SAI VENKATESH PINGALI

Address: Neutron Scattering Division, Oak Ridge National Laboratory, Oak Ridge TN 37831
Tel: (865) 241-2424; Fax: (865) 574-6268;
Email: **pingalis@ornl.gov**
ORCiD: **0000-0001-7961-4176**
Google Scholar: **My Profile**

Scientific Expertise
X-ray/Neutron Scattering Techniques; Structure, Morphology and Dynamics; Biopolymer Materials; Plant Structural Biology; Time-Resolved/In-Situ Thermochemical Reaction Scattering.

Education and Training

Postdoctoral:	Oak Ridge National Laboratory, TN (2008-2011) Advisor Dr. Volker Urban - 'Biomass Deconstruction' Argonne National Laboratory, IL (2005-2008) Advisor Dr. P. Thiyagarajan - 'SAND Instrument Postdoc' & 'Structure of Biomaterials using SAXS/SANS/WAXD'
Ph.D.:	Department of Physics, University of Illinois at Chicago, IL (2005) Advisor Professor Mark Schlossman - 'Structure and Morphology of Biochemical and Chemical Molecules at the Liquid/Liquid and Liquid/Vapor Interface using X-ray Reflectivity'
M.S.:	Department of Physics, University of Hyderabad, Hyderabad, INDIA (1998) – 'Quantum Optics Specialization'
B.S. (Honors):	Sri Sathya Sai Institute of Higher Learning, Bangalore, INDIA (1995) Major in Physics, Minors in Mathematics and Chemistry.

Professional Experience

Oct 2017 – Present:	Bio-SANS Instrument 'Point of Contact'
Jan 2017 – Present:	R&D Staff, ORNL
Aug 2012 – Present:	Bio-SANS Instrument Scientist
Aug 2012 – Dec 2016:	R&D Associate, ORNL
May 2011 – Aug 2012:	Scientific Research Staff (Term Appointment), ORNL

Honors and Awards

- The Secretary's Honor Award, 2021 'Molecular design and analysis to inform therapeutics related to COVID-19'.
- Significant Event Award, 2016 'Bio-SANS Detector Expansion Project, West Wing Detector System'.
- Significant Event Award, 2012 'Bio-SANS Detector Upgrade Project, Gas to Tube Detector System'.
- Selected Participant, National School on Neutron and X-ray Scattering Argonne National Laboratory, 2000.
- Ranked Top 5 (45), M.Sc. (Physics), INDIA, 1998.
- Ranked Top 5 (30), B.Sc. (Physics Honors), INDIA, 1995.

Synergistic Activities
1. SAS-SIG Secretary in the American Crystallographic Association 2020-2022.
2. Co-organizer of 'Membrane protein structure in membrane and membrane-mimic environments' session in the 71st ACA Annual Meeting Jul 31st to Aug 7th 2021 (Virtual).
3. Co-chair of the 'Cellulose Structure and Biosynthesis' session 253rd National American Chemical Society Meeting, San Francisco CA, Apr 3rd 2017.
4. Co-chair of the 'Materials for a Sustainable Future' session at the ACA Annual Meeting 2012 at Boston, MA. (Topic: Bioenergy and Biofuels) Jul 30th 2012.
5. Co-chair of the 'Biology' session, Workshop on Modeling and Simulations on Materials in Soft Matter Science, Spallation Neutron Source, Oak Ridge National Laboratory, Oak Ridge TN Nov 11th 2011.

6. Current active member of scientific societies- American Chemical Society (ACS), American Crystallographic Association (ACA) and Society of Industrial Microbiology and Biotechnology (SIMB).

Selected Publications

1. Chen, P.; Li, Y.; Nishiyama, Y.; **Pingali, S.V.**; O'Neill, H.M.; Zhang, Q. and Bergland, L.A., Small Angle Neutron Scattering Shows Nanoscale PMMA Distribution in Transparent Wood Biocomposites. *Nano Letters, (*2021) *21,* 2883-2890 - **Collaboration sparred by our Biofuels SFA work**.
2. Astner, A.F.; Hayes, D.G.; **Pingali, S.V.**; O'Neill, H.M.; Littrell, K.C.; Evans, B.R. and Urban, V.S., Effects of soil particles and convective transport on dispersion and aggregation of nanoplastics via small-angle neutron scattering (SANS) and ultra SANS (USANS). *PLOS ONE* (2020) *175,* 1593-1607 - **USDA Soil/Plastics interactions**.
3. Chundawat, S.P.S.; Sousa, L. da C.; Roy, S.; Yang, Z.; Gupta, Shashwat.; Pal, R.; Zhao, C.; Liu, S.-H.; Petridis, L.; O'Neill, H.M. and **Pingali, S.V.**, Ammonia-salt solvent promotes cellulosic biomass deconstruction under ambient pretreatment conditions to enable rapid soluble sugar production at ultra-low enzyme loadings. *Green Chemistry, (*2020) *22, 2*04-218 - **Collaboration sparred by our Biofuels SFA work**.
4. **Pingali, S.V.**; Smith, M.D.; Liu, S.-H.; Rawal, T.B.; Pu, Y.; Shah, R.; Evans, B.R.; Urban, V.S.; Davison, B.H.; Cai, C.M.; Ragauskas, A.J.; O'Neill, H.M.; Smith, J.C.; and Petridis, L., Deconstruction of biomass enabled by local demixing of cosolvents at cellulose and lignin surfaces. *PNAS* (2020) *117,* 16776-16781 - **Biofuels SFA plant cell wall deconstruction**.
5. Smith, M.D.; **Pingali, S.V.**; Elkins, J.G.; Bolmatov, D.; Standaert, R.F.; Nickels, J.; Urban, V.S.; Katsaras, J.; Davison, B.H.; Smith, J.C.; and Petridis, L., Solvent-induced membrane stress in biofuel production: Molecular insights from small-Angle scattering and all-Atom molecular dynamics simulations. *Green Chemistry* (2020) *22,* 8278-8288 - **Biofuels SFA solvent mediated biomembrane disruption**.
6. Rawal, T.B.; Ozcan, A.; Liu, S.-H.; **Pingali, S.V.**; Akbilgic, O.; Tetard, L.; O'Neill, H.; Santra, S. and Petridis, L., Interaction of Zinc Oxide Nanoparticles with Water: Implications for Catalytic Activity. *ACS Applied Nano Materials, (*2019) *2,* 4257-4266 - **USDA microbial nanoparticles**.
7. Sawada, D.; Kalluri, U.C.; O'Neill, H.M.; Urban, V.S.; Langan, P.; Davison, B.H. and **Pingali, S.V.**, Tension wood structure and morphology conducive for better enzymatic digestion. Biotechnology for Biofuels (2018) *11*, 44 - **Biofuels SFA plant cell deconstruction**.
8. Oliver, R.C.; **Pingali, S.V.** and Urban, V.S., Designing mixed detergent micelles for uniform neutron contrast. *Journal of Physical Chemistry Letters* (2017) *8,* 5041-5046 - **Membrane protein stabilization platform in aqueous solvents - utilized by user group – Naing *et al. Biophysical Journal* (2018) *114*, 602-608**.
9. **Pingali, S.V.**; Urban, V.S.; Heller, W.T.; McGaughey, J.; O'Neill, H.M.; Foston, M.B.; Li, H.; Wyman, C.E.; Myles, D.A.; Langan, P.; Ragauskas, A.; Davison, B.H. and Evans, B.R., Understanding Multiscale Structural Changes During Dilute Acid Pretreatment of Switchgrass and Poplar. *ACS Sustainable Chemistry & Engineering* (2017) *5,* 426-435 - **Biofuels SFA plant cell wall deconstruction**.
10. O'Neill, H.M.; **Pingali, S.V.**; Loukas, P.; He, J.H.; Mamontov, E.; Hong, L.; Urban, V.S.; Evans, B.R.; Langan, P.; Smith, J.C. and Davison, B.H., Dynamics of water bound to crystalline cellulose. *Scientific Reports* (2017) *7,* 11840 - **Solvent motions influence on plant biopolymer behavior**.

Collaborators and Co-editors G. Baker (University of Missouri), J. Barker (NIST), L. Bergland (KTH, Sweden), M. Bleuel (NIST), C. Cai (UC Riverside), D. Carrier (UTK), X. Cheng (OSU), S. Chmely (PSU), S.P.S Chundawat (U. Michigan), D. Cosgrove (PSU), M. Dadmun (UTK), B. Goodell (UMass Amherst), Y. Gu (PSU), S. Gupta (VTech), M. Hammel (LBNL), D. Hayes (UTK), T. Hiroi (NIMS, Japan), M. Hong (PSU), J. Hopkins (BioCAT, IIT), G. Hura (LBNL), J. Jellison (UMass Amherst), A. Joachimiak (ANL), S. Kim (PSU), J. Kubicki (UTEP), N. Labbe (UTK), P. Langan (ILL), R. Lieberman (GTech), Y. Nishiyama (CERMAV, France), V. Orphan (Caltech), E. Pinkhassik (U Connecticut), A. Richter (Valpo), S. Santra (UCF), G. Schneider (LSU), M. Shibiyama (U. Tokyo, Japan), R. Standaert (ETSU), L. Tetard (UCF), S. Tsutakawa (LBNL), T. Weiss (SSRL), C. Wyman (UC Riverside), X. Zuo (ANL).

Graduate and Postdoctoral Advisees Nayomi Plaza (University of Wisconsin, Madison), Dr. Zhi Yang (University of Auckland, New Zealand), Dr. Ryan Oliver (University of Virginia, Charlottesville), Dr. Daisuke Sawada (University of Tokyo).

Graduate and Postdoctoral Advisors Professor Mark Schlossman, University of Illinois at Chicago; Dr. Thiyagarajan Pappannan, Department of Energy, BES; Dr. Volker S. Urban, Oak Ridge National Laboratory.