Naresh C. Osti, Ph.D.

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SUMMARY

I am a Ph.D. chemist with expertise in neutron and x-ray scattering techniques and the characterization of energy-related materials (hard and soft) to relate their structure-property relationship. I am interested in exploring the structure and dynamics of new materials for their real-life application, especially of the nano-confined fluids, polymers, and polymer-nano composites.

RESEARCH EXPERIENCE

2017-present **Instrument Scientist**, Backscattering Silicon Spectrometer (BASIS), Oak Ridge National Laboratory, TN, USA

- Providing outstanding user support by taking local contact duties at BASIS.
- Solving many technical and scientific problems in beamline while running user experiments.
- Planning, writing proposals, and executing many science-related problems/projects to explore the structure and dynamics in materials of energy applications independently.
- Expanding the neutron scattering community by establishing a new collaboration with scientists from universities, industries, and national labs.
- Working with multidisciplinary research groups (internal and external) to solve many scientifically and technically complex problems.
- Continuously educating the user community by providing professional expertise on working principles, theories, and technical specifications of the BASIS spectrometer.
- Working to enhance the capabilities (hardware and software) of BASIS spectrometer to address complex scientific questions.

2015-2017 **Postdoctoral Research Associate**, Oak Ridge National Laboratory, TN, USA
Advisor: Dr. Eugene Mamontov

- Implemented elastic, inelastic, and quasi-elastic neutron scattering (QENS) techniques to elucidate the structure and dynamics of nano-confined fluids at the fluid-solid interface of energy-related materials.
- Investigated the dynamics of water in several restricted geometrics (1D, 2D, and 3D), including the pristine and K^+-intercalated Ti_3C_2, using QENS to find the role of water on their electrochemical properties.
- Studied ionic liquids confined in bimodal and monomodal carbide-derived carbon (CDC) using small angle neutron scattering (SANS) and QENS to relate their structural and dynamical properties with electrical energy storage capabilities.
- Studied nano-scale polarization dynamics in electroactive polyvinylidene fluoride (PVDF)-based copolymers.
- Wrote many successful proposals (8) to get neutron beam time on BASIS at ORNL, HFBS at NIST-NCNR, and LET at ISIS (UK) instruments.

2008-2014 **Graduate Research Assistant**, Clemson University, SC, USA
Advisor: Prof. Dvora Perahia

- Investigated the dynamics of water to understand the proton transport within a rigid (sulfonated polyphenylene) ionomers fuel cell membrane using QENS.
- Studied the dynamics of side chains in a rigid luminescent poly(para-phenylene ethynylene) (PPE) polymer using QENS.
- Developed light-emitting conjugated polymer polydots of neutral and ionizable PPE of promising biosensing application.
- Explored the structure and stability of the PPE polydots as a function of composition and temperature using atomic force microscopy (AFM), fluorescence spectroscopy,

and different scattering techniques (light, x-ray, and neutron) for their practical application.
- Resolved the structure and assembly of ionizable PPE and gold nanoparticle hybrids of biosensing applications using AFM and SANS.

TEACHING EXPERIENCE

2007-2014 **Graduate Teaching Assistant**, Clemson University, Clemson, SC, USA
- Instructed undergraduate general chemistry laboratory course for 24 students 3 times a week.

2005-2007 **Junior Training Specialist** (part-time), New York University, New York, USA
- Involved with the "Upward Bound" program of "The Steinhardt School of Education" to teach high school students general and AP chemistry.

2004-2007 **Chemistry Teacher**, Rice High School, New York, USA
- Taught general chemistry and advanced placement (AP) chemistry weekly to 120 high school students.
- Designed and conducted the chemistry laboratory course for high school students

2001-2003 **Assistant Lecturer of Chemistry**, Amrit Science Campus, Kathmandu, Nepal
- Instructed undergraduate general chemistry courses.

HONORS AND AWARDS

- American Physical Society, GERA Travel Award, **2023**.
- Royal Society of Chemistry, Faraday Division Horizon Award **2021**.
- American Physical Society, GERA Travel Award, **2020**.
- Significant Event Award **2017**, Oak Ridge National Laboratory, Oak Ridge, TN
- Professional Enrichment Grants (**2013** and **2014**) Chemistry Graduate School Organization, Clemson University, Clemson, SC
- Best teaching assistant award **2013**, Clemson University, Clemson, SC

EDUCATION

Ph.D., Chemistry, Clemson University, Clemson, SC, USA, 2014
Advisor: Prof. Dvora Perahia
Thesis: Neutron Study of Structure and Dynamics of Rigid Polymers
M.S., Physical Chemistry, Tribhuvan University, Kathmandu, Nepal, 1999
B.S., Chemistry and Biology, Tribhuvan University, Kathmandu, Nepal, 1997

EXPERIMENTAL AND INSTRUMENTAL TECHNIQUES

Wide Angle X-ray Scattering (WAXS)	Small Angle Neutron Scattering (SANS)
Small Angle X-ray Scattering (SAXS)	Quasi-Elastic Neutron Scattering (QENS)
X-ray Diffraction (XRD)	Neutron Reflectivity (NR)
Neutron Spin Echo (NSE)	Spectrofluorometry
Thermal Analysis Techniques (DSC, TGA)	Molecular Spectroscopy (UV-Vis)
Microscopy Techniques (AFM, SEM, TEM)	Nuclear Magnetic Resonance (^{1}H NMR)
Contact Angle	Light Polarizable Microscope

PUBLICATIONS (53)

53. **Naresh C. Osti**, Xiaobo Lin, Wei Zhao, Xuehang Wang, Chaofan Chen, Yu Gao, Takeshi Torita, Alexander I. Kolesnikov, Peter Cummings, Yury Gogotsi, Eugene Mamontov, "Maximizing Ion Dynamics and Electrochemical Performance of Ionic Liquid-Acetonitrile Electrolyte in Ti3C2Tx MXene ", *2D Mater.* 10, 014014*, (***2023)***.*
52. Matthew Laskoski, Boris Dyatkin, **Naresh C. Osti**, Jong K. Keum, Eugene Mamontov, Tristan Butler, "Understanding curing dynamics of arylacetylene and phthalonitrile thermoset blends", *J.Polym. Sci.*1-11*, (***2022)***.*
51. John P. Elliott, **Naresh C. Osti**, Madhusudan Tyagi, Eugene Mamontov, Lifeng Liu, Joel M.

Serrano, Ke Cao, and Guoliang Liu "Exceptionally Fast Ion Diffusion in Block Copolymer-Based Porous Carbon Fibers", *ACS App. Mater. Interfaces*. 14, 36980-36986 (**2022**).

50. Hyun June Moon, Jan-Michael Carrillo, Johannes Leisen, Bobby G. Sumpter, **Naresh C. Osti**, Madhusudan Tyagi and Christopher W. Jones, Understanding the Impacts of Support–Polymer Interactions on the Dynamics of Poly(ethyleneimine) Confined in Mesoporous SBA-15, *J. Am. Chem. Soc.*, 144, 11664 (**2022**)
49. Zachary N. Buck, Matthew Connolly, May L. Martin, Damian Lauria, Jason P. Killgore, Peter Bradley, Andrew Slifka, Yan Chen, Naresh C. Osti, Effects of Mechanical Deformation on Dislocation Density, Phase Separation and Hydrogen Diffusion in 4130 Steel. Microsc. Microanal. 28, 1626-1627 (**2022**)
48. Mayanak K. Gupta, Jingxuan Ding, Dipanshu Bansal, Douglas L. Abernathy, **Naresh C. Osti**, Wolfgang G. Zeier and Olivier Delaire, Strongly Anharmonic Phonons and Their Role in Superionic Diffusion and Ultralow Thermal Conductivity of Cu_7PSe_6. *Adv. Energy. Mater.* 12 2200596, (**2022**).
47. **Naresh C. Osti**, Bishnu Prasad Thapaliya, Ray A. Matsumoto, Arjun Bansal, Xiaobo Lin, Peter T. Cummings, Madhusudan Tyagi, Sheng Dai, and Eugene Mamontov, Direct Correlation of the Salt-Reduced Diffusivities of Organic Solvents with the Solvent's Mole Fraction, *J. Phys. Chem. Lett.*, 13, 2845−2850 (**2022**).
46. Mayanak K. Gupta, Jingxuan Ding, **Naresh C. Osti**, Douglas L. Abernathy, William Arnold, Hui Wang, Zachary Hood and Olivier Delaire, Fast Na diffusion and anharmonic phonon dynamics in superionic Na_3PS_4. *Energy Environ. Sci.,* 14, 6554, (**2021**).
45. Alexander J. E. Rettie, Jingxuan Ding, Xiuquan Zhou, Michael J. Johnson, Christos D. Malliakas, **Naresh C. Osti,** Duck Young Chung, Raymond Osborn, Olivier Delaire, Stephan Rosenkranz and Mercouri G. Kanatzidis, A two-dimensional type I superionic conductor. *Nat. Mater.*, 20, 1683-1688 (**2021**).
44. Kun Liang, Ray A. Matsumoto, Wei Zhao, **Naresh C. Osti,** Ivan Popov, Bishnu Prasad Thapaliya, Simon Fleischmann, Sudhajit Mishra, Kaitlyn Prenger, Madhusudan Tyagi, Eugene Mamontov, Veronica Augustyn, Raymond R. Unocic, Alexei P. Sokolov, Sheng Dai, Perter T. Cummings, and Michael Naguib, Engineering the Interlayer Spacing by Pre-Intercalation for High-Performance Supercapacitor MXene Electrodes in Room Temperature Ionic Liquid. Adv. *Funct. Mater.* 2104007 **(2021).**
43. **Naresh C. Osti**, Bishnu Prasad Thapaliya, Sheng Dai, Madhusudan Tyagi, Eugene Mamontov, Strong Enhancement of Nanoconfined Water Mobility by a Structure-Breaking Salt*. J. Phys. Chem. Lett*., 12, 4038-4044, (**2021**).
42. Eugene Mamontov, **Naresh C. Osti**, Matthew R. Ryder, Order-disorder in room-temperature ionic liquids probed via methyl quantum tunneling. *Struct. Dyn.* 8, 024303 (**2021**).
41. Xi Chelsea Chen, Robert L. Sacci, **Naresh C. Osti**, Madhusudan Tyagi, Yangyang Wang, Jong K. Keum and Nancy J. Dudney, Chemical Study of the Segmental Dynamics and Ion Transport of Solid Polymer Electrolytes in the Semi-crystalline State. *Front. Chem.* 8, 592604, (**2021)**.
40. Karthik Ganeshan, Yun Kyung Shin, Naresh C. Osti, Yangyunli Sun, Kaitlyn Prenger, Michael Naguib, Madhusudan Tyagi, Eugene Mamontov, De-en Jiang, and Adri C. T. van Duin, Structure and Dynamics of Aqueous Electrolytes Confined in $2DTiO_2/Ti_3C_2T_2$ MXene Heterostructures*. ACS Appl. Mater. Interfaces, 12, 58378-58389,* (**2020**).
39. Boris Dyatkin, **Naresh C. Osti,** Robert W. Smith, Madhusudan Tyagi, Tristan Butler, Matthew Laskoski, Chemical structure and curing dynamics of bisphenol S, PEEK^{TM}-like, and resveratrol phthalonitrile thermoset resins*. J Polym Sci.*1–13, (**2020**).
38. Vera Bocharova, Anne-Caroline Genix, Alexander Kisliuk, Gabriele Sala, **Naresh C. Osti,** Eugene Mamontov, and Alexei P. Sokolov, Role of Fast Dynamics in Conductivity of Polymerized Ionic Liquids. *J. Phys. Chem. B,* 124, 46, 10539–10545, (**2020**).
37. Muhammad Boota, Chi Chen, Long Yang, Alexander I. Kolesnikov, **Naresh C. Osti,** William Porzio, Luisa Barba, and Jianjun Jiang, Probing Molecular Interactions at MXene−Organic Heterointerfaces. *Chem. Mater*., 32, 7884-7894, (**2020**).
36. Weiwei Sun, Hsiu-Wen Wang, Lukas Vlcek, Jing Peng, Alexander B. Brady, **Naresh C. Osti**, Eugene Mamontov, Madhusudan Tyagi, Jagjit Nanda, Steven G. Greenbaum, Paul R. C. Kent, and Michael Naguib, Multiscale and Multimodal Characterization of 2D Titanium Carbonitride MXene. *Advanced Materials Interfaces*, 7,1902207, (**2020)**.

35. Muhammad Boota, Patrick Urbankowski, William Porzio, Luisa Barba, **Naresh C. Osti**, Markus Bleuel, Jong K. Keum, and Eugene Mamontov, Understanding Functionalization of Titanium Carbide (MXene) with Quinones and Their Pseudocapacitance. *ACS Appl. Energy Mater.,*3, 5, 4127-4133, (**2020)**.
34. Popov I., Sacci R.L., Sanders N.C., Matsumoto R.A., Thompson M.W., **Osti N.C**., Kobayashi T., Tyagi M., Mamontov E., Pruski M., Cummings P.T., Sokolov A.P., Critical Role of Anion-Solvent Interactions for Dynamics of Solvent-in-Salt Solutions. *Journal of Physical Chemistry C,* 124, 16, 8457-8466, (**2020**)**.**
33. **Naresh C. Osti,** and Eugene Mamontov, Microscopic dynamics in room-temperature ionic liquids confined in materials for supercapacitor applications*. Sustainable Energy & Fuels*, 4, 1554-1576 **(2020).**
32. Simon Fleischmann, Yangyunli Sun, **Naresh C. Osti**, Ruocun Wang, Eugene Mamontov, De-en Jiang, and Veronica Augustyn, Interlayer Separation in Hydrogen Titanates Enables Electrochemical Proton Intercalation. *The Journal of Materials Chemistry A,* 8, 412-421, (**2020)**.
31. **Naresh C. Osti,** Bianca Haberl, Niina Jalarvo, Reinhard Boehler, Jamie J. Molaison, Richard J. Goyette Jr., Eugene Mamontov, Dynamics of a room temperature ionic liquid under applied pressure. *Chemical Physics*, 530, 110628, (**2020)**.
30. James B. Mitchell, Natalie Geise, Alisa Paterson, **Naresh C. Osti**, Yangyunli Sun, Simon Fleischmann, Rui Zhang, Louis A. Madsen, Michael F. Toney, De-en Jiang, Alexander I. Kolesnikov, Eugene Mamontov, Veronica Augustyn, Confined Interlayer Water Promotes Structural Stability for High-Rate Electrochemical Proton Intercalation in Tungsten Oxide Hydrates. *ACS Energy Lett.,* 4, 2805-2812, (**2019)**.
29. Eugene Mamontov, **Naresh C. Osti,** and Madhusudan Tyagi, Temperature dependence of nanoscale dynamic processes measured in living millipedes by high resolution inelastic and elastic neutron scattering. *Sci Rep*, 9, 11646 (**2019**).
28. Siqi Liu, Clemens Liedel, Nadezda V. Tarakina, **Naresh C. Osti** and Pinar Akcora, Dynamics of ionic liquids in the presence of polymer-grafted nanoparticles. *Nanoscale*,11, 19832-19841, (**2019**).
27. **Naresh C. Osti**, Ray A. Matsumoto, Matthew W. Thompson, Peter T. Cummings, Madhusudan Tyagi, Eugene Mamontov, Microscopic Dynamics in an Ionic Liquid Augmented with Organic Solvents. *Journal of Physical Chemistry C*, 123, 19354-19361 (**2019**).
26. X. Chelsea Chen, Robert L. Sacci, **Naresh C. Osti**, Madhusudan Tyagi, Yangyang Wang, Max J. Palmer and Nancy J. Dudney, Study of segmental dynamics and ion transport in polymer–ceramic composite electrolytes by quasi-elastic neutron scattering. *Molecular Systems Design & Engineering*, 4, 379-385, (**2019**).
25. Xuehang Wang, Tyler S. Mathis, Ke Li, Zifeng Lin, Lukas Vlcek, Takeshi Torita, **Naresh C. Osti,** Christine Hatter, Patrick Urbankowski, Asia Sarycheva, Madhusudan Tyagi, Eugene Mamontov, Patrice Simon & Yury Gogotsi, Influences from solvents on charge storage in titanium carbide MXenes. *Nature Energy*, 4, 241-248, (**2019**).
24. Tom Heitmann, Gavin Hester, Saibal Mitra, Thomas Calloway, Madhu Sudan Tyagi, Andrew Miskowiec, Souleymane Diallo, **Naresh C. Osti**, Eugene Mamontov, Probing Li ion dynamics in amorphous xLi2SO4·(1−x)LiPO3 by quasi-elastic neutron scattering. *Solid State Ionics*, 334 95–98, (**2019**).
23. **Naresh C. Osti**, Boris Dyatkin, Alejandro Gallegos, David Voneshen, Jong K. Keum, Ken Littrell, Pengfei Zhang, Sheng Dai, Jianzhong Wu, Yury Gogotsi, Eugene Mamontov, Cation Molecular Structure Affects Mobility and Transport of Electrolytes in Porous Carbons. *Journal of The Electrochemical Society*, 166 (4) A507-A514 (**2019**).
22. **Naresh C. Osti**, Eugene Mamontov, Luke Daemen, James F. Browning, Jong Keum, Hoi Chun Ho, Jihua Chen, Kunlun Hong, Souleymane O. Diallo, Side chain dynamics in semiconducting polymer MEH-PPV. *The Journal of Applied Polymer Science*, 136, 47394, (**2019**).
21. **Naresh C. Osti**, Matthew W Thompson, Katherine L Van Aken, Mohamed Alhabeb, Madhusudan Tyagi, Jong K Keum, Peter T Cummings, Yury Gogotsi, Eugene Mamontov, Humidity Exposure Enhances Microscopic Mobility in a Room-Temperature Ionic Liquid in MXene. *The Journal of Physical Chemistry C*, 122, 27561-27566, (**2018**).

20. Boris Dyatkin, **Naresh C. Osti**, Alejandro Gallegos, Yu Zhang, Eugene Mamontov, Jianzhong Wu, Peter T. Cummings, Yury Gogotsi, Electrolyte cation length influences electrosorption and dynamics in porous carbon supercapacitors. *Electrochimica Acta*, 283, 882-893 (**2018**).
19. **Naresh C. Osti**, Alejandro Gallegos, Boris Dyatkin, Jianzhong Wu, Yury Gogotsi, Eugene Mamontov, Mixed Ionic Liquid Improves Electrolyte Dynamics in Supercapacitors. *The Journal of Physical Chemistry C*, 122, 10476-10481, (**2018**).
18. Abhijit Pramanick, **Naresh C. Osti**, Niina Jalarvo, Scott T. Misture, Souleymane O. Diallo, Eugene Mamontov, Origin of dielectric relaxor behavior in PVDF-based copolymer and terpolymer films. *AIP Advances* 8, 045204 (**2018**).
17. Boris Dyatkin**, Naresh C. Osti,** Yu Zhang, Hsiu-Wen Wang, Eugene Mamontov, William T. Heller, Pengfei Zhang, Gernot Rother, Peter T. Cummings, David J. Wesolowski, Yury Gogotsi, Ionic liquid structure, dynamics, and electrosorption in carbon electrodes with bimodal pores and heterogeneous surfaces. *Carbon*, 129:104-18 (**2018**).
16. **Naresh C. Osti,** Michael Naguib, Karthik Ganeshan, Yun K. Shin, Alireza Ostadhossein, Adri C. T. van Duin, Yongqiang Cheng, Luke L. Daemen, Yury Gogotsi, Eugene Mamontov, and Alexander I. Kolesnikov, Influence of metal ions intercalation on the vibrational dynamics of water confined between MXene layers. *Physical Review Materials* 1, 065406 (**2017**).
15. Eric S. Muckley, Michael Naguib, Hsiu-Wen Wang, Lukas Vlcek, **Naresh C. Osti**, Robert L. Sacci, Xiahan Sang, Raymond R. Unocic, Yu Xie, Madhusudan Tyagi, Eugene Mamontov, Katharine L. Page, Paul R. C. Kent, Jagjit Nanda, and Ilia N. Ivanov, Multimodality of Structural, Electrical, and Gravimetric Responses of Intercalated MXenes to Water. *ACS Nano*, 11 (11), pp 11118–11126 (**2017**).
14. A. Pramanick, S. Misture, **Naresh C. Osti**, N. Jalarvo, S. O. Diallo, E. Mamontov, Ferroelectric to paraelectric phase transition mechanism in poled PVDF-TrFE copolymer films. *Physical Review B* 96, 174103 (**2017**).
13. **Naresh C. Osti,** Boris Dyatkin, Matthew W. Thompson, Felix Tiet, Pengfei Zhang, Sheng Dai, Madhusudan Tyagi, Peter T. Cummings, Yury Gogotsi, David J. Wesolowski, Eugene Mamontov, Influence of Humidity on Performance and Microscopic Dynamics of Ionic Liquid in Supercapacitor. *Physical Review Materials* 1,035402 (**2017**).
12. **Naresh C. Osti,** Michael Naguib, Madhusudan Tyagi, Yury Gogotsi, Alexander I. Kolesnikov, Eugene Mamontov, Evidence of Molecular Hydrogen Trapped in Two-Dimensional Layered Titanium Carbide-Based MXene. *Physical Review Materials* 1,024004 (**2017**).
11. **Naresh C. Osti**, Katherine L. Van Aken, Matthew W. Thompson, Felix Tiet, De-en Jiang, Peter T. Cummings, Yury Gogotsi, Eugene Mamontov, Eugene Mamontov, Solvent Polarity Governs Ion Interactions and Transport in a Solvated Room-Temperature Ionic Liquid. *The Journal of Physical Chemistry Letters*, 8, 167-171, (**2017**).
10. **Naresh C. Osti,** Thusitha N. Etampawala, Umesh M. Shrestha, Dipak Aryal, Madhusudan Tyagi, Souleymane O. Diallo, Eugene Mamontov, Christopher J. Cornelius, Dvora Perahia, Water Dynamics in Rigid Ionomer Networks. *The Journal of Chemical Physics*, 145, 224901, (**2016**).
9. Thusitha N, Etampawala, Dipak Aryal, **Naresh C. Osti,** Lilin He, William T. Heller, Carls Willis, Gary S. Grest, Dvora Perahia, Association of a multifunctional ionic block copolymer in a selective solvent. *The Journal of Chemical Physics,* 145, 184903, **(2016).**
8. **Naresh C. Osti**, Michael Naguib, Alireza Ostadhossein, Yu Xie, Paul R.C. Kent, Boris Dyatkin, Gernot Rother, William T. Heller, Adri C. T. van Duin, Yury Gogotsi, Eugene Mamontov, Effect of Metal Ion Intercalation on the Structure of MXene and Water Dynamics on its Internal Surfaces. *ACS Applied Materials and Interfaces*, 8, 8859-8863, (**2016**).
7. Sabina Maskey, **Naresh C. Osti**, Gary S. Grest, and Dvora Perahia, Dynamics of Polydots: Soft Luminescent Polymeric Nanoparticles*. Macromolecules*, 49 (6), pp 2399–2407 (**2016**).
6. **Osti N.C**., Cote A., Mamontov E., Ramirez-Cuesta A.J., Wesolowski D.J., Diallo S.O., Characteristic features of water dynamics in restricted geometries investigated with quasi-elastic neutron scattering. *Chemical Physics*, 465–466, 1-8 (**2016**).

5. Ashley A. Buelt, **Naresh C. Osti**, Yamin Htet, Catherine A. Conrad, Mina F. Shehata, Ruttayapon Potai, Andrew G. Tennyson, Dvora Perahia, and Rhett C. Smith, Conjugated Polymers with m-Pyridine Linkages: Synthesis, Photophysics, Solution Structure and Film Morphology. *J. Mater. Chem. C*, 2, 8113, (**2014**).
4. Samantha L. Kristufek, Thora R. Maltais, Eleanor G. Tennyson, **Naresh C. Osti,** Dvora Perahia, Andrew G. Tennyson and Rhett C. Smith, Bipyridyl-modified phosphonium polyelectrolytes: synthesis, photophysics, metal ion coordination and layer-by-layer assembly with anionic conjugated polymers*. Polym. Chem.,* 4**,** 5387-5394**, (2013).**
3. Sabina Maskey, **Naresh C. Osti**, Dvora Perahia, Gary S. Grest, Poly-Dots: Soft Conjugated Polymeric Nanoparticles. *ACS Macro Lett.,* 2, pp 700–704, (**2013**).
2. Dilru R. Ratnaweera, Umesh M. Shrestha, **Naresh C. Osti**, Chung-Mien Kuo, Stephen Clarson, Ken Littrell, Dvora Perahia, Self-Assembly of Semi-Fluorinated Diblock Copolymer in a Selective Solvent*. Soft Matter, 8*, 2176-2184, (**2012**).
1. Eleanor G. Tennyson, Susan He, **Naresh C. Osti**, Dvora Perahia and Rhett C. Smith, Luminescent phosphonium polyelectrolyte prepared from a diphosphine chromophore: synthesis, photophysics, and layer-by-layer assembly. *J. Mater. Chem.,* 20, 7984–7989 (**2010**).

ORAL PRESENTATIONS (29)

29. **Naresh C. Osti,** Bishnu P Thapaliya, Madhusudan Tyagi, Ray Matsumoto, Arjun Bansal, Xiaobo Lin, Peter Cummings, Sheng Dai, Eugene Mamontov, *A correlation of solvent's mole fraction to the salt-reduced diffusivities of organic solvents*, APS March Meeting, Las Vegas, NV, USA (**2023**).
28. **Naresh C. Osti**, *Neutron Study of microscopic dynamics of confined fluids of energy applications*, VU-ORNL Collaborative Workshop on Nanoscience Vanderbilt University, Nashville, TN, USA November 21, **2022**. Invited Speaker
27. **Naresh C. Osti**, *Neutron Study of Dynamics of Fluids of energy applications*, CAARI-SNEAP Conference, Denton, TX, USA October 30 to November 3, 2022. Invited Speaker
26. **Naresh C. Osti,** *Microscopic dynamics of confined fluids of energy applications*, ORNL Soft Matter Symposium October 27-28, **2022**. Invited Speaker
25. **Naresh C. Osti,** *Neutron Study of Nanoconfined Fluids in MXenes*, 2nd International MXene Conference at Drexel University, August 1-3, (**2022**). Invited Speaker
24. **Naresh C. Osti,** *Microscopic Dynamics of Fluids of Energy Applications*, CGE initiative and steering committee workshop at ORNL, May 11, (**2022**). Invited Speaker
30. **Naresh C. Osti,** Bishnu P Thapaliya, Madhusudan Tyagi, Sheng Dai, Eugene Mamontov, *Effect of a structure breaking salt on the mobility of nanoconfined water*, APS March Meeting, Chicago, USA (**2022**)
22. **Naresh C. Osti,** *Quasielastic Neutron Scattering Studies of Microscopic Dynamics in Materials for Energy Applications*, Oak Ridge National Laboratory, Energy and Soft Matter Over Tea Forum, July 21, (**2021**). Invited Speaker
21. **Naresh C. Osti,** *Strong Enhancement of Nanoconfined Water Mobility by a Structure Breaking Salt*, DOE-EFRC Indigo Meeting, June 14, (**2021**). Invited Speaker
20. **Naresh C. Osti**, Bianca Haberl, Niina Jalarvo, Reinhard Boehler, Jamie J. Molaison, Richard J. Goyette Jr., Eugene Mamontov*, Impact of Pressure on the Dynamics of a Room Temperature Ionic Liquid*, Virtual APS March Meeting **(2021)**.
19. **Naresh C. Osti**, Matthew W Thompson, Katherine Van Aken, Mohamed Alhabeb, Madhusudan Tyagi, Jong Keum, Peter T Cummings, Yury Gogotsi, Eugene Mamontov. *Impact of Humidity on the Mobility of an Ionic Liquid Confined in $Ti_3C_2T_X$ MXene*, APS March Meeting 2019, Boston, Massachusetts March 4-8, (**2019**).
18. **Naresh C. Osti,** *Dynamics in Highly Rigid Polymers: Solutions to Membranes*, 85th Annual Meeting of the APS Southeastern Section**,** Knoxville TN November 8-10, (**2018**)- Invited Speaker

17. **Naresh C. Osti,** *Dynamics of Rigid Polymers and Nano-Confined Fluid*, symposium on "Complex Systems and Polymers for the environment" in SERMACS 2018, Augusta GA, October 30-November 3, (**2018**)- Invited Speaker
16. **Naresh C. Osti,** *Dynamics in Spontaneously Formed Complex Fluids of a Rigid Conjugated Polymer*, Soft Matter Dynamics at the Nano- to Meso-Scale workshop**,** Oakridge TN, September 18-19, (**2018**)- Invited Speaker
15. **Naresh C. Osti**, Alejandro Gallegos, Boris Dyatkin, Jianzhong Wu, Yury Gogotsi, Eugene Mamontov**,** *Electrolyte Dynamics at Optimal Composition of Ionic Liquid Mixture in Supercapacitors*, ACNS meeting, College Park, Maryland, (**2018**).
14. **Naresh C. Osti,** Michael Naguib, Madhusudan Tyagi, Yury Gogotsi, Alexander I. Kolesnikov, Eugene Mamontov, *Evidence of Molecular Hydrogen Trapped between MXene Layers*, APS March Meeting, Los Angeles, (**2018**).
13. **Naresh C Osti**, Justin Neal, Kun Liu, Matthew W. Thompson, Katherine Van Aken, Yu Zhang "*Understanding Room Temperature Ionic Liquids and their Performance in Supercapacitors",* EFRC-Hub-CMS Principal Investigators Meeting in Washington, D.C. **2017.**
12. **Naresh C Osti**, Katherine Van Aken, Mohamed Alhabeb, Madhusudan Tyagi, Yury Gogotsi, Eugene Mamontov, *Influence of Water vapor on the Dynamics of an Ionic Liquid Intercalated between MXene Layers",* ICNS Meeting*, Daejeon, Korea,* **2017.**
11. **Naresh C Osti**, Katherine Van Aken, Matthew Thompson, Felix Tiet, De-en Jiang, Peter Cummings, Yury Gogotsi, Eugene Mamontov, "*Effect of Aprotic Solvents on the Dynamics of a Room Temperature Ionic Liquid", APS March Meeting, New Orleans,* **2017.**
10. **Naresh C Osti**, Boris Dyatkin, Pengfei Zhang, Sheng Dai, Yury Gogotsi, David Wesolowski, Eugene Mamontov, "*Influence of Water on Performance of Energy Storing Materials*", ACNS Meeting, **2016.**
9. **Naresh C. Osti**, Michael Naguib, Alireza Ostadhossein, Yu Xie, Paul R.C. Kent, Boris Dyatkin, Gernot Rother, William T. Heller, Adri C. T. van Duin, Yury Gogotsi, Eugene Mamontov, *Effect of Metal Ion Intercalation on the Structure of MXenes and its Impact on the Dynamics of Water in MXenes*, APS March Meeting, **2016.**
8. **Naresh C. Osti**, Sidath I. Wijesinghe, Manjula Senanayake, Anuradhi Wickramasinghe, Thusitha N. Etampawala, Dvora Perahia, "*Salt Effects on the Structure and Stability of Ionizable Polydots - SANS Study*" APS March Meeting, **2015.**
7. **Naresh C. Osti**, Thusitha N. Etampawala, Umesh M. Shrestha, Chris J. Cornelius, Souleymane O. Diallo*,* Dvora Perahia, "*Dynamics of water in sulfonated poly(phenylene) membranes*", ACNS Meeting, Knoxville, TN, **2014.**
6. **Naresh C. Osti**, Sidath I. Wijesinghe, Thusitha N. Etampawala, Dvora Perahia "*Structure and Conformation of Ionic Conjugated Polymers: Polydots*", APS March Meeting, **2014.**
5. **Naresh C. Osti,** Thusitha Etampawala, Umesh M. Shrestha, Sidath Wijesinghe, Dvora Perahia, "*Effects of Solvents on Confinement of Conjugated Polymer into Soft Nanoparticle",* APS March Meeting **2013.**
4. **Naresh C. Osti,** Dilru R. Ratnaweera, Thusitha N. Etampawala, Umesh M. Shrestha, Dvora Perahia, "*Structure and Assembly of Polymeric Dots Formed by Conjugated Polymers",* APS March Meeting, **2012.**
3. **Naresh C. Osti,** Thusitha N. Etampawala, Umesh M. Shrestha, Dvora Perahia, *"Dynamics of water in sulfonated poly(phenylene) membranes",* APS March Meeting, **2011.**
2. **Naresh C. Osti,** Dilru R. Ratnaweera, Thusitha Etampawala, Dvora Perahia, "*Assembly of Conjugated Polymers- Gold Nanoparticles",* APS March Meeting, **2010.**
1. **Naresh C. Osti,** Madhusudan Tyagi, Dilru R. Ratnaweera, Uwe H.-F. Bunz**,** Dvora Perahia "*Dynamics in Complex Fluids Formed by Conjugated Polymers",* APS March Meeting, **2009.**

POSTER PRESENTATIONS (10)

10. **Naresh C. Osti,** Eugene Mamontov, Niina Jalarvo, *"Neutron Studies of Dynamics of Electrolytes of energy applications in Confined Media"* APS March meeting, GERA workshop, March 5, **2023.**
9. **Naresh C. Osti,** Eugene Mamontov, Niina Jalarvo, *"Backscattering Silicon Spectrometer at SNS (SNS-BASIS)"* ORNL Soft Matter Symposium October 27-28, **2022.**
8. **Naresh C. Osti,** Eugene Mamontov, Niina Jalarvo, *"Backscattering Silicon Spectrometer at SNS (SNS-BASIS)"* Resolving the Dynamics in Soft Materials: A combination of Backscattering and Neutron Spin Echo spectroscopy workshop at Oak Ridge National Laboratory, September 21-22, **2022.**
7. **Naresh C. Osti**, Bishnu Prasad Thapaliya, Madhusudan Tyagi, Sheng Dai, Eugene Mamontov, "Strong Enhancement of Nanoconfined Water Mobility by a Structure Breaking Salt" DOE-EFRC-Hub-CMS-CCS Principal Investigators' Meeting, Virtual setting, October 18-19, **2021**.
6. **Naresh C. Osti,** Michael Naguib Abdelmalak, Eugene Mamontov, Yury Gogotsi, David J. Wesolowski, *"Study of Effects of Ions on the Dynamics of Water Confined between Two-Dimensional Layers of Titanium Carbide, MXenes, Using Quasi-Elastic Neutron Scattering"* Gordon Research Conference on Neutron Scattering, Hong Kong, China, June 21-26, **2015.**
5. **Naresh C. Osti,** Boris Dyatkin, Pengfei Zhang, Sheng Dai, Yury Gogotsi, David J. Wesolowski, Eugene Mamontov, *"Impacts of Chain Length-Dependent Diffusion Mobility of Room Temperature Ionic Liquids in Supercapacitor Configuration"* QENS/WINS 2016, Potsdam, Germany, September 5-9, **2016.**
4. **Naresh C. Osti,** Thusitha Etampawala, Umesh M. Shrestha, Sidath Wijesinghe, Dvora Perahia**,** "*Effects of Solvents on Confinement of Conjugated Polymer into Soft Nanoparticle*", Neutron and Nano User Meeting, Oak Ridge National Laboratory, TN, August 12 -15, **2013.**
3. **Naresh C. Osti,** Thusitha N. Etampawala, Flint Pierce, Chris J. Cornelius, Gary S. Grest, Dvora Perahia**,** "*Dynamics of Ionic Polymers at Interfaces: Key to Enhanced Longevity of Clean Energy Devices: Neutron Scattering and Molecular Dynamics Simulation Studies*", Department of Energy, July 22 -25, **2012.**
2. **Naresh C. Osti**, Thusitha N. Etampawala, Umesh M. Shrestha, Chris J. Cornelius, Dvora Perahia, "*Dynamics of water in sulfonated polyphenylene membranes*" Center for Integrated Nanotechnologies user conference, Albuquerque, NM, September 14 -16, **2011.**
1. **Naresh C. Osti,** Sabina Maskey, Madhusudan Tyagi, Uwe H.F. Bunz, Dvora Perahia, "*Dynamics and Conformation of Conjugated Polymers in Solution"* International Conference on Neutron Scattering, Knoxville, TN, May 3-7, **2009.**

NEUTRON EDUCATION

- Several neutron scattering (techniques and data analysis) workshops and neutron and x-ray scattering schools

PROFESSIONAL ASSOCIATIONS

- Member of American Physical Society (APS), 2008-present
- APS Division of Polymer Physics (DPOLY), member since 2008
- Member of Neutron Scattering Society of America (NSSA), 2010-present
- SNS-HFIR User Group Executive Committee Member (2021-present)

REFERENCES

- Available up on request