

MANJULA SENANAYAKE

Email: senanayakemp@ornl.gov

Cell: (864)-643-7460

Professional Interests

A research-oriented position that utilizes my experience in neutron scattering and X-ray scattering techniques as well as molecular dynamics simulations, to design and characterize novel materials including polymers, bio-membranes, and organic-inorganic nanoparticle hybrids.

Professional Experiences

- Postdoctoral research scientist at Oak Ridge National Laboratory in neutron scattering division (*November 2020 to present*)
- Conduct neutron and X-ray experiments and analyze neutron scattering data of soft matter including polymers, lignocellulosic biomass and nonopacities. Program and implement codes to analyze neutron scattering data.
- Perform atomistic and coarse-grained simulations of polymers and biomolecules

Education

- **Doctor of Philosophy** (Physical Chemistry with emphasis in Polymer Physics)
Clemson University, Clemson, SC, USA (*spring 2020*)
Dissertation title: *Understanding the Structure and Dynamics of Soft Materials Using Neutron Scattering and Molecular Dynamics Simulations Techniques*
Advisors: Prof. Dvora Perahia, Clemson University and Dr. Gary S. Grest, Sandia National Laboratory
- **B.Sc.** in Chemistry University of Kelaniya, Kelaniya, Sri Lanka **2005- 2009**

Professional Training:

- **2019**, Spring internship, Sandia National Laboratory, NM
- **2015**, August 5-7, LAMMPS User's Workshop and Symposium, Sandia National Laboratory, NM
- **2014**, July 29-31, SANS and NSE Spectroscopy for Structure and Dynamics of Soft Matter, Oak Ridge National Laboratory, TN
- **2014**, June 5-6, Ultra Small-Angle Neutron Scattering Workshop, Oak Ridge National Laboratory, TN

Recent Publications:

- **Senanayake M**, Aryal D, Grest GS, Perahia D. Interfacial Response and Structural Adaptation of Structured Polyelectrolyte Thin Films. *Macromolecules*. 2021 Mar 4.
- **Senanayake M**, Perahia D, Grest GS. Effects of interaction strength of associating groups on linear and star polymer dynamics. *The Journal of Chemical Physics*. 2021 Feb 21;154(7):074903.
- **Senanayake M**, Sidath Wijesinghe, Supun S. Mohottalalage, Gary S. Grest, and Dvora Perahia, "SANS Study of Association of Structured Ionic Polymers in Different Solvents" (submitted).
- **Senanayake M**, Jayme Alger, and Dvora Perahia, "Neutron Back Scattering Study of Segmental Dynamics of Structured Ionic Polymers in Non Polar Environment" (In preparation).

Presentations:

- **Senanayake, M.**, Aryal, D., Grest, G., & Perahia, D. (2019). Dynamics at the Interface of Structured Block Co-Polymer Thin Films with Polar Solvents: Molecular Dynamics Simulations Insights. In *APS Meeting Abstracts*.
- **Senanayake, M.**, Perahia, D., Aryal, D., & Grest, G. (2019, March). Solvent penetration into structured ionomer membranes. In *Abstracts Of Papers Of The American Chemical Society* (Vol. 257). 1155 16th St, Nw, Washington, Dc 20036 USA: Amer Chemical Soc.
- **Senanayake, M.**, Aryal, D., Grest, G., & Perahia, D. (2018). Response of ionic copolymers assemblies to solvent stimuli: A molecular Dynamics Simulation Study. In *APS Meeting Abstracts*.
- **Senanayake, M.**, Wijesinghe, S., Wickramasinghe, A., Mohottalalage, S., Perahia, D., He, L., & Charendoff, M. (2017). Solvent Tuning of Cluster Morphology in Ionic Block Copolymer Solutions. In *APS Meeting Abstracts*.
- **Senanayake, M.**, Aryal, D., Perahia, D., & Grest, G. (2016). Computational Insight into Solvent Effects on Conformation and Assembly of Structured Ionic Polymer. In *APS Meeting Abstracts*.

Synergetic Activities:

- Member of American physical society (2016-present)
- Treasure of Sri Lankan Student Association, Clemson University 2016-2017
- Member of Sri Lankan Student Association, Clemson University (2016-present)

References

Prof. Dvora Perahia (PhD. Advisor)
Department of Chemistry, Clemson University,
Clemson, SC 29634-0973
Cell 864-525-8249
Email: dperahi@clemson.edu

Dr. Gary S. Grest (Ph.D. Co-advisor)
Sandia National Laboratories Albuquerque,
New Mexico
Phone: 505-844-3261
Email: gsgrest@sandia.gov

Dr. Sai Venkatesh Pingali
Neutron scattering scientist,
Oak Ridge National Laboratories, Oak Ridge,
Tennessee, USA
Phone: 865-241-2424
Email: pingalis@ornl.gov

Dr. Hugh M O'Neil
Senior staff scientist,
Oak Ridge National Laboratories, Oak Ridge,
Tennessee, USA
Phone: 865-574-5283
Email: oneillhm@ornl.gov