoporous zirconium phosphate catalyzed reactions: Synthesis of industrially important chemicals in solvent-free conditions*, **Applied Catalysis A: General** , 2010, 385, 22-30, DOI:10.1016/j.apcata.2010.06.016, (IF: 5.723|Q2)

Patents

04. J. S. Yu and **Apurba Sinhamahapatra**, *"Preparation method of black zirconia and the black zirconia using the same"* ***Korean Patent*** Application 10-2016-0026325 *dated 04-03-2016*; Registration Date 27-06-2017, Registration No.10-1753227

03. J. S. Yu and **Apurba Sinhamahapatra**, *"Reduction method of metal oxides and manufacturing method of reduced titania using the same"* ***Korean Patent*** Application 10-2016-0093986 dated 25-07-2016, Registration Date 09-11-2017, Registration No.10-1798129

02. A. B. Panda, S. C. Ghosh, H. C. Bajaj, A. Mondal, **A. Sinhamahapatra**, P. Pal, A. Saha, A. K. Giri, "*Method for preparation of nanostructured inorganic pure and mixed metal oxide with ultra-low bulk density*" ***Indian Patent*** Application no. 3486/DEL/2014, *dated 01-12-2014*.

01. Asit Baran Panda, Hari C. Bajaj, **Apurba Sinhamahapatra**, Narottam Sutradhar, "*Nanocrystalline and mesoporous titanium dioxide and its preparation from titanium carbonate source*" ***Indian Patent*** Application No: 772/DEL/2010, *dated 31-03-2010, Granted date 07-12-2016, Granted No. 277962*

Book/Book Chapter

4. Srishti, Aditya Kumar, **Apurba Sinhamahapatra**, *Chapter 9 - Biomimetics in smart coatings*, Editor(s): Aditya Kumar, Ajit Behera, Tuan Anh Nguyen, Muhammad Bilal, Ram K. Gupta, Antiviral and Antimicrobial Smart Coatings, Elsevier, 2023, Pages 263-285, ISBN 9780323992916, https://doi.org/10.1016/B978-0-323-99291-6.00013-X

3. Sachin Karki, Aniruddha Mondal, **Apurba Sinhamahapatra**, Pravin Ingole, (2022) *Synthesis and Engineering of High-Performance Transition Metal-Based Electrocatalysts for Green Hydrogen Production and Storage*, Transition Metal-Based Electrocatalysts: Applications in Green Hydrogen Production & Storage, 169-203 DOI:10.1021/bk-2023-1435.ch007

2. Pooja Gupta, Aditya Kumar, **Apurba Sinhamahapatra** (2021), *Liquid Fuel From Plastic Waste*, Reference Module in Materials Science and Materials Engineering, Elsevier, ISBN 9780128035818, https://doi.org/10.1016/B978-0-12-820352-1.00128-0

1. Debasis Nanda, **Apruba Sinhamahapatra**, Aditya Kumar, (2021) *Superhydrophobic Metal Surface*. In: Hosseini M., Karapanagiotis I. (eds) Materials with Extreme Wetting Properties. Springer, Cham. https://doi.org/10.1007/978-3-030-59565-4_8, ISBN 978-3-030-59564-7

Conference Proceedings

2. MD Shakir, Siddhartha Sengupta, **Apurba Sinhamahapatra**, Hari Vuthaluru, "*Effect of B prompted on Ni-Co bimetallic Ce0. 6Zr0. 4O2 catalyst"* Chemeca 2021: Advance, Disrupt and Sustain, 2021, 374-376 Publisher: Engineers Australia, Doi: 10.3316/informit.117065290851588

1. **Apurba Sinhamahapatra**, Jong-Pil Jeon, Jong-Sung Yu, "*Oxygen-deficient Reduced TiO_{2-x}: Surface Properties and Photocatalytic Activity*" **Proceedings of the Korean Institute of Surface Engineering Conference**, 2016, 59-75/ Publisher: The Korean Institute of Surface Engineering

Symposium and conference

18. Contributed to the International Conference on **Chemical Engineering: Enabling Transition Towards Sustainable Future (Chem TSF-2022)** organized by the Department of Chemical Engineering, IIT Roorkee in September 2022, oral presentation: Photoreduction of Cr(VI) to Cr(III) over photodeposited copper on TiO_2 (Cu/TiO_2) in the presence of glycerol

17. Contributed to **WASM:MECE 1st HDR conference 2022**, Australia, Oral presentation: *Effect of B prompted on Ni-Co bimetallic $Ce_{0.6}Zr_{0.4}O_2$ catalyst.*

16. Contributed to an international conference **CHEMECA 2021**, Australia, Oral presentation: *Effect of B prompted on Ni-Co bimetallic $Ce_{0.6}Zr_{0.4}O_2$ catalyst.*

15. Contributed to **ACS Spring 2021** Poster presentation: *Enhancement of catalyst performance by doping B over the Ni, Co, Ni-Co $CeZrO_2$ for dry reforming of methane reaction.*

14. Contributed to International Conference on Material for the Millennium (**MATCON-2021**), Oral presentation, "*Enhancement of catalyst performance by doping B over the Ni, Co for dry reforming of methane reaction*".

13. Contributed at the **12th International Conference on Applied Energy (ICAE2020)**, the United Nations Conference Centre (UNCC) International Bangkok: Oral Presentation: *Synthesis of boron-containing Ni, Co, Ni-Co/$MgAl_2O_4$ catalyst for dry reforming of methane*.

12. Contributed to **National Conference on Advances in Chemical Engineering and Science (ACES)-2020**, oral presentation: "*Dry Reforming of Methane for the Production of Syngas over Ceria-Zirconia Supported Nickel-based Catalysts*,".

11. Contributed to **International Conference on Advances in Material Science and Chemistry (ICAMSC), 2020** Oral presentation: "*The Development of Ceria- Zirconia Supported Nickel-based Catalysts for the Production of Syngas by Catalytic Reforming of CH_4 with CO_2*"

10. Contributed to the 73rd Annual Session of the Indian Institute of Chemical Engineers, **CHEMCON – 2020**. Oral presentation: "*Thermodynamic Analysis of Dry Reforming of Methane for the Production of Syngas using Aspen Plus at Equilibrium Conditions*,".

9. Contribution in **CHEMCON'19**, IIT Delhi oral presentation: *Development of superhydrophobic surfaces for efficient solar evaporation using reduced metal oxide*

8. Contributed to **Indo-German Workshop on Waste to Wealth (IGW3)-2019** organized by CSIR-AMPRI-Bhopal, India poster presentation: *Black TiO2 nanoparticles based superhydrophobic coating on metallic meshes*.

7. Present a paper in **RAMSE-2018**, organized by the Department of Applied Chemistry, Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand in Mar-2018 under the title *Black Zirconia Materials (ZrO2-x) for Solar Light Utilization*.

6. Present a paper at the **Korean Chemical Society (KCS)** meeting held at Daegu- Exco, South Korea, on October 2015 under the title "*A greener approach to zinc glycerolate and ZnO micro-flowers for water pollutant sensing*".

5. Present a paper in **21st CATSYMP** held at CSIR-IICT, Hydrabad, India, on February 2013 under the title "*Synthesis and catalytic activity study of zirconium-based mesoporous materials*".

4. Present a paper in the **20th NSC** held at NCCR, IITM, Chennai, India, on December 2010 under title "*Liquid phase benzylation of benzene and substituted benzene with benzyl chloride over mesoporous zirconium phosphate*".

3. Send a paper in **MATCON-2010** held at the Department of Applied Chemistry, Kochi University, Kochi, India, on January 2010, under the title "*Mesoporous Sulfated Zirconia: Synthesis, Characterization and Catalytic Application Towards Solvent-Free Synthesis of Acetal*".

2. Attend **10th Orientation Program on Catalysis** organized by the Catalysis Society of India on December 2009, at NCCR, IITM, Chennai, India.

1. Present a paper in **CATSYMP-19** held at CSIR-NCL, Pune-411008, India, on January 2009 under the title "*Synthesis of Surface Modified TiO_2 Using Supercritical Water and Ethanol and its Photocatalytic Activity*".
