

Curriculum Vitae – December 2023

Tewodros (Teddy) Asefa

Professor, Department of Chemical and Biochemical Engineering
Professor, Department of Chemistry and Chemical Biology
Member, The Rutgers Energy Institute (REI)
Member, The Laboratory for Surface Modification (LSM)
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Research Interests

Nanoscience/nanotechnology; materials chemistry; catalysis; electrocatalysis for fuel cells; electrolyzers and renewable energy; colorimetric sensors; dye-sensitized solar cells; nanoporous silicas, metal oxides, and inorganic-organic hybrid nanocomposite materials; sol-gel synthesis and self-assembly; nanobiomaterials, antimicrobials and nanomedicines; nanomaterials for environmental remediation and water treatment; and nanoelectronics. Enjoys collaborative research.

Education:

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| Post-Doctoral
Fellow | Materials Chemistry, McGill University; 12/2002 – 5/2005
<u>Advisor:</u> Prof. R. Bruce Lennox
<u>Project:</u> Metal and semiconductor nanoparticles synthesis through electroless and chemical vapor deposition in porous matrices and on nanopatterned substrates |
| Post-Doctoral
Fellow | Materials Chemistry, University of Toronto; 8/2002 – 12/2002
<u>Advisor:</u> Prof. Geoffrey A. Ozin
<u>Project:</u> Functionalization of nanoporous materials <i>via</i> high temperature vapor phase reactions |
| Ph.D. | Materials Chemistry, University of Toronto; 9/1998– 8/2002
<u>Advisor:</u> Prof. Geoffrey A. Ozin
<u>Dissertation:</u> Periodic Mesoporous Organosilicas - A New Class of Hybrid Organic-Inorganic Nanocomposites |
| M.A. | Chemistry, State University of New York at Buffalo & Institute for Lasers, Photonics & Biophotonics, Buffalo, NY; 9/1996 – 9/1998
<u>Advisor:</u> Prof. Paras N. Prasad
<u>Dissertation:</u> Nanostructured Materials for Photonics |
| B.Sc | Chemistry, Distinction, Addis Ababa University, Ethiopia; 10/1988-8/1992
<u>Advisor:</u> Prof. Dirshaye Menberu
<u>Research:</u> Isolation and Characterization of Anthochlor Compounds |

Employment and Research Experience

- 07/2015 – Date - Professor, Department of Chemistry and Chemical Biology, Rutgers, The State University of New Jersey at New Brunswick
- 07/2015 – Date - Professor, Department of Chemical and Biochemical Engineering, Rutgers, The State University of New Jersey at New Brunswick
- 08/2019 - Visiting Research Fellow, Institute of Scientific Instruments (ISI), Czech Academy of Sciences, Czech Republic; Summer 2019
- 3/2016 – 5/2016 - Visiting Professor, Department of Chemistry and Applied Biosciences, ETH Zürich, Zürich, Switzerland, 2016
- 10/2014 – 12/2014 - Visiting Professor, Department of Chemistry, Kyoto University, Kyoto, Japan
- 10/2014 – 12/2017 - Visiting Professor, Department of Chemistry, Maringá State University, Maringá, Paraná, Brazil, 2014-2017
- 09/2009 – 06/2015 - Associate Professor of Chemistry and Chemical Biology, Rutgers, The State University of New Jersey at New Brunswick
- 09/2009 – 06/2015 - Associate Professor of Chemical and Biochemical Engineering, Rutgers, The State University of New Jersey at New Brunswick
- 06/2015 - International Advisory Board Member, International Workshop on Graphene and C₃N₄-based Photocatalysts, Wuhan University of Technology, Wuhan, China
- 06/2014 - International Advisory Board Member, International Nanoporous Symposium, Canada.
- 09/2009 – 2018 - Member, The Rutgers Institute for Materials, Devices, and Nanotechnology (IAMDN)
- 09/2009 – Date - Member, The Rutgers Energy Institute (REI)
- 09/2009 – Date - Member, The Rutgers Institute for Materials, Devices, and Nanotechnology (IAMDN)
- 12/2009 – Date - Interim Director, The Rutgers Catalysis Research Center (RCRC)
- 03/2011 – 2012 - Vice-President, Sigma Xi Rutgers Chapter for Faculty and Professional Engineers
- 06/2005 – 08/2009 - Assistant Professor of Chemistry, Syracuse University
- 07/2007 – 08/2009 - Assistant Professor of Biochemistry, Syracuse University
- 01/2007 – 08/2009 - Member of the Syracuse Biomaterials Institute (SBI)
- 10/2003 – 11/2004 - Guest Lecturer in Nanoscience and Nanotechnology course, McGill University, Montreal, Canada (two years)
- 09/2003 – 10/2003 - Guest Lecturer in Supramolecular Self-assembly course, Concordia University, Canada
- 11/2004 – 11/2004 - Judged Graduate Presentations, Chemistry and Biochemistry Graduate Research Conference, Concordia University, Canada
- 09/1998 – 08/2002 - Teaching Assistant, University of Toronto, Canada; General Chemistry and Introductory Physical Chemistry
- Research Assistant, University of Toronto, Canada (Organosilanes synthesis, nanoporous organic-inorganic hybrid materials, supramolecular self-assembly, catalysis, etc.)
- 08/1996 – 09/1998 - Research Assistant, State University of New York at Buffalo and Institute for Lasers, Photonics and Biophotonics, Buffalo, USA

- 09/1992 – 08/1996 - Assistant Lecturer and Graduate Teaching Assistant, Basic Sciences Department, Debub University, Awassa, Ethiopia
- 09/1991 – 06/1992 - Chemistry Tutor, Addis Ababa University, Ethiopia;
- Undergraduate Research Assistant: Natural products

Professional Societies and Services

- 2020–Date International Advisory Board Member for Institute of Scientific Instruments (ISI), Czech Academy of Sciences, Czech Republic
- 2019–Date Associate Editor, Science Advances (A sister journal of Science, published by AAAS)
- 2019 Lectureship at Zhou Huijiu Forum, School of Materials Science and Engineering, Xi'an Jiaotong University, Xi'an, China
- 2019–Date Advisory Board Member for the journal Frontiers of Chemical Science and Engineering, Springer
- 2018 Advisory Committee Member for the 3rd International Symposium on Energy and Environmental Photocatalytic Materials (EPPM3), Kraków, Poland
- 2017–Present Advisory Board Member for the journal - Small Methods, Wiley.
- 2017–Present Advisory Board Member for the journal - Materials Today Nano, Elsevier
- 2017–2018 Guest Editor, Special Issue, Frontiers of Chemical Science and Engineering, Springer
- 2016 Scientific Advisory Board Member, National Science Foundation (NSF), Ceramic Division, Washington DC
- 2017–Present Interim Director, The Rutgers Catalysis Research Center (RCRC)
- 2007–Present Advisory Board Member, International Symposiums on Nanoporous Materials
- 2009–Present Member, Catalysis Society of Metropolitan New York (CSMNY)
- 2006–2009 Advisory Board Member, Journal ChemTracts – Inorg. Chem.
- October 2010 Invited Annual Oversight Reviewer of the NIST/NSF Center for High Resolution Neutron Scattering (CHRNS) facility at NIST Campus, Gaithersburg, MD
- September 2010 Invited Participant, NSF Ceramic Materials Principal Investigator Workshop, National Science Foundation, Washington, DC
- August 2010 Invited Panelist, Fulbright Fellowship Selection Committee, Institute for International Education (IIE), New York City, NY
- August 2010 Invited Panelist, SBIR Program, Nanotechnology, Environmental Protection Agency (EPA), Washington, DC
- July 2010 Panelist, STAR Program, Environmental Protection Agency (EPA), Washington, DC
- May 2010 Reviewer of Tenure Packet for National Central University of Taiwan, Taipei, Taiwan
- April 2010 Invited Panelist, SBIR Program, National Science Foundation, Washington, DC

October 2009	Invited Panelist, SBIR Program, Nanotechnology, Environmental Protection Agency (EPA), Washington, DC
November 2008	Invited Panelist, Small Business Innovation Research (SBIR), Nanotechnology, Environmental Protection Agency (EPA), Washington, DC
March 2008	Panelist Member, Materials World Network, Division of Materials Research, National Science Foundation (NSF), Washington, DC.
April 2008	Panelist, Joint NSF–DFG, Materials World Network (MWN), Bonn, Germany (One of the three participants from the US)
November 2008	Panelist, CAREER Proposals, Solid State and Materials Chemistry, National Science Foundation, Washington, DC
August 2007	Panelist, Nanotechnology, Environmental Protection Agency (EPA), Washington, DC
August 2006	Panelist, Small Business Innovation Research (SBIR) for Environmental Protection Agency, Washington, DC
1999–Present	Member, American Chemical Society (ACS)
2000–2002	Member, Materials Research Society (MRS)
2010–Present	Member, American Ceramics Society (ACerS)
2000–2002	Organizer, University of Toronto, Chemistry Soccer Team
2003–2005	Member, McGill University, Chemistry Soccer Team
2001–Present	Member, Association for Higher Education and Development (FANA, AHEAD, Ethiopian Canadian Scientists Association for Higher Education in Ethiopia)

Awards and Fellowships

- Highly Cited Researcher (Top 1% in all fields) in the years of 2023, 2022, 2021, 2020, 2019, and 2018; <https://clarivate.com/highly-cited-researchers/>
- One of Three Finalists, Grossman Innovation Prize, School of Arts and Sciences (SAS), Rutgers University at New Brunswick, 2020
- Rutgers TechAdvance Award, Rutgers University at New Brunswick, October 2021
- Visiting Professorship, Department of Chemistry and Applied Biosciences, ETH Zürich, Zürich, Switzerland, 2016
- CNPq Science Without Borders Fellowships for Visiting Professorship, Brazil, 2014-2017
- Promoted to Full Professor, Department of Chemistry and Chemical Biology (School of Arts and Sciences) & Department of Chemical and Biochemical Engineering (School of Engineering), Rutgers University, New Brunswick, July 2015
- Swiss National Science Foundation Fellowship for Visiting Professorship at ETH Zürich, Zürich, Switzerland, 2015
- NSF grant from the National Science Foundation, 2015-2018
- Visiting Professorship, Department of Chemistry, Kyoto University, Fall 2014
- Guest Lecturer, School of Materials Science and Engineering, South China University of Technology, Guangzhou, China; June 2013

- Rutgers Board of Trustees Research Fellowships for Scholarly Excellence, 2012
- NSF Special Creativity Award with from the National Science Foundation, 2011–2013
- NSF Grant from the National Science Foundation Environmental Health and Safety of Nanotechnology (NanoEHS) Program in Chemical, Environmental, Bioengineering, and Transport Systems (CBET) Division, 2011–2014
- NSF-DMR, American Competitiveness and Innovation (ACI) Fellow, One of the 10 Awardees for 2010
- NSF CAREER Award, 2007–2012
- NSF Grant, Division of Materials Research (DMR), 2008–2011
- Two Awards, Collaborative Activities for Research and Technology Innovation (CARTI) Grants, Syracuse Center of Excellence in Environmental and Energy Systems (Syracuse CoE), 2007–2009
- Grant, Empire State Development Corporation, 2007–2009
- Instrumentation Grant, National Science Foundation, 2007–2008
- Fulbright Scholar, 1996 – 1998, University of Delaware, USA and State University of New York at Buffalo, USA
- Dean’s List, B.Sc., 1992, Addis Ababa University, Ethiopia
- Distinction Graduate and First Rank, 1992, Chemistry Department, Addis Ababa University, Ethiopia
- Teaching / Research Assistantships, 1996 – 1998, Chemistry Department, State University of New York at Buffalo, USA
- Teaching / Research Assistantships, 1998-2002, Chemistry Department, University of Toronto, Canada
- University of Toronto Open Fellowships, 1999 – 2002, Chemistry Department, University of Toronto, Toronto, Canada

Book, Book Chapters, Patents and Peer-Reviewed Publications

Total Citation: > 30,500+; h-Index = 71, i10 Index = 179

<https://scholar.google.com/citations?user=bp1OJXwAAAAJ&hl=en>

Book

1. “Nanocatalysis: Synthesis and Applications” ~736 pages, Edited by Vivek Polshettiwar and Tewodros Asefa, John Wiley & Sons, Inc., **2013**. ISBN: 978-1-118-14886-0. Released July 2013:
<http://www.wiley.com/WileyCDA/WileyTitle/productCd-111814886X.html>

Book Chapters

- (9) Zhang, T.; Asefa, T.* “Fuel Cells and Electrolyzers: Nanoporous Materials for Electrocatalysis” in: Rothenberg, G., et al (Eds.) in “Handbook of Porous Materials: Materials and Energy, Volume 16” World Scientific, Singapore., **2020**, pp. 71. World Scientific, Singapore.
- (8) Asefa, T.*; Dubovoy, V. “Ordered Mesoporous/Nanoporous Inorganic Materials via Self-Assembly” Invited Book Chapter In: Atwood, J. L., (ed.) Comprehensive Supramolecular Chemistry II, **2017**, vol. 9, pp. 157-192. Oxford: Elsevier.
- (7) Asefa, T.; Huang, X. “Nanocatalysis: Catalysis by Nanomaterials” Invited Book Chapter in Handbook of Solid State Chemistry, First Edition. Edited by Richard Dronskowski, Shinichi Kikkawa, and Andreas Stein, **2017** Wiley-VCH Verlag GmbH & Co. KGaA.
- (6) Polshettiwar, V.*; Asefa, T.*; “Introduction to Nanocatalysis” Book Chapter In Nanocatalysis: Synthesis and Applications” (V. Polshettiwar, T. Asefa, eds.), John Wiley & Sons, Inc., **2013**, 1-10.
- (5) Asefa, T.*; Biradar, A. V.; Das, S.; Sharma, K. K.; Silva, R. “Nanocatalysts for the Heck Coupling Reactions” 40 pages, Book Chapter in “Nanocatalysis: Synthesis and Applications” (V. Polshettiwar, T. Asefa, eds.), John Wiley & Sons, Inc., **2013**, 11-50.
- (4) Asefa, T.*; Biradar, A. V.; Das, S.; Sharma, K. K. “Nanostructured Catalysts for the Henry, Aldol, and Knoevenagel Reactions” 30 pages, Book Chapter in “Nanocatalysis: Synthesis and Applications” (V. Polshettiwar, T. Asefa, eds.), John Wiley & Sons, Inc., **2013**, 221-250.
- (3) Asefa, T.*; Anan, A.; Duncan, C. T.; Xie, Y. “Spherical & Anisotropic Non-Magnetic Core-shell Nanomaterials - Synthesis and Characterization” *Invited Book Chapter* in a Book “Non-Magnetic Bi-Metallic and Metal Oxide Nanomaterials for Life Sciences”, Editor: Challa S. S. R. Kumar, Wiley-VCH, Volume 3, Chapter 9, **2009**, pp. 281-330.
- (2) Asefa, T.*; Anan, A.; Duncan, C. T.; Xie, Y. “Functionalized Nanoporous and Mesoporous Heterogeneous Catalysts – New Synthetic Strategies and Applications” *Invited Book Chapter* in a Book “Heterogeneous Catalysis Research Progress”, Editor: Mathias B. Gunther, Nova Publishers, New York, Chapter 2, **2009**, pp. 81-110.
- (1) Asefa, T.*; Sharma, K. K.; Anan, A.; Vathyam, R.; Buckley, R. P.; Dam, H. M.; Xie, Y.; Quinlivan, S.; Wang, G.; Duncan, C. “Efficient and Selective Nanoporous Catalysts by Placing Multiple Site-Isolated Functional Groups on Mesoporous Materials” *Invited Book Chapter* In “Nanoporous Materials” (A. Sayari and M. Jaroniec, eds.), World Scientific Publ. Co., Singapore, **2008**, pp. 497-508.

Patents:

1. Inventors: Asefa, T.; Dubovoy, V.; Ganti, A.; Boyd, J. M. "Benzalkonium-embedded mesostructured silica compositions and uses of same" United States Patent, Patent No.: 11,547,680; **Issued: January 10, 2023.**
2. Inventors: Asefa, T.*; Folmann, HDM; Silva, R.; Oliveira, O. "Multifunctional Hybrid Aerogels" United States Patent Application; Patent Application No.: 20200181347; Issued: **June 11, 2020.**
3. Inventors: Landers, J.; Niemark, A. V.; Asefa, T.; Vishnyakov, A.; Goswami, A.; Ortiz, J. C. "Multicatalyst Polyelectrolyte Membranes and Materials and Methods Utilizing the Same" United States Patent; Patent No.: 10,722,743; **Issued: July 28, 2020.**
4. Inventors: Yoon, C. W.*; Ham, H. C.; Nam, S. W.; Asefa, T.*; Koh, K.; Han, J.; Yoon, S. P.; Park, H. S.; Jeon, M. "Catalyst for Dehydrogenation Reaction of Formate and Hydrogenation Reaction of Bicarbonate and Preparation Methods Thereof" United States Patent and Korean Patent Applications; Patent No.: 10,688,474; **Issued: June 23, 2020.**
5. Inventors: Asefa, T.*; Dubovoy, V.; Ganti, A.; Boyd, J.* "Benzalkonium-Embedded Mesostructured Silica Compositions and Uses of Same" U.S. Non-Provisional Docket No. 370602-7004P1, Filed on **April 2018** (to Rutgers University).
6. Inventors: Asefa, T.*; Silva, R. "Polymer-Derived Catalysts and Methods of Use Thereof" United States Patent; Patent No.: 9,985,296; **Issued: May 19, 2018.**
7. Inventors: Asefa, T.*; Biradar, A. V.; Wang, Y. "Efficient and Recyclable Heterogeneous Nanocatalysts" United States Patent; Patent No.: 9,283,545; **Issued: March 15, 2016.**
8. Inventors: Asefa, T.*, Shi, Y.-L. "Corrugated and Nanoporous Microstructures and Nanostructures, and Methods for Synthesizing the Same" United States Patent; Patent No.: 9,176,140; **Issued: November 3, 2015.**
9. Inventors: Asefa, T.*, Fuller, R.; Schiff, E. A. "Mesoporous and Nanoporous Materials, and Methods of Synthesizing the Same" United States Patent, Patent No.: 8,802,045; **Issued: August 12, 2014.**
10. Inventors: Whitnal, W.; Asefa, T.; Ozin, G. A.* "Hybrid Organic-Inorganic Mesoporous Materials", United States Patent, Patent Number: 7767620; **Issued: August 3, 2010**; Licensed to Novx Systems Inc.

11. Inventors: Asefa, T.; Ozin, G. A.* "Functionalized Organometallic Crystalline Mesoporous Material Prepared by Metalation-Condensation of Organometallic Compounds" United States Patent; Patent No.: 6,960,551, **Issued: November 1, 2005**; Licensed to ExxonMobil Research and Engineering Company, USA.
12. Inventors: Asefa, T.*; Biradar, A. V. "Gold Nanocatalysts and Methods of Use Thereof" Provisional United States Patent Application No.: 61/484,040; Application Number: 13/467,492; Filed on **May 9, 2011**.
13. Inventors: Asefa, T.*; Silva, R. "Carbon Nanoneedles and Methods of Use Thereof" Invention Disclosure; United States Patent Application Published, **2011**.
14. Inventors: Asefa, T.*; Biradar, A. V.; Sharma, K. K. "Continuous and Selective Henry Reaction over Nanoporous Silica-Supported Amine Catalyst on Fixed Bed Reactor" Invention Disclosure; United States Patent Application Published, **2010**.

Peer-Reviewed Publications

2023 (Published and Submitted)

- (220) Sapner, V. S.; Goswami, A.; Zou, X.; Asefa, T.*; Sathe, B. R.* "Efficient Water Oxidation at Metal-Free, Phosphorus Acid-Functionalized Graphene Electrocatalytic Interface" *ACS Sustain. Chem. Eng.*, **2023**, *Submitted and Under Review*.
- (219) Yang, G.; Hu, F.; Cui, L.-L.; Fan, M.; Ge, X.; He, X.*; Zhang, W.*; Asefa, T.* "Deriving Paired Fe Sites on N-Doped Carbon from Fe(III)-Tetrapyrrolylporphyrin-Modified ZIF-8: Robust Electrocatalysts for Air Electrodes in Zinc-Air Batteries" *Inorg. Chem. Front.*, **2023**, *Submitted, Revised, and Currently Under Revision*.
- (218) Luo, X.; Lei, X.; Yang, L.; Zhao, J.; Asefa, T.*; Qiu, R.*; Huang, Z.* "Ball Milling of La₂O₃ Controls Crystal Structure, Reactive Oxygen Species, and Free Radical and Non-Free Radical Photocatalytic Pathways" *ACS Appl. Mater. & Interfaces*, **2023**, *Submitted, Revised, and Currently Under Revision*.
- (217) Liu, Y.; Deng, C.; Liu, F.; Dai, X.; Yang, X.; Chen, Y.; Wu, Z.; Guo, S.; Asefa, T.*; Liu, Y.* "Adjacent Pt Atomic Sites Improve d-p Orbital Hybridization between Ru Nanoclusters and CO₂ for an Efficient CO₂/H₂ Fuel Cell" *Adv. Funct. Mater.*, **2023**, *Submitted and Under Review*.
- (216) Muneeswaran, Z. P.; Teoman, B.; Wang, Y.; Chaudhry, H.; Brinzari, T. V.; Verma, G.; Ranasinghe, L.; Kaler, K. R.; Huang, K.; Thomas, B.; Xu, S.; Boyd, J. M.; Chen, D.; Hao, Z.; Ma, S.; Asefa, T.; Pan, L.; Dubovoy, V.* "Chlorhexidine Dodecyl Sulfate: Synthesis and Antimicrobial Investigation of Chlorhexidine with an Anionic Surfactant" *Dalton Trans.*, **2023**, *Accepted for Publication: In Press*.

- (215) Li, Y.; Thoma, B.; Tang, C.; Asefa, T.* "Enhancing the Electrocatalytic Activities of Metal Organic Frameworks for Oxygen Evolution Reaction with Bimetallic Groups" *Dalton Trans.*, **2023**, 52, 17834-17845.
- (214) Ramírez-Hernández, M.; Cox, J.; Thomas, B.; Asefa, T.* "Nanomaterials for Removal of Phenolic Derivatives from Water Systems: Progress and Future Outlooks" *Molecules*, **2023**, 28, 6568.
- (213) Xie, H.; Du, B.; Huang, X.; Zeng, D.; Meng, H.; Lin, H.; Li, W.; Asefa, T.*; Meng, Y.* "High Density Single Fe Atoms on Mesoporous N-Doped Carbons: Noble Metal-Free Electrocatalysts for Oxygen Reduction Reaction in Acidic and Alkaline Media" *Small*, **2023**, 2303214.
- (212) Ramírez-Hernández, M.; Norambuena, J.; Hu, H.; Thomas, B.; Tang, C.; Boyd, J. M.*; Asefa, T.* "Repurposing Anthelmintics: Rafoxanide- and Copper-Functionalized SBA-15 Carriers Against Methicillin-Resistant *Staphylococcus aureus*" *ACS Appl. Mater Interfaces*, **2023**, 15, 17459-17469.
- (211) Xing, T.; Wang, Y.; Shang, Y.; Zhao, R.*; Du, J.*; Asefa, T.* "Heterojunction-Engineered Reduced Graphene Oxide/SnO₂ with Mesoporous Structures for Gas Chemosensors" *ACS Applied Nano Materials*, **2023**, 6, 13984-13993.
- (210) Thomas, B.; Tang, C.; Ramírez-Hernández, M.; Asefa, T.* "Incorporation of Bismuth Increases the Electrocatalytic Activity of Cobalt Borates for Oxygen Evolution Reaction" *ChemPlusChem*, **2023**, e202300104.
- (209) Weng, Z.; Huang, H.; Li, X.; Zhang, Y.; Shao, R.; Yi, Y.; Lu, Y.; Zeng, X.; Zou, J.; Chen, L.; Li, W.; Meng, Y.*; Asefa, T.*; Huang, C.* "Coordination Tailoring of Epitaxial Perovskite-Derived Iron Oxide Films for Efficient Water Oxidation Electrocatalysis" *ACS Catal.*, **2023**, 13, 2751-2760.

2022

- (208) Tang, C.; Ramírez-Hernández, M.; Thomas, B.; Asefa, T.* "Selective and Efficient Extraction of Iron from Water Systems with a Recyclable Phytate-Polyaniline Hydrogel" *J. Cleaner Prod.*, **2022**, 380, 135006.
- (207) Bedin, K. C.; Cazetta, A. L.; Souza, I. P. A. F.; Spessato, L.; Zhang, T.; Araújo, R. A.; Silva, R.; Asefa, T.; Almeida, V. C.* "N-doped Spherical Activated Carbon from Dye Adsorption: Bifunctional Electrocatalyst for Hydrazine Oxidation and Oxygen Reduction" *J. Environ. Chem. Eng.*, **2022**, 10, 107458.
- (206) Luo, X.; Asefa, T.; Qiu, R.; Su, C.; Cui, L.; Huang, Z.* "Robust Adsorption and Persulfate-Based Degradation of Doxycycline by Oxygen Vacancy-Rich Copper-

Iron Oxides Prepared through a Mechanochemical Route" *ACS EST Water*, **2022**, *2*, 1031-1045.

- (205) Tang, C.; Thomas, B.; Ramírez-Hernández, M.; Mikmeková, E. M.; Asefa, T.* "Metal-Functionalized Hydrogels as Efficient Oxygen Evolution Electrocatalysts" *ACS Appl. Mater. Interfaces*, **2022**, *14*, 20919-20929.
- (204) Mulik, B. B.; Bankar, B. D.; Munde, A. V.; Biradar, A. V.; Asefa, T.* Sathe, B. R.* "Facile Synthesis and Characterization of γ -Al₂O₃ Loaded on Reduced Graphene Oxide for Electrochemical Reduction of CO₂" *Sustain. Energy Fuels*, **2022**, *6*, 5308-5315.
- (203) Tang, C.; Ramírez-Hernández, M.; Thomas, B.; Yeh, Y.-W.; Batson, P. E.; Asefa, T.* "Hierarchically Ordered Nanoporous Carbon with Exclusively Surface-Anchored Cobalt as Efficient Electrocatalyst" *Small Methods*, **2022**, *6*, 2200519.

2021

- (202) Teoman, B.; Muneeswaran, Z. P.; Verma, G.; Chen, D.; Brinzari, T. V.; Almeda-Ahmadi, A.; Norambuena, J.; Xu, S.; Ma, S.; Boyd, J. M.; Armenante, P. M.; Potanin, A.; Pan, L.; Asefa, T.*; Dubovoy, V.* "Cetylpyridinium Trichlorostannate: Synthesis, Antimicrobial Properties, and Controlled-Release Properties via Electrical Resistance Tomography" *ACS Omega*, **2021**, *6*, 35433-35441.
- (201) Ramírez-Hernández, M.; Thomas, B.; Tang, C.; Huang, Z.*; Asefa, T.* "Electrocatalytic Degradation of Tetracycline by Cu-PANI-SBA-15 on Nickel Foam via Persulfate-based Advanced Oxidation Process" Invited paper for a Special Issue on Multifunctional Electrocatalysis, *ChemElectroChem*, **2021**, *8*, 4296-4304.
- (200) Chen, X.; Li, Y.; Chen, L.; Cui, L.; Dou, Z.; He, X.*; Fan, M.*; Asefa, T.* "Sulfur-Bridged Iron-Polyphthalocyanine on Cu_xO/Copper Foam: Efficient and Durable Electrocatalyst for Overall Water Splitting" *Sustain. Energy Fuels*, **2021**, *5*, 5985-5993
- (199) Du, Q.; Zhao, R.; Guo, T.; Liu, L.; Chen, X.; Zhang, J.; Du, J.*; Li, J.*; Mai, L.*; Asefa, T.* "Highly Dispersed Mo₂C Nanodots in Carbon Nanocages Derived from Mo-Based Xerogel: Efficient Electrocatalysts for Hydrogen Evolution" *Small Methods*, **2021**, 2100334.
- (198) Guzmán, L.; Parra-Cid, C.; Guerrero-Muñoz, E.; Peña-Varas, C.; Polo-Cuadrado, E.; Duarte, Y.; Castro, R. I.; Nerio, L. S.; Araya-Maturana, R.; Asefa, T.; Echeverría, J.; Ramírez, D.; Forero-Doria, O.* "Antimicrobial Properties of Novel Ionic Liquids Derived from Imidazolium Cation with Phenolic Functional Groups" *Bioorg. Chem.*, **2021**, *115*, 105289.

- (197) Huang, Z.*; Shen, M.; Liu, J.; Ye, J.; Asefa, T.* "Facile Synthesis of an Effective g-C₃N₄ Catalyst for Advanced Oxidation Processes and Degradation of Organic Compounds" *J. Mater. Chem. A*, **2021**, *9*, 14841-14850.
- (196) Asefa, T.*; Tang, C.; Ramírez-Hernández, M. "Nanostructured Carbon Electrocatalysts for Energy Conversions" *Small*, **2021**, *7*, 2007136.
- (195) Kadam, R. G.; Zhang, T.; Zaoralová, D.; Medved', M.; Bakandritsos, A.; Tomanec, Petr, M.; Zhu Chen, J.; Miller, J. T.; Otyepka, M.; Zbořil, R.*; Asefa, T.*; Gawande, M. M.* "Single Co-Atoms as Electrocatalysts for Efficient Hydrazine Oxidation Reaction" *Small*, **2021**, *17*, 2006477.
- (194) Fragal, E. H.; Fragal, V. H.; Tambourgi, E. B.; Rubira, A. F.; Silva, R.; Asefa, T.* "Nanoporous Carbons Derived from Metal-Conjugated Phosphoprotein/Silica: Efficient Electrocatalysts for Oxygen Reduction and Hydrazine Oxidation Reactions" *J. Electroanal. Chem.*, **2021**, *882*, 114997.
- (193) Qi, Y.; Yuan, S.; Cui, L.; Wang, Z.; He, X.*; Zhang, W.*; Asefa, T.* "(Fe,Co)/N-Doped Multi-Walled Carbon Nanotubes as Efficient Bifunctional Electrocatalysts for Rechargeable Zinc-Air Batteries" *ChemCatChem*, **2021**, *13*, 1023-1033.
- (192) Zhang, T.; Asefa, T.* "Fuel Cells and Electrolyzers: Nanoporous Materials for Electrocatalysis" *Materials and Energy*, **2021**, 71-204.

2020

- (191) Fragal, V. H.; Fragal, E. H.; Silva, E. P.; Acerce, M.; Chhowalla, M.; Rubira, A. F.; Tambourgi, E. B.; Asefa, T.*; Silva, R.* "Nitrogen and Phosphorus Co-doped Nanoporous Carbons from Phosphoprotein/Silica Self-assemblies for Energy Storage in Supercapacitors" *ChemElectroChem*, **2020**, *7*, 4773-4781.
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- (30) Xie, Y.; Quinlivan, S.; Asefa, T.* "Tuning Metal Nanostructures within SBA-15 by Changing Metal Complexes Reduced In-situ with Grafted Imines and Hemiaminals" *J. Phys. Chem. C.*, **2008**, *112*, 9996-10003.
- (29) Tao, Z.; Morrow, M. P.; Sharma, K. K.; Duncan, C.; Anan, A.; Asefa, T.; Penefsky, H. S.; Goodisman, J.*, Kader, A.* "Mesoporous Silica Nanoparticles Inhibit Cellular Respiration" *Nano Lett.*, **2008**, *8*, 1517-1526.
- (28) Anan, A.; Sharma, K. K.; Asefa, T.* "Selective Efficient Trifunctional Nanoporous Catalysts for Nitroaldol Condensation: Co-Placement of Site-Isolated Multiple

Functional Groups on Mesoporous Materials" *J. Mol. Catal. A: Chem.*, **2008**, 288, 1-13. (*Chosen as an Editor's Choice Article*).

- (27) Sharma, K. K.; Anan, A.; Buckley, R. P.; Ouellette, W.; Asefa, T.* "Towards Efficient Nanoporous Catalysts: Controlling Site-Isolation and Concentration of Grafted Catalytic Sites on Nanoporous Materials with Solvents and Colorimetric Elucidation of their Site-Isolation" *J. Am. Chem. Soc.* **2008**, 130, 218-228.
- (26) Di Pasqua, A. J.; Sharma, K. K.; Shi, Y.-L.; Toms, B. B.; Ouellette, W.; Dabrowiak, J. C.*; Asefa, T.* "Cytotoxicity of mesoporous silica nanomaterials" *J. Inorg. Biochem.*, **2008**, 102, 1416-1423.

2007

- (25) Sharma, K. K.; Asefa, T.* "Efficient Bifunctional Nanocatalysts by Simple Postgrafting of Spatially-isolated Catalytic Groups on Mesoporous Materials" *Angew. Chem., Int. Ed.*, **2007**, 46, 2879-2882.
- (24) Otuonye, A.; Asefa, T.* "Efficient and Selective Nanoscale Catalysts by Solvent-Assisted Site-Isolated Grafting (SASIG) of Multiple Functional Groups on Mesoporous Materials" *Chemtracts Inorg. Chem.*, **2007**, 20, 85-93.
- (23) Shi, Y.-L.; Asefa, T.* "Tailored core-shell-shell nanostructures: Sandwiching gold nanoparticles between silica cores and tunable silica shells" *Langmuir*, **2007**, 23, 9455-9462. (*Among the Top Ten Most Accessed Articles in 2007*).

2006

- (22) Asefa, T.*; Shi, T.-L. "Super-stable high-quality Fe₃O₄ dendron-nanocrystals dispersible in both organic and aqueous solutions" *Chemtracts Inorg. Chem.*, **2006**, 19, 299-305.

Publications Prior to 2006 (as a Postdoctoral and as a Graduate Student)

- (21) Asefa, T.; Lennox, R. B. "Synthesis of gold nanoparticles via electroless deposition in SBA-15" *Chem. Mater.*, **2005**, 17, 2481-2483
- (20) Whitnall, W.; Asefa, T.; Ozin, G. A. "Hybrid periodic mesoporous organosilicas" *Adv. Funct. Mater.* **2005**, 15, 1696-1702.
- (19) Asefa, T.; Kruk, M.; Coombs, N.; Grondey, H.; MacLachlan, M. J.; Jaroniec, M.; Ozin, G. A. "Novel Routes to Periodic Mesoporous Aminosilicas, PMAs: Ammonolysis of Periodic Mesoporous Organosilicas" *J. Am. Chem. Soc.* **2003**, 125, 1662-11673.
- (18) Kruk, M.; Asefa, T.; Coombs, N.; Jaroniec, M.; Ozin, G. A. "Synthesis and

characterization of ordered mesoporous silicas with high loadings of methyl groups" *J. Mater. Chem.* **2002**, *12*, 3452-3457.

- (17) Kuroki, M.; Asefa, T.; Whitnal, W.; Kruk, M.; Yoshina-Ishii, C.; Jaroniec, M.; Ozin, G.A. "Synthesis and Properties of 1,3,5-Benzene Periodic Mesoporous Organosilica (PMO): Novel Aromatic PMO with Three Point Attachments and Unique Thermal Transformations" *J. Am. Chem. Soc.* **2002**, *124*, 13886-13895.
- (16) Kruk, M.; Asefa, T.; Jaroniec, M.; Ozin, G. A. "Synthesis and characterization of methyl and vinyl-functionalized ordered mesoporous silicas with high organic content" *Stud. Surf. Sci. Catal.* **2002**, *141*, 197-204.
- (15) Asefa, T.; Ozin, G. A.; Grondy, H.; Kruk, M.; Jaroniec, M. "Recent developments in the synthesis and chemistry of periodic mesoporous organosilicas" *Stud. Surf. Sci. Catal.* **2002**, *141*, 1-26.
- (14) Asefa, T.; Coombs, N.; Grondy, H.; Jaroniec, M.; Kruk, M.; MacLachlan, M. J.; Ozin, G. A. "Bio-inspired nanocomposites: from synthesis toward potential applications" *Mater. Res. Soc. Symp. Proc.* **2002**, *711*, 347-357.
- (13) Kruk, M.; Asefa, T.; Jaroniec, M.; Ozin, G. A. "Metamorphosis of Ordered Mesopores to Micropores: Periodic Silica with Unprecedented Loading of Pendant Reactive Organic Groups Transforms to Periodic Microporous Silica with Tailorable Pore Size" *J. Am. Chem. Soc.* **2002**, *124*, 6383-6392.
- (12) Matos, J. R.; Kruk, M.; Mercuri, L. P.; Jaroniec, M.; Asefa, T.; Coombs, N.; Ozin, G. A.; Kamiyama, T.; Terasaki, O. "Periodic Mesoporous Organosilica with Large Cagelike Pores" *Chem. Mater.* **2002**, *14*, 1903-1905.
- (11) Temtsin, G.; Asefa, T.; Bittner, S.; Ozin, G.A. "Aromatic PMOs: tolyl, xylyl and dimethoxyphenyl groups integrated within the channel walls of hexagonal mesoporous silicas" *J. Mater. Chem.* **2001**, *11*, 3202-3206.
- (10) Asefa, T.; Kruk, M.; MacLachlan, M.J.; Coombs, N.; Grondy, H.; Jaroniec, M.; Ozin, G. A. "Sequential hydroboration-alcoholysis and epoxidation-ring opening reactions of vinyl groups in mesoporous vinylsilica" *Adv. Funct. Mater.* **2001**, *11*, 447-456.
- (9) Asefa, T.; Kruk, M.; MacLachlan, M. J.; Coombs, N.; Grondy, H.; Jaroniec, M.; Ozin, G. A. "Novel Bifunctional Periodic Mesoporous Organosilicas, BPMOs: Synthesis, Characterization, Properties and in-Situ Selective Hydroboration-Alcoholysis Reactions of Functional Groups" *J. Am. Chem. Soc.* **2001**, *123*, 8520-8530.
- (8) Dag, O.; Yoshina-Ishii, C.; Asefa, T.; MacLachlan, M. J.; Grondy, H.; Coombs, N.; Ozin, G. A. "Oriented periodic mesoporous organosilica (PMO) film with organic functionality inside the channel walls" *Adv. Funct. Mater.* **2001**, *11*, 213-217.

- (7) Asefa, T.; Coombs, N.; Dag, O.; Grondey, H.; MacLachlan, M.J.; Ozin, G.A.; Yoshina-Ishii, C. "Periodic mesoporous organosilicas (PMOs): nanostructured organic-inorganic hybrid materials" *Mater. Res. Soc. Symp. Proc.* **2001**, 628, CC3.9.1-CC3.9.8.
- (6) Asefa, T.; Yoshina-Ishii, C.; MacLachlan, M. J.; Ozin, G. A. "New nanocomposites: putting organic function 'inside' the channel walls of periodic mesoporous silica" *J. Mater. Chem.* **2000**, 10, 1751-1755. (*Among the 10 most accessed articles in 2000; On the Front Cover*).
- (5) MacLachlan, M. J.; Asefa, T.; Ozin, G. A. "Writing on the wall with a new synthetic quill" *Chem. Eur. J.* **2000**, 6, 2507-2511. (*On Front Cover*)
- (4) Asefa, T.; MacLachlan, M. J.; Grondey, H.; Coombs, N.; Ozin, G. A. "Metamorphic channels in periodic mesoporous methylenesilica" *Angew. Chem., Int. Ed.* **2000**, 39, 1808-1811.
- (3) Asefa, T.; MacLachlan, M. J.; Coombs, N.; Ozin, G. A. "Periodic mesoporous organosilicas with organic groups inside the channel walls" *Nature* **1999**, 402, 867-871.
- (2) Yoshina-Ishii, C.; Asefa, T.; Coombs, N.; MacLachlan, M. J.; Ozin, G. A. "Periodic mesoporous organosilicas, PMOs: fusion of organic and inorganic chemistry 'inside' the channel walls of hexagonal mesoporous silica" *Chem. Commun.* **1999**, 2539-2540.
- (1) Lal, M.; Joshi, M.; Kumar, D.N.; Friend, C.S.; Winiarz, J.; Asefa, T.; Kim, K.; Prasad, Paras N. "Inorganic-organic hybrid materials for photonics" *Mater. Res. Soc. Symp. Proc.* **1998**, 519, 217-225.

Invited Talks and Conference Presentations

2023

- 141) Invited Plenary Lecture at Czech Academy of Sciences, ISI, Brno, Czech Republic; August 2023.
- 140) Invited (virtual) seminar in State Key Laboratory of Advanced Technology for Material Synthesis and Processing, Wuhan University of Technology, Wuhan, China; July 2023.
- 139) Invited (virtual) seminar in Department of Chemistry, University of Toledo, Toledo, Ohio; February 2023.

2022

- 138) Invited (virtual) seminar in Department of Physics, Seton Hall University, West Orange, NJ; October 2022.
- 137) Invited (virtual) seminar at National Research Council of Canada (CNRC) Nano, Edmonton, Canada; May 2022.

2021

- 136) Invited (virtual) seminar in Department of Chemistry, Drexel University, Philadelphia, PA; April 2021.
- 135) Invited (virtual) seminar at IDEALS/Salzberg Seminar Series in Department of Chemistry, City College, City University of New York (CUNY), NYC; April 2021.

2020

- 134) Invited Seminar at First International Conference on “NanoMaterials and Sustainable Applications” (Virtual Platform), Institute of Chemical Technology, Mumbai-Marathwada Campus, Jalna-431203, India; December 2020.

2019

- 133) Invited Lecture at Institute of Scientific Instruments (ISI), Czech Academy of Sciences, Brno, Czech Republic; December 2019.
- 132) Invited Lecture at Zhou Huijiu Forum, School of Materials Science and Engineering, Xi'an Jiaotong University, Xi'an, China; June 2019.

2018

- 131) Invited Talk at Interdisciplinary Nanoscience Center (iNano Center), Aarhus University, Aarhus, Denmark; October 2018.
- 130) Invited Talk at the Institute of Catalysis, University of Vienna, Vienna, Austria; August 2018.
- 129) Invited Talk at the Institute of Scientific Instruments, Czech Academy of Sciences, Brno, Czech Republic; August 2018.
- 128) Invited Talk at International Forum on Advanced Materials for New and Clean Energy Applications, Shenzhen Polytechnic, Shenzhen, China; June 2018.
- 127) Invited Talk at the 1st International Conference on Advanced in Catalysis for Energy and Environment” CACEE-2018, Tata Institute of Fundamental Research (TIFR), Mumbai, India; January 2018.
- 126) Outreach Teaching Talk on Nanoscience and Nanotechnology for 3rd Graders at Village Elementary School, Montgomery, NJ; March 2018.
- 125) Outreach Teaching Talk on Nanoscience and Nanotechnology for 4th Graders at Stuart County Day School, Princeton, NJ; April 2018.

2017

- 124) Invited Talk, ICCE-25, International Conference on Composites and Nanomaterials,

- Rome, Italy; July 2017.
- 123) Invited Talk, Drexel Symposium on 2D Transition Metal Compounds for Energy Applications, May 2017.
- 122) Invited Talk, Department of Chemistry University of North Carolina at Charlotte, Charlotte, NC; April 2017.
- 121) Invited Talk, Hudson-Bergen Chemical Society, Student Research Symposium and Award Night, Fairleigh Dickinson University, Teaneck, NJ; April 2017.

2016

- 120) Invited Talk in Benjamin List's Laboratory (**Chemistry Nobel Laureate for 2021**) Max-Planck-Institute für Kohlenforschung, Mülheim, Germany; May 2016.
- 119) Invited Talk, Department of Chemistry, University of Konstanz, Konstanz, Germany, May 2016.
- 118) Invited Talk, Department of Chemistry and Nanotechnology, University of North Carolina at Charlotte, Charlotte, NC; October 2016.

2015

- 117) Invited Talk, International Workshop on Graphene and C₃N₄-based Photocatalysts, Wuhan University of Technology, Wuhan, China; June 2015.
- 116) Invited Talk, Sustainable Nanotechnology Conference, Venice, Italy; March 2015.
- 115) Invited seminar at the Ernest Mario School of Pharmacy, Rutgers University, Piscataway, NJ; January 2015.
- 114) Invited seminar at the Hungry Minds seminar series at City Science Center, Technology and Research Park in Philadelphia, Philadelphia, PA; January 2015.

2014

- 113) Invited talk, Symposium on Advanced Materials at the Graduate School of Materials Science, Osaka Prefecture University, Osaka, Japan; November 2014.
- 112) Invited talk, Department of Chemistry, Graduate School of Science, Kyoto University, Kyoto, Japan; November 2014.
- 111) Research talk, The 22nd International Conference on Composites/Nano Engineering. (ICCE-22), Malta; July 2014.
- 110) Invited talk at 7th International Symposium of Nanoporous Materials (Nano-7), Niagara Fall, Ontario, Canada; June 2014.
- 109) Invited talk in the Department of Chemical Engineering at City College, City University of New York, New York; March 2014.
- 108) Invited talk in the Department of Physics at Seton Hall University, South Orange, New Jersey; March 2014.
- 107) Invited talk in the Department of Chemistry at William Paterson University, Wayne, New Jersey; February 2014.

2013

- 106) Invited Talk and participated on the International Forum in Chemical Process Intensification and Green Technology" at Beijing University of Chemical Technology (BUCT) in Beijing, China, September 2013.
- 105) Invited Talk on Nanotechnology, Summer School to Chinese Students and Delegates, Rutgers University, August 2013.
- 104) Invited research talk at the State University of Maringa, Maringa, Paraná State, Brazil, August 2013.
- 103) Invited talk at Brazil's National Laboratory, the Laboratório Nacional de Luz Síncrotron, in Campinas, Brazil, August 2013.
- 102) Invited talk in the Department of Chemistry at Universidade Estadual de Campinas (UNICAMP), Campinas, São Paulo State, Brazil, August 2013.
- 101) Invited research talk at Fuel Cell Research Center at Korea Institute of Science and Technology (KIST) in Seoul, South Korea, August 2013.
- 100) Invited research talk at LG Chem in Daejeon, South Korea, August 2013.
- 99) Invited research talk in the Nanotechnology Center at the Korea Advanced Institute of Science and Technology (KAIST), Daejeon, South Korea, August 2013.
- 98) Invited talk in Department of Chemistry at Yonsei University, Seoul, South Korea, August 2013.
- 97) Research talk, The 21st Annual International Conference on Composites/Nano Engineering. (ICCE-21), Tenerife, Canary Islands, Spain, July 2013.
- 96) Invited research talk in the School of Materials Science and Engineering at South China Science and Technology (SCUT) in Guangzhou, China, June 2013.
- 95) Invited Talk, University of Pennsylvania, Spring 2013.
- 94) Invited Talk, South China University of Technology (SCUT), Guangzhou, China, Summer 2013.
- 93) Invited Talk, The 16th International Symposium on Relations between Homogeneous and Heterogeneous Catalysis (ISHHC-16), Hokkaido University, Sapporo, Japan, Summer 2013.
- 92) Invited Talk, The 21st Annual International Conference on Composite / Nano Engineering (ICCE – 21) Tenerife, Spain Summer, 2013.
- 91) Invited Talk on Nanotechnology for Beijing Science and Technology Delegates at Rutgers University, Summer 2013.

2012

- 90) Invited Talk, Catalysis Club of Philadelphia Symposium, Wilmington, DE; June 2012.
- 89) Invited Talk, National Science Foundation; Ceramics Division; June 2012.
- 88) Invited Speaker, 42nd Organic Catalysts Research Society Symposium, Annapolis, MD; April 2012.

2011

- 87) Invited Talk, ChemShow 2011 and Nanotechnology Conference, Basic Chemistry of Green/Bio-Nano Convergence, New York City, November 1, 2011.
- 86) Invited Speaker, 9th International Nanomedicine and Drug Delivery Symposium, NanoDDS'11, Salt Lake City, UT, October, 2011.

- 85) Invited Oral Presentation, Joint Rutgers-BASF Catalysis Meeting, Nutley, NJ, May 2011.
- 84) Oral Presentation, 85th ACS Colloid and Surface Science Symposium, Montreal, Quebec, Canada, July 2011.
- 83) Keynote Lecture, Omega Chi Epsilon (the American Honor Society for Chemical Engineering Students) induction, Rutgers University, Piscataway, NJ, Spring 2011.
- 82) Invited Lecture, Nanomaterials Class, Materials science and Engineering Department, Rutgers University, Piscataway, NJ, Spring 2011.
- 81) Invited Lecture, Nanomedicine Class, Biomedical Engineering Department, Rutgers University, Piscataway, NJ, Spring 2011.

2010

- 80) Invited Talk, Pacificchem, Honolulu, Hawaii, December 2010.
- 79) Invited Poster Presentation, NSF Ceramic Materials Principal Investigator Workshop, National Science Foundation, Washington, DC, September 2010.
- 78) Oral Presentation, New Graduate students, Chemical and Biochemical Engineering Department, Rutgers, Piscataway, NJ, September 2010.
- 77) Oral Presentation, Rutgers Governors' School, Piscataway, NJ, Summer 2010.
- 76) Invited Talk, Joint Princeton-Rutgers Research Conference, Princeton University, Princeton, NJ, Spring 2010.
- 76) Invited Talk, Joint Rutgers-Roche Research Meeting, Roche, Nutley, NJ, March, 2010.
- 75) Poster Presentation, 239th ACS National Meeting, San Francisco, Spring 2010.
- 74) Oral Presentation, 239th ACS National Meeting, San Francisco, Spring 2010.
- 73) Invited Lecture, Nanomaterials Class, Materials science and Engineering Department, Rutgers University, Piscataway, NJ, Spring 2010.
- 72) Invited Talk, IGERT Students, Rutgers University, Piscataway, NJ, Spring 2010.
- 71) Invited Talk, City College, City University of New York, April 2010.
- 70) Invited Talk, New Jersey Institute of Technology (NJIT), March 2010.

2009

- 69) Invited Talk, Rutgers University at Newark, Newark, NJ, October 2009.
- 68) Invited Talk, Fairleigh Dickinson University, Madison, NJ, September 2009.
- 67) Invited Talk, International Conference on Multifunctional, Hybrid and Nanomaterials, Hybrid Materials 2009, March 2009, Tours, France.
- 64) Invited Talk, Rutgers University, New Brunswick, NJ, February 2009.
- 63) Invited Visit, vant Hoff's Institute of Molecular Sciences, University of Amsterdam, Amsterdam, the Netherlands, February 2009.
- 62) 237th American Chemical Society National Meeting "Efficient and selective nanoporous heterogeneous catalysts for various (tandem) reactions" *Oral Presentation*, Inorganic Division, March 2009, Salt Lake City, UT, USA
- 61) 237th American Chemical Society National Meeting "Corrugated and nanoporous nanospheres for drug delivery and biosensing applications" *Oral Presentation*, Division of Colloid & Surface Chemistry, Applications in Nanoscience, March 2009, Salt Lake City, UT, USA.
- 60) 237th American Chemical Society National Meeting "Functionalized nanospheres for

targeted drug delivery applications and their biocompatibility (cytotoxicity)" *Oral Presentation*, Division of Inorganic Chemistry, Materials Applications, March 2009, Salt Lake City, UT, USA.

2008

- 59) Invited Talk "Food Nanotechnology", Cornell University, September 2008.
- 58) Invited Talk, GoNano Symposium, University of Toronto, Toronto, Canada, October 2008.
- 57) Oral presentation, 235th American Chemical Society National Meeting "Multifunctional nanostructured materials and selective efficient catalysts: New synthetic strategies and their potential applications from catalysis to drug delivery" *Oral Presentation*, March 2008, New Orleans, LA, USA
- 56) Oral Presentation, 235th American Chemical Society National Meeting, March 2008, New Orleans, LA, USA.
- 55) Oral presentation, 235th American Chemical Society National Meeting, "Antibody-conjugated gold nanoparticles for detection of pathogens in water" COLL-146, New Orleans, LA, April 2008.
- 54) Invited Talk at International Symposium of Nanoporous Materials – V, Vancouver, British Columbia, May 2008.
- 53) Invited Talk at 82nd ACS Colloid and Surface Science Symposium, North Carolina State University, Raleigh, NC, June 2008.

2007

- 52) Department of Chemistry, Utica College, Utica, NY, Nov. 2007
- 51) Participant and Invited talk at O'Brien & Gere / Syracuse University /SUNY ESF Technology Day Conference, Spring 2007
- 50) Department of Chemistry, Kenyon College, Gambier, OH, 2007.
- 49) Oral presentation, American Chemical Society National Meeting, Chicago, IL, Spring 2007
- 48) Poster presentation, American Chemical Society National Meeting, Chicago, IL, Spring 2007
- 47) Invited Speaker at Café Scientifique, "Nanoscience and Nanotechnology: About Little Things but Big Science and Technology" Milton Rubenstein Museum of Science and Technology, Syracuse, NY, Feb. 2007
- 46) Invited Panelist and Speaker at SBIR Conference, Sheraton Hotel, Syracuse University, Mar. 2007
- 45) Invited Panelist and Speaker at Accelerate 2007, A Syracuse Central New York on New Ideas in Technology, Manufacturing, Energy and the Environment, Apr. 2007
- 44) Invited Lecture, Syracuse University Project Advance (SUPA), Syracuse, Oct. 2007
- 43) Invited Lecture, Syracuse University Project Advance (SUPA), New York City, Nov. 2007
- 42) Department of Chemistry, SUNY - Albany, Nov. 2007.
- 41) Department of Chemistry, College of Staten Island, Nov. 2007

40) Session Chair, American Chemical Society, Inorganic / Materials Chemistry, Chicago, IL, Spring 2007

2006

- 39) Department of Physics, Syracuse University, Syracuse, NY, Jan. 2006
- 38) Department of Chemistry, University of Missouri at Rolla, Rolla, MO, Mar. 2006
- 37) The 231st American Chemical Society (ACS) National Meeting, Atlanta, GA, Mar. 2006
- 36) Cornell Nanoscale Facility, Cornell University, Ithaca, NY, Jun. 2006
- 35) Invited Talk (Main Group Chemistry), American Chemical Society, 35th Northeast Regional Meeting (NERM), 2006, Binghamton, NY, Oct. 2006
- 34) Invited Talk (Recent Advances in Materials Chemistry), American Chemical Society, 35th Northeast Regional Meeting (NERM), 2006, Binghamton, NY, Oct. 2006
- 33) Participant and Invited Talk at Nanocuse Conference, SUNY ESF April 2006
- 32) Department of Chemistry, Utica College, Utica, NY, Nov. 2007
- 31) Department of Chemistry, Lehigh University, Bethlehem, PA, Nov. 2006
- 30) Participant and Invited talk at O'Brien & Gere / Syracuse University /SUNY ESF Technology Day Conference, March 2006.
- 29) Department of Chemistry, Kenyon College, Gambier, OH, 2007.
- 28) Two Oral presentations and 2 Poster presentations at the American Chemical Society National Meeting, Chicago, Spring 2007.
- 27) Invited Speaker at Café Scientifique "Nanoscience and Nanotechnology: About Little Things but Big Science and Technology" Milton Rubenstein Museum of Science and Technology, Syracuse, NY, February 2007.
- 26) Invited Panelist and Speaker at SBIR Conference, Sheraton Hotel, Syracuse University, March 2007.
- 25) Invited Panelist and Speaker at Accelerate 2007, A Syracuse Central New York on New Ideas in Technology, Manufacturing, Energy and the Environment, April 2007.
- 24) Invited Lecture, Syracuse University Project Advance (SUPA), Syracuse, Oct. 2007
- 23) Invited Lecture, Syracuse University Project Advance, New York City, Nov. 2007.
- 22) Department of Chemistry, SUNY - Albany, Nov. 2007
- 21) Department of Chemistry, College of Staten Island, Nov. 2007

2005

- 20) Department of Chemistry, Alfred University, Nov. 2005
- 19) Department of Biomedical and Chemical Engineering, Syracuse University, Nov. 2005

Invited Talks as a Graduate Student and Post-doctoral Fellow

2005

- 18) Department of Chemistry, SUNY at Binghamton, Jan. 2005
- 17) Department of Materials Science and Engineering, University of Delaware, Feb. 2005

- 16) Department of Chemistry, York University, Canada, Feb. 2005
- 15) Department of Chemistry, Rochester Institute of Technology, Feb. 2005
- 14) Department of Chemistry, University of Iowa, Mar. 2005
- 13) Nanoscience Technology Center, University of Central Florida, Mar. 2005
- 12) Department of Engineering and Applied Sciences, Harvard University, Mar. 2005
- 11) Department of Ceramics and Materials Engineering, Rutgers University, April 2005
- 10) Department of Engineering Sciences and mechanics, Pennsylvania State University, Apr. 2005

2004

- 9) Department of Chemistry, University of California at Santa Cruz, Feb. 2004
- 8) Department of Chemistry, University of Waterloo, Feb. 2004
- 7) Department of Chemistry, Florida State University, Dec. 2004
- 6) Department of Chemistry, University of Western Ontario, Canada, Jan. 2004
- 5) Department of Materials Science and Engineering, University of California at Berkeley, Apr. 2004
- 4) Department of Chemistry, Arizona State University, Mar. 2004
- 3) Department of Chemistry, Concordia University, Jan 2004

2003

- 2) Department of Chemistry, Western Michigan University, Dec. 2003

2002

- 1) Institute for Microstructural Sciences, National Research Council (NRC), Ottawa, Canada, Dec. 2002.

Research Group Activities / Students Mentored or Being Mentored in Asefa Lab (2005-Date):

21 Post-Doctoral Fellows and Visiting Professors;
41 Graduate students;
32 undergraduate students;
6 High-school students

Collaborators between 2005 - Present

- 1) *Prof. Flavio Maran*, University of Padova, Italy.
- 2) *Prof. Eric Schiff*, Physics Department, Syracuse University.
- 3) *Prof. Vivek Polshettiwar*, Director of Catalysis Center, Tata Institute for Fundamental Research (TIFR), India.
- 4) *Prof. James C. Dabrowiak*, Chemistry Department, Syracuse University, USA.
- 5) *Prof. Mietek Jaroniec*, Kent State University, USA.

- 6) *Prof. Gadi Rothenberg*, Vant Hoff's Institute of Molecular Sciences, University of Amsterdam, The Netherlands.
- 7) *Prof. Jerry Goodisman*, Chemistry Department, Syracuse University, USA.
- 8) *Prof. Vitor Almeida*, State University of Maringa, Maringa, Brazil.
- 9) *Prof. Michal Kruk*, College of Staten Island, City University of New York, NY, USA.
- 10) *Prof. Jing Li*, Department of Chemistry and Chemical Biology, Rutgers University, USA.
- 11) *Prof. Charles Dismukes*, Department of Chemistry and Chemical Biology, Rutgers University, USA.
- 12) *Prof. Abdul-Kader Souid*, SUNY Upstate Medical University, Syracuse, NY, USA / Department of Pediatrics, University of United Arab Emirates, UAE.
- 13) *Prof. Chris Howarth*, Department of Physiology, College of Medicine and Health Sciences, UAE.
- 14) *Prof. Ernest Adeghate*, Department of Anatomy, Faculty of Medicine & Health Sciences United Arab Emirates University, UAE.
- 15) *Prof. Alan Goldman*, Department of Chemistry and Chemical Biology, Rutgers University, USA.
- 16) *Prof. Robert Niederman*, Department of Molecular Biology and Biochemistry, Rutgers University, USA.
- 17) *Dr. Aurelien Di Pasquier*, Department of Materials Science and Engineering, Rutgers University, USA.
- 18) *Dr. Detlef Smilgies*, Cornell High Energy Synchrotron Radiation Source (CHESS), Cornell University, USA.
- 19) *Prof. Dunbar Birnie*, Department of Materials Science and Engineering, Rutgers University, USA.
- 20) *Prof. Edson Leite*, Materials Engineering Department, *Federal University of São Carlos*, São Carlos, Brazil.
- 21) *Prof. Evgeny Dikarev*, Department of Chemistry, SUNY at Albany, USA.
- 22) *Dr. Manoj B. Gawande*, Regional Centre of Advanced Technologies and Materials, Faculty of Science, Palacky University, Olomouc, Czech Republic.
- 23) *Dr. Eliška Mikmeková*, Institute of Scientific Instruments of the ASCR, Brno, Czech Republic.
- 24) *Prof. Marina Petrukhina*, Department of Chemistry, SUNY at Albany, USA.
- 25) *Prof. Laura Fabris*, Department of Materials Science and Engineering, Rutgers University, USA.
- 26) *Prof. Manish Chhowalla*, Department of Materials Science and Engineering, Rutgers University, USA.
- 27) *Prof. Tamara Minko*, Department of Pharmaceutics, Rutgers University, USA.
- 28) *Prof. Bozena Michniak-Kohn*, Department of Pharmaceutics, Rutgers University.
- 29) *Prof. Zhongwu Liu*, School of Materials Science and Engineering, South China University of Technology (SCUT), China.
- 30) *Prof. Kazuki Nakanishi*, Department of Chemistry, Kyoto University, Kyoto, Japan.
- 31) *Prof. Kayuyoshi Kanamori*, Department of Chemistry, Kyoto University, Kyoto, Japan.

- 32) *Prof. Xiaoxin Zou*, Department of Chemistry, Jilin University, China.
- 33) *Prof. Rafael Silva*, Department of Chemistry, Maringa State University, Brazil.
- 34) *Prof. Bhaskar Sathe*, Department of Chemistry, Dr. Babasaheb Ambedkar Marathwada University, India
- 35) *Dr. Radek Zboril*, Regional Centre of Advanced Technologies and Materials, Faculty of Science, Palacky University, Olomouc, Czech Republic.
- 36) *Prof. Jiaguo Yu*, Wuhan University of Technology, Wuhan, China.
- 37) *Prof. Xianqin Wang*, New Jersey Institute of Technology, Newark, NJ, USA.
- 38) *Prof. Bozena Michniak-Kohn*, School of Pharmacy, Rutgers University at New Brunswick.
- 39) *Prof. Jeffrey Boyd*, Department of Biochemistry and Microbiology, Robert Wood Medical School, Rutgers University at New Brunswick.
- 40) *Dr. Alexei Tyryshkin*, Department of Chemistry and Chemical Biology, Rutgers University at New Brunswick.
- 41) *Dr. Oscar Forero-Doria*, Facultad de Química y Biología, Universidad Santiago de Chile, Santiago, Chile.
- 42) *Prof. Chang Won Yoon*, Department of Chemical Engineering, Pohang University of Science and Technology (POSTECH), South Korea.
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