

# Shishir P. S. Chundawat

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## Education

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Ph.D., Chemical Engineering, Michigan State University, December 2009  
Dissertation Title: *Ultrastructural and physicochemical modifications within ammonia treated lignocellulosic cell walls and their influence on enzymatic digestibility*  
Advisor - Prof. Bruce E. Dale

B. Tech. (Distinction), Chemical Technology, Institute of Chemical Technology, Mumbai, May 2004  
Thesis Title: *Sucrose Esters - Manufacture, Analysis & Evaluation as Emulsifier-Detergent*  
Advisor - Prof. D. N. Bhowmick

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## Professional Experience

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2021-Present, Associate Professor (Tenured), Department of Chemical & Biochemical Engineering, Rutgers The State University of New Jersey, New Brunswick

2015-2021, Assistant Professor (Tenure Track), Department of Chemical & Biochemical Engineering, Rutgers The State University of New Jersey, New Brunswick

2012-2014, Assistant Staff Scientist, Great Lakes Bioenergy Research Center and Wisconsin Energy Institute, Department of Biochemistry, University of Wisconsin, Madison  
Supervisor - Prof. Brian G. Fox

2011-2017, Adjunct/Research Assistant Professor (Non-Tenure Track), Department of Chemical Engineering & Materials Science, Michigan State University, East Lansing

2010-2011, Postdoctoral Research Associate, Department of Chemical Engineering & Materials Science, Michigan State University, East Lansing  
Advisor - Prof. Bruce E. Dale

2008-Spring, Visiting Research Scholar, Verenum Cellulosic Biofuels (Enzymes Division), San Diego  
Supervisor – Dr. Justin Stege

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## Research Interests and Keywords

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Biochemical Engineering, Biomanufacturing, Biomass Process Engineering, Biopharmaceuticals, Bioseparations, Carbohydrate-Active enZymes (CAZymes), Cellulose & Carbohydrate Chemistry, Cellulosic Biofuels, Chemo-Enzymatic Synthesis, Glycans, Glycoconjugates, Glycoengineering, Glycobiology, Process Analytical Technology, Protein Adsorption, Protein Engineering, Single-Molecule Force Spectroscopy

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## Honors and Awards

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2022: A. Walter Tyson Endowment Award, Sponsored by Rutgers University (SOE)  
2020: Agilent Applications and Core Technology Faculty Award, Sponsored by Agilent Inc.  
2019: National Science Foundation (NSF) Early Career Award, Sponsored by NSF  
2018: A. Walter Tyson Assistant Professorship Award, Sponsored by Rutgers University (SOE)  
2017: Undergraduate Teaching Excellence Award, Sponsored by Rutgers University (CBE)  
2017: Outstanding Faculty of the Year, Sponsored by Rutgers University (CBE)  
2016: Ralph E. Powe Junior Faculty Award, Sponsored by Oak Ridge Associated Universities (ORAU)  
2010: Best 'Fundamental Science' Poster at 32<sup>nd</sup> Symposium of Biotechnology for Fuels and Chemicals  
2009: Graduate School Fellowship Awardee, Sponsored by Michigan State University  
2004: Government of Maharashtra (India) Merit Scholarship Holder from 2000-to-2004  
2004: Mumbai University Bachelor of Technology Distinguished Rank Holder from 2000-to-2004  
2003: ICT Alumni Association Best Undergraduate Award  
2002: ICT Alumni Association Best Undergraduate Award  
2001: J.G. Kane Memorial Trust Award

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## Peer-Reviewed Publications, Preprints, and Technical Reports

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Lead Corresponding Author on publications indicated as **Chundawat, S. P. S.\***

### **Peer-Reviewed Papers (Black Font), Unrefereed Preprints or Technical Reports (Red Font)**

1. Ramdin, K.; Hackl, M.; **Chundawat, S. P. S.\*** Visualization of Tethered Particle Motion with a Multidimensional Simulation. *Biophys.* **2024**. <https://doi.org/10.35459/tbp.2022.000238>.
2. Jayachandran, D.; Banerjee, S.; **Chundawat, S. P. S.\*** Plant Cellulose Synthase Membrane Protein Isolation Directly from *Pichia Pastoris* Protoplasts, Liposome Reconstitution, and Its Enzymatic Characterization. *Protein Expr. Purif.* **2023**, *210*, 106309. <https://doi.org/10.1016/J.PEP.2023.106309>.
3. Nemmaru, B.; DeChellis, A.; Patil, N.; **Chundawat, S. P. S.\*** CAZyme Characterization and Engineering for Biofuels Applications. In *Handbook of Biorefinery Research and Technology*;

Springer Netherlands: Dordrecht, 2023; pp 1–34. [https://doi.org/10.1007/978-94-007-6724-9\\_32-1](https://doi.org/10.1007/978-94-007-6724-9_32-1). **Invited Book Review Chapter.**

4. Jayachandran, D.; Smith, P.; Irfan, M.; Sun, J.; Yarborough, J. M.; Bomble, Y. J.; Lam, E.; **Chundawat, S. P. S.\*** Engineering and Characterization of Carbohydrate-binding Modules for Imaging Cellulose Fibrils Biosynthesis in Plant Protoplasts. *Biotechnol. Bioeng.* **2023**, *120* (8), 2253–2268. <https://doi.org/10.1002/bit.28484>.
5. Lee, S.-H.; **Chundawat, S.\***; Lam, E.; Lang, M.; Muchero, W.; Vankatesh Pingali, S. *In Planta Single-Molecule Imaging and Holographic Force Spectroscopy to Study Real-Time, Multimodal Turnover Dynamics of Polysaccharides and Associated Carbohydrate Metabolites*; Argonne, IL (United States), 2023. Technical Report for USDOE Office of Science (SC), Biological and Environmental Research (BER). <https://doi.org/10.2172/1960742>.
6. Roy, S.; **Chundawat, S. P. S.** Ionic Liquid–Based Pretreatment of Lignocellulosic Biomass for Bioconversion: A Critical Review. *BioEnergy Res.* **2023**, *16*, 263-278. <https://doi.org/10.1007/s12155-022-10425-1>.
7. Hackl, M.; Power, Z.; **Chundawat, S.P.S.\*** Oriented Display of Cello-Oligosaccharides for Pull-down Binding Assays to Distinguish Binding Preferences of Glycan Binding Proteins. *Carbohydr. Res.* **2023**, *534*, 108943. <https://doi.org/10.1016/J.CARRES.2023.108943>.
8. Hackl, M.; Power, Z.; **Chundawat, S.P.S.\*** Oriented Display of Cello-Oligosaccharides for Pull-down Binding Assays to Distinguish Binding Preferences of Glycan Binding Proteins. *bioRxiv* **2023**, 2023.01.26.525732. <https://doi.org/10.1101/2023.01.26.525732>.
9. Tiwold, E. K.; Gyorgypal, A.; **Chundawat, S. P. S.\*** Recent Advances in Biologic Therapeutic N-Glycan Preparation Techniques and Analytical Methods for Facilitating Biomanufacturing Automation. *J. Pharm. Sci.* **2023**, *112* (6), 1485–1491. <https://doi.org/10.1016/j.xphs.2023.01.012>.
10. Jayachandran, D.; Smith, P.; Irfan, M.; Sun, J.; Yarborough, J. M.; Bomble, Y. J.; Lam, E.; **Chundawat, S. P. S.\*** Engineering and Characterization of Carbohydrate-Binding Modules to Enable Real-Time Imaging of Cellulose Fibrils Biosynthesis in Plant Protoplasts. *bioRxiv* **2023**, 2023.01.02.522519. <https://doi.org/10.1101/2023.01.02.522519>.
11. Ganesan, G.; Hackl, M.; **Chundawat, S. P. S.\*** Characterizing the Cellulose Binding Interactions of Type-A Carbohydrate-Binding Modules Using Acoustic Force Spectroscopy. *bioRxiv* **2023**, 2023.10.18.563009. <https://doi.org/10.1101/2023.10.18.563009>.
12. DeChellis, A.; Nemmaru, B.; Sammond, D.; Douglas, J.; Patil, N.; Reste, O.; **Chundawat, S. P. S.\*** Supercharging Carbohydrate-Binding Module Alone Enhances Endocellulase Thermostability, Binding, and Activity on Cellulosic Biomass. *bioRxiv* **2023**, 2023.09.09.557007. <https://doi.org/10.1101/2023.09.09.557007>.

13. Gyorgypal, A.; Potter, O. G.; Chaturvedi, A.; Powers, D. N.; **Chundawat, S. P. S.\*** Automated Instant Labeling Chemistry Workflow for Real-Time Monitoring of Monoclonal Antibody N-Glycosylation. *React. Chem. Eng.* **2023**, *8*, 2423–2434. <https://doi.org/10.1039/D2RE00568A>. **Invited Article to Special Issue on Biocatalysis and Bioprocessing in RSC Reaction Chemistry and Engineering.**
14. Gyorgypal, A.; Fratz-Berilla, E.; Kohnhorst, C.; Powers, D. N.; **Chundawat, S. P. S.\*** Temporal Effects of Galactose and Manganese Supplementation on Monoclonal Antibody N-Linked Glycosylation in Fed-Batch and Perfusion Bioreactor Operation. *bioRxiv* **2023**, 2023.04.15.535602. <https://doi.org/10.1101/2023.04.15.535602>.
15. Hackl, M.; Jayachandran, D.; Ramdin, K.; Zhong, T.; **Chundawat, S. P. S.\*** Site-Specific Effector Protein Functionalization to Create Bead-Based Avidity Model Systems. *bioRxiv* **2023**, 2023.03.27.534459. <https://doi.org/10.1101/2023.03.27.534459>.
16. Kumar, M.; Bandi, C. K.; **Chundawat, S.P.S.\*** High-Throughput Screening of Glycosynthases Using Azido Sugars for Oligosaccharides Synthesis. *Methods Enzymol.* **2023**, *682*, 211–245. <https://doi.org/10.1016/BS.MIE.2022.12.002>. **Invited Article in Integrated Methods in Protein Biochemistry: Part C Series of Methods in Enzymology Edited by Arun K. Shukla.**
17. Gyorgypal, A.; Potter, O.; Chaturvedi, A.; Powers, D. N.; **Chundawat, S. P. S.\*** Automated Workflow for Instant Labeling and Real-Time Monitoring of Monoclonal Antibody N-Glycosylation. *bioRxiv* **2022**, 2022.12.22.521623. <https://doi.org/10.1101/2022.12.22.521623>.
18. Guranovic, I.; Kumar, M.; Bandi, C. K.; **Chundawat, S. P. S.\*** Machine Learning Assisted Ligand Binding Energy Prediction for in Silico Generated Glycosyl Hydrolase Enzyme Combinatorial Mutant Library. *bioRxiv* **2022**, 2022.11.29.518414. <https://doi.org/10.1101/2022.11.29.518414>.
19. Hackl, M.; Contrada, E. V.; Ash, J. E.; Kulkarni, A.; Yoon, J.; Cho, H.-Y.; Lee, K.-B.; Yarbrough, J. M.; López, C. A.; Gnanakaran, S.; **Chundawat, S. P. S.\*** Acoustic Force Spectroscopy Reveals Subtle Differences in Cellulose Unbinding Behavior of Carbohydrate-Binding Modules. *Proc. Natl. Acad. Sci.* **2022**, *119* (42), e2117467119. <https://doi.org/10.1073/pnas.2117467119>.
20. Ramdin, K. A.; Hackl, M.; **Chundawat, S. P. S.\*** Multivariable Graphical User Interface for Simulation of Tethered Particle Motion. *bioRxiv* **2022**, 2022.08.31.506066. <https://doi.org/10.1101/2022.08.31.506066>.
21. Chopda, V., Gyorgypal, A., Yang, O., Singh, R., Ramachandran, R., Zhang, H., Tsilomelekis, G., **Chundawat, S. P. S.\***, and Ierapetritou, M. G. Recent Advances in Integrated Process Analytical Techniques, Modeling, and Control Strategies to Enable Continuous Biomanufacturing of Monoclonal Antibodies. *Journal of Chemical Technology & Biotechnology*, **2022**, *97* (9), 2317–2335. <https://doi.org/10.1002/jctb.6765>.
22. Tiwold, E. K.; Gyorgypal, A.; **Chundawat, S. P. S.\*** Recent Advances in Biologic Therapeutic N-Glycan Preparation Techniques and Analytical Methods for Facilitating Biomanufacturing Automation.

*ChemRxiv* (Cambridge Cambridge Open Engag). **2022**. <https://doi.org/10.26434/chemrxiv-2022-sdq2g>.

23. Gyorgypal, A.; **Chundawat, S. P. S.\***. Integrated Process Analytical Platform for Automated Monitoring of Monoclonal Antibody N-Linked Glycosylation. *Anal. Chem.* **2022**, 94 (19), 6986–6995. <https://doi.org/10.1021/acs.analchem.1c05396>. **Journal Cover Article**.
24. Hackl, M., Contrada, E. V., Ash, J. E., Kulkarni, A., Yoon, J., Cho, H.-Y., Lee, K.-B., Yarbrough, J. M. & **Chundawat, S. P. S.\***, "Acoustic Force Spectroscopy Reveals Subtle Differences in Cellulose Unbinding Behavior of Carbohydrate-Binding Modules," *bioRxiv* **2021**, 2021.09.20.461102. <https://doi.org/10.1101/2021.09.20.461102>
25. Nemmaru, B., Douglass, J., Yarbrough, J. M., Chellis, A. De, Shankar, S., Thokkadam, A., Wang, A. & **Chundawat, S. P. S.\***, "Supercharged Cellulases Show Reduced Non-Productive Binding, But Enhanced Activity, on Pretreated Lignocellulosic Biomass," *bioRxiv* **2021**, 2021.10.17.46468. <https://doi.org/10.1101/2021.10.17.464688>
26. Gyorgypal, A. & **Chundawat, S. P. S.\***, "An Integrated Process Analytical Platform for Automated Monitoring of Monoclonal Antibody N-linked Glycosylation," *bioRxiv* **2021**, 2021.11.14.468439. <https://doi.org/10.1101/2021.11.14.468439>
27. Agrawal, A., Bandi, C. K., Burgin, T., Woo, Y., Mayes, H. B., and **Chundawat, S. P. S.\*** "Click-Chemistry-Based Free Azide versus Azido Sugar Detection Enables Rapid In Vivo Screening of Glycosynthase Activity." *ACS Chemical Biology*, **2021**, p. acschembio.1c00585. <https://doi.org/10.1021/acschembio.1c00585>.
28. Bandi, C. K., Skalenko, K. S., Agrawal, A., Sivaneri, N., Thiry, M., and **Chundawat, S. P. S.\*** Engineered Regulon to Enable Autonomous Azide Ion Biosensing, Recombinant Protein Production, and in Vivo Glycoengineering. *ACS Synthetic Biology*, Vol. 10, No. 4, **2021**, pp. 682–689. <https://doi.org/10.1021/acssynbio.0c00449>.
29. Nemmaru, B., Ramirez, N., Farino, C. J., Yarbrough, J. M., Kravchenko, N., and **Chundawat, S. P. S.\*** Reduced Type-A Carbohydrate-binding Module Interactions to Cellulose I Leads to Improved Endocellulase Activity. *Biotechnology and Bioengineering*, Vol. 118, No. 3, **2020**, p. bit.27637. <https://doi.org/10.1101/2020.07.02.183293>.
30. **Chundawat, S. P. S.\***, Nemmaru, B., Hackl, M., Brady, S. K., Hilton, M. A., Johnson, M. M., Chang, S., Lang, M. J., Huh, H., Lee, S.-H., Yarbrough, J. M., López, C. A., and Gnanakaran, S. Molecular Origins of Reduced Activity and Binding Commitment of Processive Cellulases and Associated Carbohydrate-Binding Proteins to Cellulose III. *The Journal of Biological Chemistry*, Vol. 296, **2021**, p. 100431. <https://doi.org/10.1016/j.jbc.2021.100431>.

31. Bandi, C. K., Agrawal, A., and **Chundawat, S. P. S.\*** Carbohydrate-Active EnZyme (CAZyme) Enabled Glycoengineering for a Sweeter Future. *Current Opinion in Biotechnology*, **2020**, Volume 66, 283–291. <https://doi.org/10.1016/j.copbio.2020.09.006>. **Invited review article.**
32. Bandi, C. K., Goncalves, A., Pingali, S. V., and **Chundawat, S. P. S.\*** Carbohydrate-binding Domains Facilitate Efficient Oligosaccharides Synthesis by Enhancing Mutant Catalytic Domain Transglycosylation Activity. *Biotechnology and Bioengineering*, Vol. 117, **2020**, pp. 2944– 2956. <https://doi.org/10.1002/bit.27473>.
33. Bandi, C. K.; Skalenko, K. S.; Agrawal, A.; Sivaneri, N.; Thiry, M.; **Chundawat, S. P. S.\*** Synthetic Promoter Based Azide Biosensor Toolkit to Advance Chemical-Biology. *bioRxiv*, **2020**, 2020.07.08.193060. <https://doi.org/10.1101/2020.07.08.193060>.
34. **Chundawat, S. P. S.\*** Comparison of Analytical Methods for Rapid and Reliable Quantification of Plant-Based Carbohydrates for the Quintessential Bioenergy Educator. *bioRxiv*, **2020**, 2020.05.21.106468. <https://doi.org/10.1101/2020.05.21.106468>.
35. **Chundawat, S. P. S.\***, Nemmaru, B., Hackl, M., Brady, S. K., Hilton, M. A., Johnson, M. M., Chang, S., Lang, M. J., Huh, H., Lee, S.-H., Yarbrough, J. M., López, C. A., and Gnanakaran, S., “Multiscale Characterization of Complex Binding Interactions of Cellulolytic Enzymes Highlights Limitations of Classical Approaches,” *bioRxiv*, **2020**, p. 2020.05.08.084152. <https://www.biorxiv.org/content/10.1101/2020.05.08.084152v1.full>.
36. Nemmaru, B.; Ramirez, N.; Farino, C. J.; Yarbrough, J. M.; Kravchenko, N.; **Chundawat, S. P. S.\*** Reduced Type-A Carbohydrate-Binding Module Interactions to Cellulose Leads to Improved Endocellulase Activity. *bioRxiv*, **2020**, 2020.07.02.183293. <https://doi.org/10.1101/2020.07.02.183293>.
37. **Chundawat, S. P. S.\***, Pal, R., Zhao, C., Campbell, T., Teymouri, F., Videto, J., Nielson, C., Wieferich, B., Sousa, L., Dale, B. E., Balan, V., Chipkar, S., Aguado, J., Burke, E., and Ong, R. G., “Ammonia Fiber Expansion (AFEX) Pretreatment of Lignocellulosic Biomass,” *J. Vis. Exp*, **2020**, p. 57488. <https://www.jove.com/video/57488>.
38. Agrawal, A., Bandi, C. K., Burgin, T., Woo, Y., Mayes, H. B., and **Chundawat, S. P. S.\***, “Click-chemistry enabled directed evolution of glycosynthases for bespoke glycans synthesis,” *bioRxiv*, **2020**, p. 2020.03.23.001982. <https://www.biorxiv.org/content/10.1101/2020.03.23.001982v1>.
39. Liu, Y., Nemmaru, B., and **Chundawat, S. P. S.\***, “Thermobifida fusca Cellulases Exhibit Increased Endo–Exo Synergistic Activity, but Lower Exocellulase Activity, on Cellulose-III,” *ACS Sustainable Chemistry & Engineering*, **2020**, p. acssuschemeng.9b06792. <https://pubs.acs.org/doi/10.1021/acssuschemeng.9b06792>.

40. Zhao, C., Shao, Q., and **Chundawat, S. P. S.\***, "Recent Advances on Ammonia-based Pretreatments of Lignocellulosic Biomass," *Bioresource Technology*, **2020**, p. 122446.  
<https://www.sciencedirect.com/science/article/pii/S0960852419316761>.
41. **Chundawat, S. P. S.\***, Sousa, L. daCosta, Roy, S., Yang, Z., Gupta, S., Pal, R., Zhao, C., Liu, S.-H., Petridis, L., O'Neill, H., 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*, vol. 22, **2020**, pp. 204–218.  
<http://pubs.rsc.org/en/Content/ArticleLanding/2019/GC/C9GC03524A>.
42. **Chundawat, S. P. S.\***, and Agarwal, U. P., "Swelling by Hydrochloric Acid Partially Retains Cellulose-I Type Allomorphic Ultrastructure But Enhances Susceptibility toward Cellulase Hydrolysis Such as Highly Amorphous Cellulose," *Understanding Lignocellulose: Synergistic Computational and Analytic Methods (ACS Symposium Series Vol. 1338)*, ACS Symposium Series Vol. 1338, **2019**, pp. 69–88. <http://pubs.acs.org/doi/abs/10.1021/bk-2019-1338.ch005>.
43. Chandel, A. K., Albarelli, J. Q., Santos, D. T., **Chundawat, S. P. S.**, Puri, M., and Meireles, M. A. A., "Comparative analysis of key technologies for cellulosic ethanol production from Brazilian sugarcane bagasse at a commercial scale," *Biofuels, Bioproducts and Biorefining*, vol. 13, **2019**, p. bbb.1990. <https://onlinelibrary.wiley.com/doi/abs/10.1002/bbb.1990>.
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<http://pubs.acs.org/doi/10.1021/acssuschemeng.9b00606>.
45. **Chundawat, S. P. S.\***; Uppugundla, N.; Gao, D.; Curran, P.; Balan, V.; Dale, B. Shotgun Approach to Increasing Enzymatic Saccharification Yields of Ammonia Fiber Expansion (AFEX) Pretreated Cellulosic Biomass. *Frontiers in Energy Research*. **2017**, p 9.  
<https://doi.org/10.3389/fenrg.2017.00009>.
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48. da Costa Sousa, L.; Jin, M.; **Chundawat, S. P. S.**; Bokade, V.; Tang, X.; Azarpira, A.; Lu, F.; Avci, U.; Humpula, J.; Uppugundla, N.; Gunawan, C.; Pattathil, S.; Cheh, A. M.; Kothari, N.; Kumar, R.; Ralph, J.; Hahn, M. G.; Wyman, C. E.; Singh, S.; Simmons, B. A.; Dale, B. E.; Balan, V. Next-Generation

- Ammonia Pretreatment Enhances Cellulosic Biofuel Production. *Energy Environ. Sci.* **2016**, *9*, 1215–1223. <https://doi.org/10.1039/C5EE03051J>.
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51. Pattathil, S.; Hahn, M. G.; Dale, B. E.; **Chundawat, S. P. S.\*** Insights into Plant Cell Wall Structure, Architecture, and Integrity Using Glycome Profiling of Native and AFEX-Pre-Treated Biomass. *J. Exp. Bot.* **2015**, *66* (14), 4279–4294. <https://doi.org/10.1093/jxb/erv107>.
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56. He, J.; Pingali, S. V.; **Chundawat, S. P. S.**; Pack, A.; Jones, A. D.; Langan, P.; Davison, B. H.; Urban, V.; Evans, B.; O'Neill, H. Controlled Incorporation of Deuterium into Bacterial Cellulose. *Cellulose* **2014**, *21* (2), 927–936. <https://doi.org/10.1007/s10570-013-0067-4>.
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97. Bandi, C.K., Parvate, A., Burgin, T., Kasture, M., Evans, J.E., Mayes, H., and **Chundawat, S.P.S.\***, "Unraveling the S<sub>N</sub>2 versus S<sub>N</sub>i mechanism of multi-domain mutant transglycosidases targeting b-glucosides synthesis,". *Manuscript under preparation.*
98. Jayachandran, D., Parvate, A., Banerjee, S., Evans, J.E., and **Chundawat, S.P.S.\***, "Yeast protoplasts based *in vitro* liposome reconstitution and characterization of plant cellulose synthase membrane proteins,". *Manuscript under preparation.*
99. Bandi, C.K., Kumar, M., Tallavajhula, S.V., and **Chundawat, S.P.S.\***, "Synthetic aptazymes sensing nucleoside diphosphates to enable *in vivo* glycosyl transferase enzyme activity screening,". *Manuscript under preparation.*
100. Nemmaru, B., Dagia, A., Narayanan, V., Shankar, S., DeChellis, A., Yarborough, J., and **Chundawat, S.P.S.\***, "Characterizing the effect of Y5 position of *Trichoderma reesei* binding domain on targeted recognition of various cellulose allomorphs,". *Manuscript under preparation.*

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## Patents

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2023: Compositions comprising glycoside hydrolase enzyme variants which exhibit improved cellulose hydrolysis and methods of use thereof (U.S. Provisional Application 63/491,331 filed on March 21, 2023). Inventors: **Shishir Chundawat**, Bhargava Nemmaru, Antonio DeChellis, Deanne Sammond.

2022: Automated real-time, on-line N-glycosylation monitoring methods and systems thereof (US Provisional Patent Application No. 63/412,064 filed Sept 30, 2022). Inventors: **Shishir Chundawat**, Aron Gyorgypal.

2020: Biosensors for Selectively Identifying Azide Ions (US Patent Application No. US20230279464A1 filed June 30, 2020). Inventors: **Shishir Chundawat**, Chandra Kanth Bandi, Kyle Skalenko.

<https://patents.google.com/patent/US20230279464A1/en>

2019: High-Throughput Cell-Based Screening Methodology for Evaluating Carbohydrate-Active Enzymes (US Patent Application No. US20210024974A1, filed July 22, 2019). Inventors: **Shishir Chundawat**, Chandra Kanth Bandi, Ayushi Agrawal.

<https://patents.google.com/patent/US20210024974A1>

2019: Engineered Carbohydrate-Active Enzymes for Glycan Polymers Synthesis (US Patent 11,248,217). Inventors: **Shishir Chundawat**, Chandra Kanth Bandi.

<https://patents.google.com/patent/US11248217B2>.

2017: Methods for producing extracted and digested products from pretreated lignocellulosic biomass (US Patent 9,650,657 B2). Inventors: **Shishir Chundawat**, Leonardo Da Costa Sousa, Albert M. Cheh, Venkatesh Balan, Bruce Dale. <https://patents.google.com/patent/US9650657B2>.

2017: Methods for pretreating biomass (US Patent 9,644,222). Inventors: Venkatesh Balan, Bruce Dale, **Shishir Chundawat**, Leonardo Sousa. <https://patents.google.com/patent/US9644222B2>.

2015: Extraction of solubles from plant biomass for use as microbial growth stimulant and methods related thereto (US Patent 9,206,446 B2). Inventors: Ming Woei Lau, Bruce Dale, Venkatesh Balan, **Shishir Chundawat**. <https://patents.google.com/patent/US9206446B2>.

2013: Fractionated extractive products from plant biomass and methods of making and using same (US Patent Application 20130244293 A1). Inventors: Venkatesh Balan, Albert Cheh, **Shishir Chundawat**, Bruce E. Dale, Leonardo Sousa. <https://patents.google.com/patent/US20130244293A1>.

2013: Process for producing sugars and ethanol using corn stillage (US Patent 8,367,378 B2). Inventors: Venkatesh Balan, **Shishir Chundawat**, Leonardo Sousa, Bruce Dale. <https://patents.google.com/patent/US8367378B2>.

2009: Process for making fuels and chemicals from AFEX treated whole grain or whole plants (US Patent Application 20090053771 A1). Inventors: Bruce Dale, Venkatesh Balan, **Shishir Chundawat**, Bryan Bals. <https://patents.google.com/patent/US20090053771A1>.

2009: Process for enzymatically converting a plant biomass (US Patent Application 20090042259 A1). Inventors: Bruce E. Dale, Farzaneh Teymouri, **Shishir Chundawat**, Venkatesh Balan. <https://patents.google.com/patent/US20090042259A1>.

2007: Composite materials from corncob granules and process for preparation (US Patent Application 20070287795 A1). Inventors: Masud Huda, Venkatesh Balan, Lawrence Drzal, Bruce Dale, **Shishir Chundawat**, Manjusri Misra. <https://patents.google.com/patent/US20070287795A1>.

2007: Process for conversion of mushroom lignocellulosic waste to useful byproducts (US Patent Application 20070227063 A1). Inventors: Bruce E. Dale, Venkatesh Balan, **Shishir Chundawat**. <https://patents.google.com/patent/US20070227063A1>.

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## Research Funding

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### Externally Funded Research and User Facility Grants

#### Current Projects

Project Title: *Integrated conversion of cellulosic biomass and biomass-derived CO<sub>2</sub> to fuels and chemicals*

Award Number: TBD (Notice of Award on Dec 29<sup>th</sup> 2023)

Grant Amount: \$375,000 (contract under final stages of negotiation)

Start Date: Dec 2023, Tentative End Date: Dec 2025

Investigators: **Shishir Chundawat** (PI), Diane Hildebrandt (Co-PI), Karin Calvinho (Co-PI), Cornelius Masuku (Unfunded External Collaborator)

Agency: USDA (Northeast Sun Grant Program)

Role: PI

Project Title: *Sargassum seaweed as a future renewable feedstock for sustainable biomanufacturing*

Award Number: TBD (Notice of Award on Dec 8<sup>th</sup> 2023)

Grant Amount: \$10,000,000 (contract under final stages of negotiation)

Start Date: Dec 2023, Tentative End Date: Dec 2028

Investigators/Institutions: Jose Avalos (PI, Princeton), **Shishir Chundawat** (Co-PI, Rutgers), Sagar Khare (Co-PI, Rutgers), Debashish Bhattacharya (co-PI, Rutgers), Loretta Roberson (co-PI, Marine Biological Laboratory), Clifford Louime (Co-PI, University of Puerto Rico), Alissa Park (co-PI, UCLA), Aaron Moment (Co-PI, UCLA), Hauke Kite-Powell (Co-PI, Woods Hole Oceanographic Institution), Daniel Robledo (Co-PI, Cinvestav-Merida), Yasuo Yoshikuni (Co-PI, LBNL), Carbonwave.

Agency: Schmidt Futures (Virtual Institute on Feedstocks of the Future)

Role: Rutgers Lead, Co-PI

Project Title: *Collaborative Research: Mechanism-guided enzyme engineering for fucosylated glycoconjugate synthesis*

Award Number: 1904862 (sub-award to Rutgers)

Grant Amount: \$182,223

Start Date: Aug 2022, Tentative End Date: Aug 2024

Investigators: **Shishir Chundawat** (Rutgers PI), Ronald Larson (University of Michigan PI)

Agency: National Science Foundation (CHE - Chemistry of Life Processes Program)

Role: Co-PI

Project Title: *An Integrated Platform for Fully Automated, Continuous, & Real-Time Multi-Attributes Monitoring of Upstream Processes for Glycosylated Monoclonal Antibodies Production*

Award Number: PC5.2-112

Grant Amount: \$1,500,000 (including cost share for industry personnel time and donated equipment)

Start Date: Oct 2022, Tentative End Date: Mar 2025

Investigators: **Shishir Chundawat** (Lead PI), Oscar Potter (Co-I), Sean Gilliam (Co-I), Marianthi Ierapetritou (Co-I)

Agency: National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL)

Role: PI

Project Title: *Research gift for Chundawat research program*

Award Number: -

Grant Amount: \$10,000 (Cash Gift) + \$36,455 (In-Kind Donation/Gift)

Start Date: Dec 2021, Tentative End Date: NA.

Investigator: **Shishir Chundawat** (Rutgers)

Agency: Croda Inc.

Role: PI

Project Title: *Collaborative Research: Mechanism-guided enzyme engineering for fucosylated glycoconjugate synthesis*

Award Number: 1904890

Grant Amount: \$450,009

Start Date: Sept 2019, Tentative End Date: Aug 2024

Investigators: Heather Mayes (University of Michigan PI), **Shishir Chundawat** (Rutgers PI)  
Agency: National Science Foundation (CHE - Chemistry of Life Processes Program)  
Role: Co-PI

Project Title: *CAREER-Force Spectroscopy Enabled Multivalent Glycan-binding Protein Engineering*  
Award Number: 1846797  
Grant Amount: \$569,469  
Start Date: June 2019, Tentative End Date: May 2024  
Investigator: **Shishir Chundawat** (Rutgers)  
Agency: National Science Foundation (CBET - Cellular & Biochemical Engineering Program)  
Role: PI

Project Title: *Computationally Designed Cellulases to Decrease the Cost of Biofuels*  
Award Number: CSP-503631 Syn (DOE-JGI Community Science Program)  
Grant Amount: Upto 500 kbp total DNA synthesis  
Start Date: Sept 2018, Tentative End Date: Dec 2025  
Investigators: **Shishir Chundawat** (Rutgers Lead PI), Jeffrey Linger (Note: Deanne Sammond was NREL PI before she left NREL in mid-2019)  
Agency: Department of Energy (Joint Genome Institute Annual DNA Synthesis Award)  
Role: PI

#### Expired Projects

Project Title: *Understanding the structural features of reconstituted polysaccharide synthases*  
Instrumentation: Cryo-EM Facility at EMSL  
Award Number: 60012  
Start Date: May 2021, Tentative End Date: Dec 2023  
Investigator: **Shishir Chundawat** (Rutgers)  
Agency: Pacific Northwest National Laboratory Cryo-EM/EMSL User Facility Access Grant  
Role: PI

Project Title: *Understanding the role of inter-domain interactions of chimeric glycosyl hydrolases on the catalytic mechanism that enables transglycosylation versus hydrolysis reaction*  
Instrumentation: Cryo-EM Facility at EMSL  
Award Number: 60065  
Start Date: May 2021, Tentative End Date: Dec 2023  
Investigators: **Shishir Chundawat**, **Chandra Kanth Bandi** (Rutgers)  
Agency: Pacific Northwest National Laboratory Cryo-EM/EMSL User Facility Access Grant  
Role: PI

Project Title: *A Multiscale Approach to Characterizing Interfacial Carbohydrate-Active Enzymes*  
Award Number: 1604421 (NSF-INTERN Supplement)  
Grant Amount: \$54,816  
Start Date: July 2021, Tentative End Date: Feb 2023



Investigator: **Shishir Chundawat** (Rutgers)  
Agency: National Science Foundation (CBET – Catalysis Program)  
Role: PI

Project Title: *A Multiscale Approach to Characterizing Interfacial Carbohydrate-Active Enzymes*  
Award Number: 1604421 (NSF-INTERN Supplement)  
Grant Amount: \$54,998  
Start Date: July 2019, Tentative End Date: Feb 2023  
Investigator: **Shishir Chundawat** (Rutgers)  
Agency: National Science Foundation (CBET – Catalysis Program)  
Role: PI

Project Title: *A Multiscale Approach to Characterizing Interfacial Carbohydrate-Active Enzymes*  
Award Number: 1604421  
Grant Amount: \$449,678  
Start Date: Sept 2016, Tentative End Date: Feb 2023  
Investigators: **Shishir Chundawat** (Rutgers Lead PI), Matthew Lang (Vanderbilt)  
Agency: National Science Foundation (CBET – Catalysis Program)  
Role: PI

Project Title: *In planta single-molecule imaging and holographic force spectroscopy to study real-time, multimodal turnover dynamics of polysaccharides and associated carbohydrate metabolites*  
Award Number: DE-SC0019313  
Grant Amount: \$1,500,000  
Start Date: Sept 2018, Tentative End Date: Aug 2022  
Investigators: Sanghyuk Lee (Rutgers Lead PI), **Shishir Chundawat** (Rutgers Lead Co-PI), Eric Lam, Matthew Lang (Vanderbilt), Wellington Muchero (ORNL), Sai Venkatesh Pingali (ORNL)  
Agency: Department of Energy (Bioimaging Program in Biological & Environmental Research)  
Role: Co-PI

Project Title: *Advanced continuous upstream manufacturing of biotherapeutics*  
Award Number: 1R01FD006588  
Grant Amount: \$1,800,000  
Start Date: Sept 2018, Tentative End Date: Aug 2022  
Investigators: Marianthi Ierapetritou (Original PI moved to U.Delaware) and **Shishir Chundawat** (Current Rutgers Lead PI), Rohit Ramachandran, Haoran Zhang, Georgios Tsilomelekis, Ravendra Singh, Doug Hausner  
Agency: Food and Drug Administration  
Role: Co-PI

Project Title: *Automated N-linked glycan analysis PAT to enable continuous biologics manufacturing*  
Award Number: 4481  
Grant Amount: \$63,439  
Start Date: July 2020, Tentative End Date: Dec 2022.

Investigator: **Shishir Chundawat** (Rutgers)  
Agency: Agilent Research Gift  
Role: PI

Award Number: FP00010677 for Biacore 8K+ instrumentation  
Start Date: Aug 2019, Tentative End Date: NA.  
Investigators: Nilgun Tumer (PI), Study Team Member: **Shishir Chundawat** (along with several faculty)  
Agency: National Institutes of Health (Shared Instrumentation Grant)  
Role: Study Team Member

Project Title: *SusChEM-Designer Glycoligands for Enabling Targeted Multimodal Protein Bioseparations*  
Award Number: 1704679  
Grant Amount: \$300,000  
Start Date: Sept 2017, Tentative End Date: Nov 2022  
Investigator: **Shishir Chundawat** (Rutgers)  
Agency: National Science Foundation (CBET - Separations Program)  
Role: PI

Project Title: *In-vitro Multiscale Carbohydrate-Active Enzyme Binding Characterization using SANS*  
Instrumentation: HFIR/BioSANS Small Angle Neutron Scattering at Oak Ridge National Laboratory  
Award Number: 17752  
Beam Time Date: 7-10 Aug 2017  
Investigator: **Shishir Chundawat** (Rutgers)  
Agency: Oak Ridge National Lab Neutron Sciences Division HFIR-BioSANS Instrumentation Grant  
Role: PI

Project Title: *In-situ Time Resolved Ammonia-Salt Based Pretreatment of Cellulosic Biomass*  
Instrumentation: HFIR/BioSANS Small Angle Neutron Scattering at Oak Ridge National Laboratory  
Award Number: 17764  
Beam Time Date: 7-10 Aug 2017  
Investigator: **Shishir Chundawat** (Rutgers)  
Agency: Oak Ridge National Lab Neutron Sciences Division HFIR-BioSANS Instrumentation Grant  
Role: PI

Project Title: *Valorization of biopolymers to fuels, chemicals, & advanced materials*  
Grant Amount: \$10,000  
Start Date: May 2016, End Date: July 2017  
Investigator: **Shishir Chundawat** (Rutgers)  
Agency: Ralph E. Powe Junior Faculty Enhancement Award (ORAU)  
Role: PI

Project Title: *Solving a Sticky Problem-Understanding Enzyme Binding to Lignocellulosic Biomass during Biofuel Production*  
REU Supplement Subaward for Award Number: 1236120

Grant Amount: \$14,683  
Start Date: Aug 2015, End Date: Dec 2016  
Investigators: **Shishir Chundawat** (Rutgers PI), Timothy Whitehead (MSU PI)  
Agency: National Science Foundation (CBET - Energy for Sustainability Program)  
Role: Co-PI

Project Title: *Industrial Service Project with Aurobindo Pharma (NJ) on characterization of pharmaceutical formulations*

Grant Amount: \$1,975  
Start Date: Dec 2015, End Date: Dec 2016  
Investigator: **Shishir Chundawat** (Rutgers)  
Agency: Aurobindo Pharma (NJ)  
Role: PI

Project Title: *Solving a Sticky Problem: Understanding Enzyme Binding to Lignocellulosic Biomass during Biofuel Production*

Award Number: 1236120  
Grant Amount: \$299,801  
Start Date: Aug 2012, End Date: Dec 2016  
Investigators: Timothy Whitehead (MSU), **Shishir Chundawat** (MSU and Rutgers)  
Agency: National Science Foundation (CBET - Energy for Sustainability Program)  
Role: Co-PI

Project Title: *Conversion of palm industry cellulosic waste to biofuels & biochemicals*

Award Number: MSU-DER #RC101539  
Grant Amount: \$177,025  
Start Date: 2012, Tentative End Date: 2014  
Investigators: Venkatesh Balan, Bruce Dale, **Shishir Chundawat** (MSU)  
Agency: Date Palm Research Center (King Faisal University)  
Role: Co-PI

## **Internally Funded Research and User Facility Grants**

### Current Projects

Project Title: *High-throughput Protein/Therapeutics Engineering via Robotics and AI/ML/Data Science*

Start Date: Jan 2023, Tentative End Date: NA.  
Investigators: Sagar Khare (Lead PI), **Shishir Chundawat**  
Agency: Rutgers CCB  
Role: Team Member/Collaborator

Project Title: *An AI-Enabled digital twin in bio-pharmaceutical manufacturing*

Grant Amount: \$25,000  
Start Date: Feb 2024, Tentative End Date: Aug 2024.

Investigators: Rohit Ramachandran (PI), Weihong (Grace) Guo, Yuebin Guo, Adam Gormley, **Shishir Chundawat** (Rutgers)  
Agency: Rutgers Chancellor Challenge-Cyberinfrastructure for AI in Science & Engineering (CASS)  
Role: Team Member/Collaborator

Project Title: *Preserving and Nurturing Our Healthy Microbiome*  
Start Date: Sept 2020, Tentative End Date: NA.  
Investigators: Liping Zhao (Lead PI), **Shishir Chundawat** (along with 100+ Rutgers faculty)  
Agency: Rutgers Big Idea Initiative  
Role: Team Member/Collaborator

### Expired Projects

Award Title: *A. Walter Tyson Assistant Professorship Endowment Award*  
Grant Amount: \$12,500  
Start Date: Jan 2022, End Date: June 2022.  
Investigator: **Shishir Chundawat** (Rutgers)  
Agency: Rutgers University School of Engineering (SOE) Dean's Office  
Role: PI

Project Title: *Multimodal Single-molecule Microscopy (MoSoM) initiative to catalyze interdisciplinary life sciences research at Rutgers University*  
Grant Amount: \$70,000  
Start Date: Sept 2019, Tentative End Date: Aug 2022.  
Investigators: Sang-Hyuk Lee, **Shishir Chundawat**  
Agency: Rutgers Office of Research and Innovation Team Proposal Development Grant  
Role: Co-PI

Project Title: *Responsive Bio-Inspired Materials for Sensing and Actuation*  
Grant Amount: \$50,000  
Start Date: Oct 2019, Tentative End Date: Sept 2020.  
Investigators: Adam Gormley (PI), Vikas Nanda, Sagar Khare, Enver Izgu, **Shishir Chundawat**, Meenakshi Dutt, Benjamin Schuster (Rutgers)  
Agency: Rutgers Initiative for Materials Research (iMR) Team Proposal Development Grant  
Role: Team Member/Collaborator

Project Title: *Synthetic Cells and Cell Components*  
Grant Amount: \$60,000  
Start Date: Oct 2019, Tentative End Date: Sept 2020.  
Investigators: Adam Gormley (PI), Vikas Nanda, Sagar Khare, Enver Izgu, **Shishir Chundawat**, Meenakshi Dutt, Benjamin Schuster (Rutgers)  
Agency: Rutgers Office of Research and Innovation Team Proposal Development Grant  
Role: Team Member/Collaborator

Project Title: *Enabling the creation of a sustainable and economically viable cellulosic biofuels industry in Brazil*

Grant Amount: \$8,000

Start Date: Feb 2016, End Date: Dec 2017.

Investigator: **Shishir Chundawat** (Rutgers)

Agency: Rutgers GAIA International Collaborative Research Grants for Tenure-Track Faculty

Role: PI

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## Teaching Experience

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### Doctoral Dissertation Primary Advisor at Rutgers

#### Current

1. **Mr. Austin Seamann** (2024-Current; Rutgers iQB Ph.D. Dissertation Title "*TBD*"). Co-advised with Sagar Khare (CCB/iQB).
2. **Mr. Ryan Murphy** (2024-Current; Rutgers CBE Ph.D. Dissertation Title "*TBD*").
3. **Ms. Srividya Vyjayanthi Tallavajhula** (2023-Current; Rutgers CCB Ph.D. Dissertation Title "*TBD*"). Co-advised with Sagar Khare (CCB/iQB).
4. **Mr. Antonio DeChellis** (2022-Current; Rutgers CBE Ph.D. Dissertation Title "*Enzyme Engineering for Waste Polymers Upcycling to Value-Added Bioproducts*").
5. **Mr. Mohit Kumar** (2020-Current; Rutgers CBE Ph.D. Dissertation Title "*Engineering glycosynthase enzymes for synthesis of bespoke human-milk oligosaccharides*")

#### Former

1. **Mr. Chandra Kanth Bandi** (2016-2020; Rutgers CBE Ph.D. Dissertation Title "[\*Novel Protein Engineering Approaches for Chemoenzymatic Synthesis of Glycans\*](#)").
2. **Mr. Bhargava Nemmaru** (2017-2021; Rutgers CBE Ph.D. Dissertation Title "[\*Cellulase Engineering to Alleviate Non-Productive Enzyme Binding to Pretreated Lignocellulosic Biomass\*](#)").
3. **Mr. Markus Hackl** (2018-2023; Rutgers CBE Ph.D. Dissertation Title "[\*Development of a single-molecule force spectroscopy technique for the characterization of protein-carbohydrate dissociation forces\*](#)").
4. **Mr. Aron Gyorgypal** (2019-2023; Rutgers CBE Ph.D. Dissertation Title "[\*Enabling and investigating real-time monoclonal antibody N-linked glycosylation for upstream processing of biotherapeutics\*](#)").
5. **Mr. Dharanidaran Jayachandran** (2019-2023; Rutgers CBE Ph.D. Dissertation Title "*A Multifaceted Bioengineering Toolbox to Enable In Vivo and In Vitro Characterization of Polysaccharide Synthases*").

### Master's Thesis Primary Advisor at Rutgers

#### Current

None

#### Former

1. **Mr. Antonio De Chellis** (2020-2022; Rutgers CBE MS Thesis Title "[\*Supercharging of a family-5 glycoside hydrolase Cel5A from Thermobifida fusca to improve cellulose hydrolysis\*](#)")

2. **Mr. Antash Chaturvedi** (2019-2022; Rutgers CBE MS Thesis Title "[Investigation of process conditions and chemical modulators on CHO-cell based trastuzumab production](#)")
3. **Mr. Zachary Power** (2019-2021; Rutgers CBE MS Thesis Title "[Covalent linkage of cello-oligosaccharides to borosilicate glass for single molecule binding measurements using acoustic force spectroscopy](#)")
4. **Ms. Madhura Kasture** (2017-2020; Rutgers CBE MS Thesis Title "[Impact of carbohydrate binding modules on transglycosylation efficiency in the glycoside hydrolase family 5 proteins](#)")
5. **Mr. Antonio Goncalves** (2017-2019; Rutgers CBE MS Thesis Title "[Chemoenzymatic synthesis of multimodal glycoligands with bio-orthogonal aldehyde based functional moiety](#)")
6. **Ms. Ayushi Agrawal** (2016-2019; Rutgers CBE MS Thesis Title "[Development of a click chemistry based screening methodology for the directed evolution of glycosynthases](#)")
7. **Ms. Namratha Subhash** (2016-2018; Rutgers CBE MS Thesis Title "[Selective growth of targeted bacteria using enzymatically synthesized oligosaccharides](#)")
8. **Mr. Akash Dagia** (2016-2018; Rutgers CBE MS Thesis Title "[Impact of a conserved tyrosine residue on binding of family 1 carbohydrate binding modules to cellulose allomorphs](#)")
9. **Ms. Yuxin Liu** (2015-2017; Rutgers CBE MS Thesis Title "[Characterization of \*Thermobifida fusca\* cellulase activity on unnatural cellulose allomorphs](#)")
10. **Ms. Vibha Narayanan** (2015-2017; Rutgers CBE MS Thesis Title "[Binding interactions of Family 1 CBMs with cellulose allomorphs](#)")

#### **Master's Thesis Committee Member at Rutgers**

##### Former

1. Mr. Aparajith Bhaskar (August 2018; Rutgers CBE MS Thesis Title "*Implementation of an Advanced Control Strategy into a Continuous Direct Compaction Pharmaceutical Tablet Manufacturing Process*"; MS Thesis Director - Dr. Ravendra Singh)
2. Mr. Praneeth Annam (Dec 2017; Rutgers CBE MS Thesis Title "*Life Cycle Assessment for Bio-Based Production of p-Xylene*"; MS Thesis Director - Dr. Marianthi Ierapetritou)
3. Mr. Geetartha Uppaladadium (May 2015; Rutgers CBE MS Thesis Title "*Mesoscale modeling of biomimetic macromolecular aggregates*"; MS Thesis Director - Dr. Meenakshi Dutt)

#### **Postdoctoral Trainees at Rutgers**

##### Current

1. **Dr. Aditya Narvekar** (March 2023-Current; Full-time Postdoctoral Research Associate at Rutgers University). Project title: *Real-time analytics for glycosylated biologics manufacturing*.

##### Former

1. **Dr. Chandra Kanth Bandi** (May 2021-Jan 2023; Full-time Postdoctoral Research Associate at Rutgers University). Project title: *CAZyme engineering for human milk oligosaccharides synthesis*.
2. **Dr. Viki Chopda** (May 2019-Dec 2020; Full-time Postdoctoral Research Associate at Rutgers University). Project title: *Continuous biomanufacturing of glycosylated monoclonal antibodies*.
3. **Dr. Mohammad Irfan** (Feb 2019-Nov 2020; Full-time Postdoctoral Research Associate at Rutgers University). Project title: *Heterologous expression of polysaccharide synthases in plant protoplasts*.

4. **Dr. Chao Zhao** (Aug 2018-July 2019; Visiting Postdoctoral Scholar from China; Currently a faculty member at Zhejiang A&F University).
5. **Dr. Shyamal Roy** (Jul 2016-June 2017; Visiting Postdoctoral Scholar from India; Currently a faculty member at Jadavpur University)
6. **Dr. Yongling Qin** (Jan 2016-Dec 2016; Visiting Postdoctoral Scholar from China; Currently a faculty member at Hechi University)

### Students Supervised for Independent Studies at Rutgers

#### Graduate Students

1. **Mr. Rishabh Shah** (Aug 2021-Dec 2022; Rutgers CBE MS Independent Study Project Title "*Glycoproteins production and characterization to enable biologics manufacturing*")
2. **Mr. Robert Kearney Jr** (Dec 2021-June 2022; Rutgers BME ME Independent Study Project Title "*Expression, Reconstitution, and Characterization of Hyaluronan Synthase Enzymes*")
3. **Ms. Erin K. Wilson** (Summer 2021-Dec 2021; Rutgers BME ME Independent Study Project Title "*Recent Advances in Preparation Techniques and Analytical Methods to Support Rapid N-Glycan Analysis of Monoclonal Antibodies (mAbs)*")
4. **Ms. Margaux Thiry** (2019 Summer; University of Poitiers-France Visiting Biology MS Student (Biochemistry Molecular and Cell Biology and Genetics Program), Summer Intern at Rutgers). Internship Project/Report Titled "*Operon Optimization for Bacterial Protein Expression*" was submitted to University of Poitiers for credits.
5. **Ms. Navya Sahithi** (2016-2019; Rutgers CBE MS). Trained in lab and conducted research on NSF Sponsored Project (Award #1604421) to express supercharged CAZymes and characterize their binding affinity to cellulose/lignin. Submitted a final independent study report to CBE titled "*Characterizing binding and activity of supercharged CAZymes to lignocellulosic biomass*" in Summer 2019.
6. **Mr. Bolun Tan** (2016-2018; Rutgers CBE MS). Trained in lab and conducted research on Aspen Plus modeling project. Submitted a final independent study report to CBE titled "*A solid liquid equilibrium based on eNRTL(electrolyte NRTL) model and evaluation of thermodynamic representation of NH<sub>4</sub>SCN/NH<sub>3</sub>/Ethanol system*".
7. **Ms. Shraddha Gupta** (2016-2018; Rutgers CBE MS). Trained in lab and conducted research on NSF Sponsored Project (Award #1704679) to express proteins and characterize their binding affinity. Submitted a final independent study report to CBE on glycoligand-beads based protein bioseparations.
8. **Mr. Shashwat Gupta** (2015-2016, Rutgers CBE MS); Trained in lab and conducted research on ORAU Sponsored Project to characterize ammonia pretreated biomass and its enzymatic digestibility.
9. **Mr. Satvik Sharma** (2015-2016; Rutgers CBE MS); Trained in lab and conducted research on NASA Sponsored Project (New Jersey Space Grant Consortium Graduate Student Fellowship) to test activity of CAZymes under various mixing regimes.
10. **Mr. Soumya Asthana** (2015-2016; Rutgers CBE MS); Trained in lab and conducted research on NSF Sponsored Project (Award #1236120) to express supercharged CAZymes and characterize their binding affinity to lignin

### Undergraduate Students

1. **Ms. Nakeitha Brown** (2023-2024; Post-Baccalaureate Research Experience for LSAMP Students (PRELS), Rutgers-Newark). PRELS scholar is working on project focused on "*Advanced Analytical Analysis of mAb N-Glycans*" and is supported for a year-long fellowship by the GS-LAMP Program.
2. **Mr. Gokulnath Ganesan** (2023 Summer; Indian Institute of Technology UG Student (Chemical Engineering Program), Summer Intern at Rutgers). Internship Projects/Reports Titled "*Rupture Force Determination of Single Point Mutant Carbohydrate-Binding Modules through the Lens of Acoustic Force Spectroscopy*" and "*Standardizing Automated Analysis of mAb-bound N-Glycans using Sequential Injection Analysis*" was submitted to Khorana Scholar Program.
3. **Mr. Tong Zhong** (Fall 2022/Spring 2023; Rutgers Biochemistry BS); Trained in lab and conducted independent study research work as part of Rutgers SEBS Research Problems in Biochemistry Course (11:115:493/494). Submitted report titled "*In vivo Biotinylation of Carbohydrate-Binding Proteins*" to Rutgers SEBS Programs for Credit in Fall 2022/Spring 2023.
4. **Mr. Yossef Fakry** (Fall 2022; Rutgers Microbiology BS); Trained in lab and conducted independent study research work as part of Rutgers SEBS Research in Microbiology Course (11:680:497/498). Submitted report titled "*Enzyme engineering for fucosylated human milk oligosaccharides biosynthesis*" to Rutgers SEBS Programs for Credit in Fall 2022.
5. **Ms. Brittany Burke** (Fall 2021; Rutgers SEBS BS); Trained in lab and conducted independent study research work as part of School of Environmental & Biological Sciences General (four-year) Honors Program Tutorial III Program. Submitted report on "*Enzyme engineering for fucosylated human milk oligosaccharides biosynthesis*" to Rutgers SEBS Honors Programs for Credit in Fall 2021.
6. **Mr. Edward Contrada** (2019-2021; Rutgers BME BS; Aresty Research Assistant); Trained in lab and conducted research on Rutgers Sponsored project titled '*Developing an Acoustic Force Spectroscopy Technique to Measure Carbohydrate Binding Module Interaction with Cellulose*'. Research presented at 2020 Aresty Research Symposium. Submitted report on "*Measuring DNA tether binding efficiency using Pico-Green dye*" to Rutgers CBE Programs for Credit in Fall 2020-Spring 2021.
7. **Mr. Khovesh Ramdin** (2021-2022; Rutgers Physics BS); Training in lab and conducting research on NSF Sponsored Project (Award #1846797) to develop MATLAB code for single-molecule force spectroscopy experiments data analysis and simulation of Tethered Particle Motion for educational purposes. Research to be published in peer-reviewed journal.
8. **Mr. Srivatsan Shankar** (2020-2021; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and conducted research on Rutgers Sponsored project titled '*Studying the effect of CBM supercharging on endo-exo enzyme synergism on lignocellulosic biomass*'. Research presented at 2021 Aresty Research Symposium. Submitted report to Rutgers CBE Program for Credit in Spring 2021.
9. **Mr. Kishan Mehta** (2020-2021; Rutgers CBN BS; Aresty Undergraduate Research Fellow); Received Aresty Undergraduate Research Award to conduct research on DOE Sponsored Project (Award No. DE-SC0019313) to engineer, express and purify plant membrane proteins for imaging in vitro.
10. **Mr. Shamanth Manjunatharao** (2020-2021; Rutgers Chem BS; Aresty Undergraduate Research Fellow); Received Aresty Undergraduate Research Award to conduct research on DOE Sponsored Project (Award No. DE-SC0019313) to engineer, express and purify plant membrane proteins for imaging in vitro.
11. **Mr. Tan Ngo** (2020-2021; Rutgers CE BS; Aresty Research Assistant); Training in lab and conducting research on NSF Sponsored Project (Award #1846797) to develop LabView code for single-molecule



force spectroscopy experiments data analysis. Research titled '*Dynamic simulation of DNA-tethered particle motion*' to be presented in Aresty 2021 Symposium.

12. **Mr. Kevin Zheng** (2020-2021; Rutgers CBE BS; Aresty Research Assistant); Training in lab and conducting research on NSF Sponsored project (Award No. 1904890) titled '*Enzyme engineering for synthesis of prebiotic human milk oligosaccharides*'. Research to be presented at 2021 Aresty Research Symposium.
13. **Mr. Igor Guranovic** (2020-2023; Rutgers BME BS; Aresty Research Assistant); Training in lab and conducting research on NSF Sponsored project (Award No. 1904890) titled '*Enzyme engineering for synthesis of prebiotic human milk oligosaccharides*'. Research to be presented at 2021 Aresty Research Symposium.
14. **Mr. Vrushabh Khot** (2020-2021; Rutgers CBE BS; Aresty Research Assistant); Training in lab and conducting research on FDA Sponsored project (Award No. 5R01FD006588) titled '*Glycosylated monoclonal antibody production and mAbs characterization for enabling Quality-by-Control biomanufacturing*'. Research to be presented at 2021 Aresty Research Symposium.
15. **Mr. Rishabh Shah** (2020-2023; Rutgers CBE BS; Aresty Research Assistant); Training in lab and conducting research on FDA Sponsored project (Award No. 5R01FD006588) titled '*Glycosylated monoclonal antibody production and mAbs characterization for enabling Quality-by-Control biomanufacturing*'. Research to be presented at 2021 Aresty Research Symposium.
16. **Ms. Vrinda Jain** (2020-2021; Rutgers BME BS; Aresty Research Assistant); Training in lab and conducting research on NSF Sponsored project (Award No. 1904890) titled '*Enzyme engineering for synthesis of prebiotic human milk oligosaccharides*'. Research to be presented at 2021 Aresty Research Symposium.
17. **Mr. Darin Mak** (2020-2021; Rutgers BME BS; Aresty Research Assistant); Training in lab and conducting research on NSF Sponsored project (Award No. 1904890) titled '*Enzyme engineering for synthesis of prebiotic human milk oligosaccharides*'. Research to be presented at 2021 Aresty Research Symposium.
18. **Ms. Shoili Banerjee** (2020-2023; Rutgers CBE BS; Rutgers Energy Institute or REI Undergraduate Fellow); Trained in lab and conducted research on REI and DOE Sponsored Project (Award #DE-SC0019313) to express, purify, and characterize mutant CAZymes. Student submitted online poster in spring 2020 titled 'Expressing Cesa8 and Cesa5 in *P. pastoris* for in vitro cellulose analysis' for DRC course on Intro to Scientific Research. Final student report on "*Expression, purification and characterization of a plant origin cellulose synthase enzyme*" to be presented and submitted to REI in coming 2020-2021 academic year.
19. **Ms. Vaneza Abbas** (2019-2020; Rutgers CBE BS; CBE Research Assistant); Trained in lab and conducted research on development of reproducible surface modification procedures for the attachment of glycans and proteins to study protein-glycan interactions at the single molecule level.
20. **Mr. Atharv Kulkarni** (2019-2020; Rutgers BME BS; Aresty Research Assistant); Developed LabView code for single-molecule force spectroscopy experiments data analysis relevant to NSF Sponsored Project. Research presented at 2020 Aresty Research Symposium.
21. **Ms. Wen-Chen Chen** (2019-2021; Rutgers CBE BS; CBE Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1704679) to express, purify and characterize engineered proteins and synthesized glycans. Submitted CBE independent study report for research credits in Fall 2019/Spring 2020.

22. **Ms. Jenna Douglas** (2019-2023; Rutgers CBE BS; Aresty and CBE Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1604421) to express, purify and characterize processive cellulase/CBMs.
23. **Mr. Naven Sekhon** (2019-2020; Rutgers CBE BS; Aresty and CBE Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1604421) to express, purify and characterize processive cellulase/CBMs.
24. **Mr. Ahmed Abdelhamid** (2019-2020; Rutgers BME BS; Aresty Undergraduate Research Fellow); Received Aresty Undergraduate Research Award to conduct research on DOE Sponsored Project (Award No. DE-SC0019313) to engineer, express and purify plant membrane proteins for imaging in vitro.
25. **Mr. Srivatsan Shankar** (2019-2020; Rutgers CBE BS; Aresty and CBE Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1604421) to express, purify and characterize processive cellulase/CBMs.
26. **Ms. Deepika Saravana** (2019-2020; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1704679) to optimize column chromatography technique for preparative sugar separations and characterize enzymatic reaction for glycan synthesis. Will be presenting a poster at Aresty Symposium 2020.
27. **Ms. Khushbu Patel** (2019-2020; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1704679) to express, purify and characterize engineered proteins and synthesized glycans. Will be presenting a poster at Aresty Symposium 2020.
28. **Mr. Jorge Gustavo Tapia** (2019-2020; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1704679) to express, purify and characterize supercharged green fluorescent proteins (GFP) to test their binding characteristics to sugar ligands. Will be presenting a poster at Aresty Symposium 2020.
29. **Mr. Akshay Thakur** (2019-2020; Rutgers BT BS; Aresty Undergraduate Research Fellow); Received Aresty Undergraduate Research Award to conduct research on DOE Sponsored Project (Award No. DE-SC0019313) to engineer, express and purify plant membrane proteins for imaging in vitro.
30. **Mr. Ari Alter** (2019-2020; Rutgers CBE BS; Research Assistant); Trained in lab and conducting research on FDA Sponsored project (Award No. 5R01FD006588) titled '*Glycosylated monoclonal antibody production and mAbs characterization for enabling Quality-by-Control biomanufacturing*' developing models for Raman PAT data chemometrics.
31. **Ms. Rana Said** (2019-2021; Rutgers Pharmacy BPharmD; Research Assistant); Trained in lab and conducting research on FDA Sponsored project (Award No. 5R01FD006588) titled '*Glycosylated monoclonal antibody production and mAbs characterization for enabling Quality-by-Control biomanufacturing*' on PNGase enzyme heterologous expression.
32. **Ms. Sarah Hussain** (2019-2020; Rutgers CBE BS; CBE Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1604421) to express, purify and characterize engineered proteins. Submitted CBE independent study report "*Supercharging of Cel6B, Cel5A, GFP, and CelE*" for research credits in Fall 2019/Spring 2020.
33. **Mr. Jonathan Ash** (Summer/Fall 2019; Rutgers Biotechnology (Bioinformatics) BS); Trained in lab and conducted independent study research work as part of School of Environmental & Biological Sciences General (four-year) Honors Program Tutorial III Program. Submitted report titled "*Acoustic force spectroscopy (AFS) Lab Research Report*" to Rutgers SEBS Honors Programs for Credit in Fall

2019. Submitted report titled '*In-silico Docking and Rupture Force Determination of Glycan Binding Protein Complexes*' to Rutgers SEBS George H. Cook Scholars Program for Credit in Fall 2020/Spring 2021.
34. **Ms. Lisa Poponne** (2018-2019; Rutgers CBE BS; Aresty and CBE Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1604421) to express, purify and characterize processive cellulase/CBMs. Submitted CBE independent study report "*Production and Characterization of CBM Family 1 Aromatic Mutants for Single Molecule activity*".
  35. **Mr. Mohamed Khan** (Spring 2019; Rutgers Biochemistry and Microbiology BS); Trained in lab and conducted independent study research work as part of Research in Biochemistry 11:115:494 Course. Submitted report titled "*Impact of planar aromatic residues of CBM on endo-cellulase activity*" to Rutgers Department of Biochemistry and Microbiology for Credit.
  36. **Ms. Orchid Poponne** (2018-2019; Rutgers CBE BS; Aresty and CBE Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1604421) to express, purify and characterize processive cellulase/CBMs. Submitted CBE independent study report "*The effect of aromatic residues on the activity of the Cel6B Catalytic Domain*".
  37. **Ms. Ruchi Pandya** (2018-2019; Rutgers Biotechnology BS); Trained in lab and conducted independent study research work as part of School of Environmental & Biological Sciences Program. Submitted report titled "*Studying the effect of CBM supercharging on binding to cellulose allomorphs*" to Rutgers SEBS Research in Biotechnology Program in Fall 2018/Spring 2019 for Credit.
  38. **Ms. Siqi Ma** (2018-2019; Rutgers Molecular Biology & Biochemistry BS; Aresty Summer Science); Trained in lab and conducted research on Rutgers Sponsored Project titled '*Developing an Acoustic Force Spectroscopy Technique to Measure Carbohydrate Binding Module Interaction with Cellulose*' and research presented at 2018 Aresty Research Symposium.
  39. **Mr. Mohamed Khan** (Fall 2018; Rutgers Biochemistry and Microbiology BS); Trained in lab and conducted independent study research work as part of Research in Biochemistry 11:115:493 Course. Submitted report titled "*Impact of planar aromatic residues of CBM on exo-cellulase activity*" to Rutgers Department of Biochemistry and Microbiology for Credit.
  40. **Ms. Jia-Mei Hong** (2018-2019; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and developed cellulosic bioenergy outreach protocol as part of NSF Sponsored Project (Award #1604421) and assisted Dr. Chundawat in a summer 2018 high-school students outreach event sponsored by the Rutgers SOE.
  41. **Mr. Allan Wang** (2018-2020; Rutgers CBE BS; Aresty Summer Science and Rutgers Energy Institute or REI Undergraduate Fellow); Trained in lab and conducted research on REI and NSF Sponsored Project (Award #1604421) to express, purify, and characterize mutant CAZymes. Final student report on "*Studying the effect of CBM supercharging on exo-cellulase activity: Optimization of supercharged mutant expression and purification*" presented and submitted to REI.
  42. **Mr. Varun Raghuraman** (2017-2020; Rutgers CS BS; Aresty Summer Science & Undergraduate Research Fellow); Trained in lab and conducted research on NSF Sponsored Project (Award #1604421) to express, purify, and characterize mutant CAZymes and CBMs in 2017-2018. Received Aresty Undergraduate Research Award in 2019 to develop LabView code for single-molecule force spectroscopy experiments data analysis relevant to NSF Sponsored Project (Award #1846797).
  43. **Mr. Benjamin Esposito** (2017-2018; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and conducted research on cellulosic biomass composition analysis and enzymatic hydrolysis

44. **Mr. Patrick Doran** (2016-2018; Rutgers BME BS; Aresty Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1604421) to model protein structure using Rosetta/FoldIt software package
45. **Ms. Marissa Berger** (2015-2018; Rutgers BME BS/MS; Aresty Researcher/Aresty Summer Science, NSF REU Scholar); Trained in lab and conducted research on NSF REU Sponsored Project (Award #1236120) to express, purify, and characterize CAZymes binding/activity
46. **Mr. Neelan Sivaneri** (2017-2020; Rutgers CBE BS; Aresty and CBE Research Assistant); Trained in lab and conducted research on NSF Sponsored Projects (Award #1604421 and #1704679) to express, purify and characterize CAZymes. Submitted CBE independent study report in Fall 2019.
47. **Mr. Zheyu Zhang** (2016-2017; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and conducted research on characterizing protein adsorption to oxidized polysaccharide surfaces
48. **Ms. Elizabeth McGinley** (2016-2017; Rutgers CBE BS; Aresty Research Assistant & Dr. Alkis Constantinides Endowed Scholar); Trained in lab and conducted research on NSF Sponsored Project (Award #1236120) to express and purify CAZymes
49. **Ms. Cindy Farino** (2015-2017; Rutgers BME BS; Aresty Research Assistant & NSF REU Scholar); Trained in lab and conducted research on NSF REU Sponsored Project (Award #1236120) to express, purify, and characterize CAZymes binding to cellulose allomorphs
50. **Ms. Jihyun Park** (2015-2017; Rutgers CBE BS; Aresty Research Assistant & Dr. Alkis Constantinides Endowed Scholar); Trained in lab and conducted research on NSF Sponsored Project (Award #1236120) to express and purify CAZymes
51. **Ms. Alina Thokkadam** (2016-2019; Rutgers CBE BS; Aresty Summer Science); Trained in lab and conducted research on NSF Sponsored Project (Award #1704679) to characterize CAZymes involved in glycans synthesis
52. **Ms. Samantha Cobos** (Summer 2016; NSF REU Visiting Undergraduate Student from Pace University); Trained in lab and conducted research on NSF-REU Sponsored Project to characterize protein adsorption to oxidized polysaccharide surfaces
53. **Ms. Jeong Eunsu** (2015-2016; Rutgers CBE BS/MS); Conducted research on using Aspen Plus process simulation software to model cellulosic ethanol biorefinery using NREL base model as group project following completion of 155:324 design course
54. **Mr. Ashav Desai** (2015-2016; Rutgers CBE BS); Conducted research on using Aspen Plus process simulation software to model cellulosic ethanol biorefinery using NREL base model as group project following completion of 155:324 design course
55. **Mr. Alexander Pelham-Webb** (2015-2016; Rutgers CBE BS); Conducted research on using Aspen Plus process simulation software to model cellulosic ethanol biorefinery using NREL base model as group project following completion of 155:324 design course
56. **Ms. Sanchari Ghosh** (2015-2016; Rutgers CBE BS); Conducted research on using Aspen Plus process simulation software to model cellulosic ethanol biorefinery using NREL base model as group project following completion of 155:324 design course
57. **Mr. Raymond Bertram** (2015-2016; Rutgers CBE BS); Conducted research on using Aspen Plus process simulation software to model cellulosic ethanol biorefinery using NREL base model as group project following completion of 155:324 design course
58. **Mr. Jonathan Gerszberg** (2015-2016; Rutgers CBE BS); Developed basic hidden Markov type models for CAZymes

59. **Mr. Yianni Antonatos** (2015-2016; Rutgers CBE BS); Trained in lab on basics of microbiology, molecular biology, and enzymology
60. **Mr. Dylan McHugh** (2015-2016; Rutgers CBE BS); Trained in lab and conducted research on kinetic modeling of data generated via confocal fluorescence microscopy imaging of CAZyme desorption from cellulose microfibril surfaces
61. **Mr. Apurva Srivastav** (2015-2016; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and conducted research on using Aspen Plus process simulation software to model cellulosic biomass ammonia pretreatment
62. **Ms. Maytal Merhav** (2015-2016; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1236120) to express supercharged CAZymes and characterize their binding affinity to lignin
63. **Ms. Danielle Mainardi** (2015-2016; Rutgers CBE BS; Aresty Research Assistant); Trained in lab and conducted research on NSF Sponsored Project (Award #1236120) to express supercharged CAZymes and characterize their binding affinity to lignin
64. **Ms. Natália Dias** (Summer 2016; Brazilian Scientific Mobility Program Visiting Undergraduate Student); Trained in lab and conducted research on protein adsorption
65. **Mr. Ketley Alves** (Summer 2015; Brazilian Scientific Mobility Program Visiting Undergraduate Student); Trained in lab and conducted research on biomass pretreatment and its impact on cellulase digestibility

#### **Doctoral Dissertation Committee Member at Rutgers**

##### Current

1. Ms. Xinyi Li (Mar 2022; Rutgers CBE PhD Thesis Proposal Title "*Bioseparation of Enzymes in Synthetic Membraneless Compartments for Biocatalysis Studies*"; PhD Thesis Director - Dr. Benjamin Schuster)

##### Former

1. Ms. Yuxin Liu (Sept 2022; Rutgers CBE PhD Thesis Title "*Engineering of bacteria E. coli for biosynthesis of 4-hydroxybenzoate and its derivatives*"; PhD Thesis Director - Dr. Haoran Zhang)
2. Ms. Nanxia Zhao (Jan 2022; Rutgers CBE PhD Thesis Title "*Design of Amphiphilic Macromolecule and Antioxidant Based Nanoparticles for Microglia Targeted Therapy in Parkinson's Disease*"; PhD Thesis Director - Dr. Prabhas Moghe)
3. Ms. Ou Yang (Mar 2021; Rutgers CBE PhD Thesis Title "*Modeling and Optimization of Biopharmaceutical Manufacturing*"; PhD Thesis Director - Dr. Marianthi Ierapetritou)
4. Mr. Shashwat Gupta (Sept 2020; Rutgers CBE PhD Thesis Proposal Title "*Method Development and Application of High Resolution Vibrational Spectroscopic Techniques to Elucidate the Microstructure of Pharmaceutical Tablets*"; PhD Thesis Director - Dr. Fernando Muzzio)
5. Mr. Abhay Athaley (Dec 2019; Rutgers CBE PhD Thesis Title "*Integrated design, analysis, and optimization of chemical production from biomass feedstocks*"; PhD Thesis Director - Dr. Marianthi Ierapetritou)

#### **Doctoral Dissertation Committee Member at Other Universities**

1. Mr. Youngwoo Woo (May 2021; University of Michigan ChemE PhD Thesis Proposal Title "Computer-aided enzyme design for fucosylated oligosaccharides"; PhD Thesis Director - Dr. Heather Mayes)

### **Students & Research Staff Supervised Previously at MSU and UW-Madison (GLBRC)**

#### Graduate Students Co-Advised at Rutgers at MSU

1. **Ms. Carolyn Haarmeyer** (2012-2016; Michigan State CHEMS MS); Co-advised MS graduate student with Prof. Tim Whitehead (Primary Advisor) at MSU.
2. **Ms. Stephanie Crews** (2011-2013; Michigan State CHEMS MS): Co-advised MS graduate student with Prof. Bruce Dale (Primary Advisor) at MSU.

#### Research Associate Staff Supervised or Trained at MSU (GLBRC)

1. **Mr. James Humpula** (2009-2012; Michigan State CHEMS Research Associate)
2. **Ms. Margaret Magyar** (2010-2012; Michigan State CHEMS Research Associate)
3. **Mr. Nirmal Uppugundla** (2010-2012; Michigan State CHEMS Research Associate)
4. **Ms. Christa Gunawan** (2010-2012; Michigan State CHEMS Research Associate)
5. **Mr. Nana Achampong** (2007-2009; Michigan State CHEMS Research Associate)

#### High School & Undergraduate Students Supervised or Trained at UW-Madison (GLBRC)

1. **Ms. Amy (Dohi) Lim** (2012-2015; Wisconsin-Madison Biochemistry BS)
2. **Ms. Alice Zhang** (Summer 2015; High School Junior Student)
3. **Ms. Crystal Dyer** (Summer 2013; High School Junior Student)
4. **Mr. Alec Hernst** (2012-2014; Wisconsin-Madison Biochemistry BS)
5. **Ms. Cassandra Hainer** (2012-2014; Wisconsin-Madison Biochemistry BS)
6. **Mr. Dylan Edwards** (2012-2014; Wisconsin-Madison Biochemistry BS)
7. **Mr. Cameron Seiser** (2012-2014; Wisconsin-Madison Biochemistry BS)
8. **Mr. Sungsoo Lim** (2012-2014; Wisconsin-Madison Biochemistry BS)

#### High School Teacher Supervised or Trained at UW-Madison (GLBRC)

1. **Mr. Marin Dobson** (Summer 2013; High School Teacher; GLBRC RET Scholar)

#### High School & Undergraduate Students Supervised or Trained at MSU (GLBRC)

1. **Mr. Thomas Birkett** (2009-2011; Michigan State CHEMS BS)
2. **Mr. Chad Rogers** (2008-2010; Michigan State CHEMS BS)
3. **Mr. Aditya Rajagopalan** (Summer of 2008 and 2009; High School Junior/Senior Student)
4. **Mr. Luke Biela** (2007-2009; Michigan State CHEMS BS)
5. **Ms. Linpei Chang** (2007-2009; Michigan State CHEMS BS)
6. **Ms. Linda Stanek** (2006-2008; Michigan State CHEMS BS)

### **Undergraduate and Graduate Courses Taught at Rutgers**

#### Course Details

[155:298](#) Professional Skills (Fall 2023)

- [155:324](#) Separation Processes (Spring 2015-Present)
- [155:507](#) Analytical Methods in Chemical & Biochemical Engineering (Fall 2016-2018)
- [155:411](#) Biochemical Engineering: Co-instructor with Haoran Zhang (Fall 2020)
- [155:532](#) Topics in Biochemical Engineering: Advances in Life Sciences, Bioengineering, & Biomanufacturing Enabled by Glycosciences (Fall 2021, Fall 2024)
- [155:601/602](#) Rutgers CBE Graduate Seminar Series (2020-Present)

Non-Rutgers personnel who do not have access to Sakai/Canvas can review most recent representative course syllabi on CBE undergraduate/graduate courses website or Chundawat Research Website here: <https://chundawat.rutgers.edu/teaching/>

#### Other Course and Curricular Development at Rutgers

1. *CBE Process Engineering Laboratory Undergraduate Lab Course ([155:416](#))*: In collaboration with Dr. Alex Bertuccio, successfully integrated a new biomass conversion experiment in process lab curriculum focused on cellulase kinetics modeling relevant to biochemical/bioprocess engineering.
2. *CBE Separation Processes Undergraduate Course ([155:324](#))*:
  - a. In collaboration with Dr. Alex Bertuccio, successfully integrated an ethanol-water separation experimental project into 155:324 course starting Spring 2019. Students work on a pilot-scale wiped film evaporator to collect data and model system using Aspen Plus software.
  - b. Programmatic integration of Learning Assistants (LA's), sponsored by the Rutgers Learning Centers, into separations process course starting Spring 2015 to improve student learning and performance. LA's meet with instructor on a weekly basis to provide updates.

#### Invited or Guest Instructor at Rutgers

1. *Guest instructor for BME Graduate Course on Topics in Advanced Biotechnology I*: 3-hour seminar on 'Glycoengineering for a sweeter and healthier future' in Prof. Martin Yarmush's and Prof. Ann Stock's Rutgers Biotechnology Training Program course (16:125:604) (Spring 2023).
2. *Guest instructor for CBE Graduate Course on Biochemical Engineering*: 3-hour seminar on 'Enzyme/Protein Engineering' in Prof. Charlie Roth's Biochemical Engineering course (155:531) (Spring 2019, Fall 2020).
3. *Guest instructor for CBE Undergraduate Course on Professional Skills Development*: Professional presentation skills 80 min seminar in Prof. Marianthi Ierapetritou's Professional Skills Development course (155:298) for Rutgers CBE sophomores (Fall 2015, 2016, 2017).
4. *Guest instructor for School of Engineering CBE Introductory and Outreach Courses*:
  - a. Lecture/demo activity (80 min) introducing chemical and biochemical engineering to Rutgers School of Engineering first year undergraduates (2016, 2017, 2018, 2023)
  - b. Introduction to engineering lecture (80 min) for Rutgers women undergraduates at the Reilly Douglass Engineering Living-Learning Community (Fall 2016).

#### **Undergraduate and Graduate Courses Taught at Michigan State University**

CHE-891: Plant Cell Wall Chemistry 3-credit graduate elective course (Department of Chemical Engineering & Materials Science) on fundamental and applied aspects of the chemistry of plant cell walls and their conversion to fuels and chemicals co-instructed with David Hodge in Spring 2012.

CSE-101: Computing Concepts & Competencies 3-credit undergraduate core course (Department of Computer Science and Engineering) taught as sole TA instructor in Fall 2004 and Spring 2005.

### Other K-12 Education and Outreach Instructional Materials Development

1. *Development of Biophysics Outreach Activity at Rutgers*: Developed a MATLAB based program for visualization of tethered particle dynamics and single-molecule biophysics experimental data analysis. Detailed educational materials relevant to this student activity are available [online](#).
2. *Development of Pharmaceutical Engineering Outreach Activity at Rutgers*: Developed a hands-on demonstration activity for visualizing granular flow and fluidization of solids with relevance to API/tablet drug manufacturing. Hands-on 2-hr activity deployed in 2023 fall with over 1000 first year SOE students. Educational materials for this event are available online.
3. *STEM Ambassador Outreach Activity at Rutgers*: Participated in 2-hr Zoom-based K-12 outreach activity on 29<sup>th</sup> July 2020 with over 40 high school students from local New Jersey schools as STEM ambassador and scientist ([https://twitter.com/sps\\_chundawat/status/1288583853091807233](https://twitter.com/sps_chundawat/status/1288583853091807233)). Details about this Rutgers NJAES sponsored annual summer STEM program are available [online](#).
4. *Development of K-12 Biofuels and Enzyme Engineering Outreach Activity at Rutgers*: Developed a K-12 hands-on demonstration activity on using cellulase enzymes for biomass conversion. Hands-on 4-hr activity deployed in 2017 and 2018 summer with over 45 high school students from local New Jersey schools ([https://twitter.com/sps\\_chundawat/status/885910187869167617](https://twitter.com/sps_chundawat/status/885910187869167617)). Detailed educational materials relevant to this hands-on student activity are now available [online](#).
5. *Research Education for Teachers (RET) Mentor at GLBRC*: Research mentor for **Mr. Marin Dobson**, a biology and biotechnology teacher at Fort Atkinson high school (Wisconsin), as part of the Research Experience for Teachers (RET) program sponsored by the Department of Energy's Great Lakes Bioenergy Research Center (DOE-GLBRC) at the University of Wisconsin-Madison for seven weeks in the summer of 2013. All relevant educational material on biomass deconstruction is made available via [GLBRC](#).

### Fellowships, Awards, and/or Honors Earned by Chundawat Research Group Members at Rutgers

#### Postdoctoral Scholars

1. Fellowship Recipient: **Dr. Zhao Chao**, Post-doctoral Research Advisor: Shishir Chundawat (Rutgers University), Project Title: *Catalytic routes to upgrade glycan-derived substrates to value-added products*, Fellowship Amount: \$30,000, Start Date: Aug 2018, End Date: Jul 2019, Agency: China Scholarship Council from Government of China, Role: Post-doctoral Research Advisor
2. Fellowship Recipient: **Dr. Shyamal Roy**, Post-doctoral Research Advisor: Shishir Chundawat (Rutgers University), Project Title: *Integrated cellulosic biomass pretreatment and catalytic-upgrading processes for advanced biofuel production*, Fellowship Amount: \$37,200, Start Date: July 2016, End Date: June 2017, Agency: University Grant Commission (UGC) Raman Postdoctoral Fellowship from Government of India, Role: Post-doctoral Research Advisor



3. Fellowship Recipient: **Dr. Yongling Qin**, Post-doctoral Research Advisor: Shishir Chundawat (Rutgers University), Project Title: *Conversion of renewable biomass to fuels using a thermophilic cellulolytic microbe Thermobifida fusca*, Fellowship Amount: \$32,400, Start Date: Jan 2016, End Date: Jan 2017, Agency: Guangxi Scholarship from Guangxi Education Department from Government of China, Role: Post-doctoral Research Advisor

#### Graduate Students

1. Award Recipient: **Mr. Dharanidaran Jayachandran**, Sponsor: Gordon Research Conference (GRC), Date: July 2023. Outstanding Research Award at the GRC Meeting on CAZymes for Glycan Conversions (Andover, NH).
2. Fellowship Recipient: **Mr. Antonio DeChellis**, Doctoral Research Advisor: Shishir Chundawat (Rutgers University), Annual Fellowship Amount: \$33,999, Start Date: Sept 2022, End Date: Aug 2024, Agency: NIH/Rutgers Biotechnology Training Grant, Role: Predoctoral Fellow
3. Award Recipient: **Mr. Dharanidaran Jayachandran**, Sponsor: Rutgers BME Annual Research Symposium, Date: Dec 2022. Outstanding poster award.
4. Award Recipient: **Mr. Aron Gyorgypal**, Sponsor: BioPro World Talent Campus, Date: Sept 2022. BioPro World Talent Meeting Participant/Fellow.
5. Award Recipient: **Mr. Aron Gyorgypal**, Sponsor: ORISE, Date: May-Sept 2022. ORISE Research Summer Intern at FDA CDER Office of Biotechnology Products.
6. Award Recipient: **Mr. Markus Hackl**, Doctoral Research Advisor: Shishir Chundawat (Rutgers University), NSF Internship Award, Spring 2021, Agency: NSF, Role: Internship at LUMICKS (remote)
7. Award Recipient: **Mr. Aron Gyorgypal**, Sponsor: International Foundation Process Analytical Chemistry Annual Meeting, Date: Feb 2020. Outstanding poster award.
8. Award Recipient: **Mr. Aron Gyorgypal**, Sponsor: Rutgers BME Annual Research Symposium, Date: Dec 2019. Outstanding poster award.
9. Award Recipient: **Mr. Bhargava Nemmaru**, Doctoral Research Advisor: Shishir Chundawat (Rutgers University), NSF Internship Award, Spring 2020, Agency: NSF, Role: Internship at NREL (in-person)
10. Fellowship Recipient: **Mr. Satvik Sharma**, Sponsor: NASA New Jersey Space Grant Consortium Graduate Student Fellowship, Start Date: Sept 2015, End Date: May 2016. This fellowship provided support for his annual stipend /year) at Rutgers.

#### Undergraduate Students

1. Fellowship Recipient: **Ms. Nakeitha Brown**, Research Advisor: Shishir Chundawat (Rutgers University), Project Title: *Advanced Analytical Analysis of mAb N-Glycans*, Fellowship Amount: \$25,000, Start Date: Aug 2023, End Date: Aug 2024, Agency: Post-Baccalaureate Research Experience for LSAMP Students (PRELS) Program at Rutgers-Newark, Role: PRELS Research Advisor
2. Award Recipient: **Mr. Gokulnath Ganesan** (Visiting Undergraduate Intern from IIT-Madras), Sponsor: Khorana Program Research Scholar/Intern Award, Summer 2023.
3. Award Recipient: **Ms. Jenna Douglass**, Sponsor: AIChE 2021 Annual Meeting Undergraduate Research Poster Competition (2<sup>nd</sup> Best Student Poster), Oct 2021.
4. Fellowship Recipient: **Ms. Shoili Banerjee**, Sponsor: Rutgers Energy Institute (REI) Summer Internship, Start Date: May 2020, End Date: Aug 2021.
5. Award Recipient: **Mr. Varun Raghuraman**, Sponsor: Aresty Undergraduate Research Fellowship, Start Date: Sept 2019, End Date: May 2020.

6. Fellowship Recipient: **Mr. Allan Wang**, Sponsor: Rutgers Energy Institute (REI) Summer Internship, Start Date: May 2018, End Date: Aug 2018.
7. Award Recipient: **Mr. Patrick Doran**, Sponsor: Aresty Undergraduate Research Fellowship, Start Date: Sept 2017, End Date: May 2018.
8. Fellowship Recipient: **Mr. Varun Raghuraman**, Sponsor: Aresty Undergraduate Summer Science Fellowship, Start Date: May 2017, End Date: Aug 2017.
9. Award Recipient: **Ms. Marissa Berger**, Sponsor: Aresty Summer Science and Undergraduate Research Fellowship, Start Date: Sept 2016, End Date: May 2017.
10. Award Recipient: **Ms. Cindy Farino**, Sponsor: Aresty Undergraduate Research Fellowship, Start Date: Sept 2016, End Date: May 2017.
11. Fellowship Recipient: **Ms. Alina Thokaddam**, Sponsor: Aresty Undergraduate Summer Science Fellowship, Start Date: May 2016, End Date: Aug 2016.
12. Fellowship Recipient: **Ms. Natália Dias**, Sponsor: Brazilian Scientific Mobility Program for Visiting Undergraduate Students, Start Date: May 2016, End Date: Aug 2016.
13. Fellowship Recipient: **Ms. Samantha Cobos**, Sponsor: NSF-REU and Rutgers RiSE Fellow Program, Start Date: May 2016, End Date: Aug 2016.
14. Fellowship Recipient: **Ms. Marissa Berger**, Sponsor: Aresty Undergraduate Summer Science Fellowship, Start Date: May 2015, End Date: Aug 2015.
15. Fellowship Recipient: **Mr. Ketley Alves**, Sponsor: Brazilian Scientific Mobility Program for Visiting Undergraduate Students, Start Date: May 2015, End Date: Aug 2015.

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## Conference Presentations, Lectures, and Interviews

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### Invited Plenary Talks & Seminars

1. Invited symposium select talk by **Shishir Chundawat** at Biophysical Society Annual Meeting, *Visualizing Cellulose Polysaccharides Biosynthesis and Dynamic Assembly Into Cell Walls During Live Plant Cell Imaging*, Philadelphia (PA), 2024.
2. Invited plenary talk by **Shishir Chundawat** at Gordon Research Conference on Carbohydrate-Active Enzymes for Glycan Conversions, *Mr. Cell, Tear Down This Wall: Visualizing Cellulose Biosynthesis, Assembly, & Degradation*, Andover (NH), 2023.
3. Invited webinar by **Shishir Chundawat** at 5<sup>th</sup> Annual Event in the Bioprocessing Virtual Event Series (LabRoots), *N-GLYcanalyzer: An Automated Process Analytical Platform To Enable Continuous Manufacturing Of Biologics*, Virtual Event, April 2023 (Jointly presented with Aron Gyorgypal).
4. Invited seminar by **Shishir Chundawat** at University of Rhode Island (*Department of Chemistry*), *Glycoengineering for a cleaner, healthier, & sweeter future*, Jan 2023 (Zoom Webinar Presented Remotely On-line).
5. Invited seminar by **Shishir Chundawat** at 22<sup>nd</sup> Annual PepTalk Meeting session “Higher-Throughput Bioproduction”, *Integrated Process Analytical Platform for Automated Monitoring of Monoclonal Antibody N-Glycosylation*, San Diego, Jan 2023 (Presented by Student Aron Gyorgypal).
6. Invited seminar by **Shishir Chundawat** at Indian Institute of Technology-Madras (*Department of Biotechnology, Bhupat & Jyoti Mehta School of Biosciences*), *Glyco-engineering for a cleaner, sweeter, and healthier future!*, Jan 2023 (Zoom Webinar Presented Remotely On-line).

7. Invited seminar by **Shishir Chundawat** at Michigan Technological University (Dept. of Chemical Engineering), *Glycoengineering for a cleaner, healthier, & sweeter future*, Dec 2022 (Zoom Webinar Presented Remotely On-line).
8. Invited seminar by **Shishir Chundawat** at University of Delaware (Dept. of Chemical & Biomolecular Engineering), *Glycoengineering for a cleaner, sweeter, & healthier future*, Newark, Nov 2022.
9. Invited webinar by **Shishir Chundawat** at the 6<sup>th</sup> Annual United States Pharmacopeia (USP) Workshop on Biologics and Peptides, *PAT Toolkit for Monitoring of Monoclonal Antibody (mAb) N-Glycosylation in Real-Time*, Online, June 2022 (Zoom Summit Held Remotely On-line).
10. Invited webinar by **Shishir Chundawat** at Oak Ridge National Laboratory, *Visualizing plant biomass and renewable plastics biosynthesis and deconstruction to enable advances in Biological and Environmental Science research at STS*, Oak Ridge, June 2022.
11. Invited seminar by **Shishir Chundawat** at Indian Institute of Technology (Dept. of Chemical Engineering), *Next generation glycoengineering for a cleaner, healthier, & sweeter future for humanity*, New Delhi, June 2022.
12. Invited plenary seminar by **Shishir Chundawat** at the 44<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals in plenary session on “Biomass-active enzyme discovery, mechanisms, and engineering”, *Watching slow-crawler cellulolytic enzymes to enable giant leaps for biomass deconstruction*, New Orleans, May 2022.
13. Invited webinar by **Shishir Chundawat** for Process Analytical Technology (PAT) community of American Association of Pharmaceutical Scientists (AAPS), *An Integrated Process Analytical Platform for Automated Monitoring of Monoclonal Antibody N-linked Glycosylation*, Online, February 2022 (Zoom Summit Held Remotely On-line).
14. Invited seminar/webinar by **Shishir Chundawat** for Process Analytical Technology (PAT) community at the WCBP 2022 Annual Meeting (The 26th Symposium on the Interface of Regulatory and Analytical Sciences for Biotechnology Health Products), *N-GLYcanalyzer: PAT Tool for Near Real-Time Monitoring of Monoclonal Antibody (mAb) Glycosylation*, Washington DC, January 2022 (Hybrid Summit Held In-Person and Remotely On-line).
15. Invited seminar by **Shishir Chundawat** at 21<sup>st</sup> Annual PepTalk Meeting session “Cell Line Engineering & Development”, *Engineered Regulon to Enable Autonomous Azide Ion Biosensing, Recombinant Protein Production, and in Vivo Glycoengineering*, San Diego, Jan 2022 (Hybrid Summit Held In-Person and Remotely On-line).
16. Invited seminar by **Shishir Chundawat** at Gordon Research Conference on Carbohydrate-Active Enzymes for Glycan Conversions, *Engineering and mechanistic analysis of CAZymes for in-vitro and in-vivo synthesis of glycan polymers*, Andover, July 2021 (Conference Postponed to July 2023 due to SARS-CoV2 pandemic).
17. Invited seminar at Department of Energy (DOE) 2021 Bioimaging Science Program Annual Principal Investigator (PI) Meeting, *In planta multimodal single-molecule imaging of cell wall synthesis*, Virtual Meeting, Feb 2021. Attended by PI Sang-Hyuk Lee & Co-PI Chundawat.
18. Invited seminar by **Shishir Chundawat** at Washington University at St. Louis (Dept. of Energy, Environmental & Chemical Engineering), *Glyco-enzymes engineering for a sweeter, cleaner, and healthier future!*, Zoom Webinar, Dec 2020.
19. Invited seminar by **Shishir Chundawat** as part of the Global Colgate-Palmolive Tech Exchange Program, *Glyco-Engineering for a Sweeter & Healthier Future*, Piscataway, Oct 2020 (Webinar Held Remotely On-line Due to COVID-19 Pandemic).

20. Invited seminar by **Shishir Chundawat** at Agilent Biopharmaceutical Web Summit 2020 on Discovery Development and Characterization of Next-Generation Therapeutics, *Continuous Biomanufacturing at Rutgers University: Integrated Real-time PAT, Modeling, and Process Control Strategies to Enable Production of Glycosylated Biologics*, Piscataway, March 2020 (Summit Held Remotely On-line Due to COVID-19 Pandemic).
21. Invited seminar at Department of Energy (DOE) 2020 Bioimaging Science Program Annual Principal Investigator (PI) Meeting, *In planta single-molecule imaging and holographic force spectroscopy to study real-time, multimodal turnover dynamics of polysaccharides and associated carbohydrate metabolites*, Washington DC, Feb 2020. Attended by PI Sang-Hyuk Lee & Co-PI Chundawat.
22. Invited seminar at Food and Drug Administration (FDA) Center for Biologics Evaluation and Research (CBER) Program Advanced Technologies Symposium, *Advanced Continuous Upstream Manufacturing of Biotherapeutics*, Silver Spring, July 2019. Talk jointly presented by PI Marianthi Ierapetritou and Co-PI **Shishir Chundawat**.
23. Invited seminar by **Shishir Chundawat** at Gordon Research Seminar on Carbohydrates (Development of Carbohydrate-Based Therapeutics and Targets), *Engineering and Mechanistic Analysis of Novel Multidomain Transglycosylases*, Hong Kong, June 2019.
24. Invited seminar at Department of Energy (DOE) 2019 Bioimaging Science Program Annual Principal Investigator (PI) Meeting, *In planta single-molecule imaging and holographic force spectroscopy to study real-time, multimodal turnover dynamics of polysaccharides and associated carbohydrate metabolites*, Vienna, Feb 2019. Attended by PI Sang-Hyuk Lee & Co-PI Chundawat.
25. Invited seminar by **Shishir Chundawat** at New York Institute of Technology (NYIT) 13th Annual Energy Conference on Bioenergy and Natural Systems, *Engineering Enzymes to Reduce Cellulosic Biofuels Production Costs*, Old Westbury (New York), June 2018.
26. Invited fermentation series seminar by **Shishir Chundawat** at Rutgers State University of New Jersey (Dept. of Biochemistry and Microbiology), *Engineering 'small' enzyme steps to make giant leaps save our planet!*, New Brunswick, Nov 2017.
27. Invited seminar by **Shishir Chundawat** at Exxon-Mobil Research Division, *Deconstruction of cellulosic biomass to fuels and chemicals using an integrated approach*, Annandale (New Jersey), March 2017.
28. Invited seminar by **Shishir Chundawat** at Montclair State University, *Conversion of lignocellulosics to biofuels using a multistep chemo-enzymatic deconstruction approach*, Montclair (New Jersey), April 2017.
29. Invited poster presentation by **Shishir Chundawat** at Gordon Research Conference on Cellulases & Other Carbohydrate-Active Enzymes, *Single-molecule characterization of processive cellulase activity on cellulose*, Andover (NH), July 2017.
30. Invited seminar by **Shishir Chundawat** at Rutgers State University of New Jersey (Rutgers Global Grant Symposium), *Enabling the Creation of a Sustainable and Economically Viable Cellulosic Biofuels Industry in Brazil*, New Brunswick, Nov 2017.
31. Invited US Naval Research Laboratory (NRL) colloquium series seminar by **Shishir Chundawat** at US Naval Research Center (Center for Bio/Molecular Science and Engineering), *Providing a molecular basis to modeling protein adsorption to multimodal carbohydrate ligands*, Washington DC, Sept 2016.

32. Invited seminar by **Shishir Chundawat** at Rutgers State University of New Jersey (Dept. of Chemical & Biochemical Engineering), *Deconstruction of cellulosic biomass to fuels and chemicals: The emerging paradigm of substrate engineering*, New Brunswick, Mar 2014
33. Invited seminar by **Shishir Chundawat** at the 36<sup>th</sup> Symposium on Biotechnology for Fuels and Chemicals in plenary session on “Enzyme Science and Technology II – Modeling and Structure/Function Relationship”, *Cellulases have low affinity but improved activity on unnatural cellulose allomorphs*, Clearwater Beach, May 2014.
34. Invited seminar by **Shishir Chundawat** at Iowa State University (Dept. of Chemical & Biological Engineering), *Deconstruction of cellulosic biomass to fuels and chemicals: The emerging paradigm of substrate engineering*, Ames, Feb 2014.
35. Invited seminar by **Shishir Chundawat** at American Institute of Chemical Engineers (AIChE) Annual Meeting session “Advances In Biofuels: DOE Bioenergy Research Centers”, *Interactions of cellulolytic proteins with a non-native, polysaccharide allomorph formed during pretreatment of lignocellulosic biomass*, San Francisco, Nov 2013.
36. Invited seminar by **Shishir Chundawat** at American Crystallographic Association (ACA) Annual Meeting session “Materials for a Sustainable Future”, *Modifying native crystalline polysaccharide ultrastructure can improve its chemical and biological processability to fuels, chemicals and materials*, Boston, July 2012.
37. Invited seminar by **Shishir Chundawat** at American Institute of Chemical Engineers (AIChE) Annual Meeting session “Advances In Biofuels: DOE Bioenergy Research Centers”, *Development of the Extractive-AFEX (E-AFEX) pretreatment process*, Pittsburgh, Oct 2012.
38. Invited plenary talk by **Shishir Chundawat** at Materials Research Society (MRS) Spring Meeting (Renewable Fuels and Nanotechnology Session), *Impact of Ammonia Treatment on Natural Lignocellulosic Composites*, San Francisco, April 2011.
39. Invited plenary talk by **Shishir Chundawat** at Gordon-Kenan Research Seminar on Cellulosomes, Cellulases & Other Carbohydrate Modifying Enzymes, *Role of cellulose crystal structure on exo- and endo-cellulase synergistic activity*, Easton (MA), 2011.
40. Invited seminar by **Shishir Chundawat** at Institute of Chemical Technology (Dept. of Chemical Engineering), *Deconstruction of lignocellulosic biomass to fuels and chemicals*, Mumbai, Aug 2011.
41. Invited seminar by **Shishir Chundawat** at Michigan State University (Dept. of Chemical Engineering & Materials Science), *A new strategy for biomass deconstruction to fuels and chemicals*, East Lansing, Sept 2011.
42. Invited seminar by **Shishir Chundawat** at American Institute of Chemical Engineers (AIChE) Annual Meeting session “Advances In Biofuels: DOE Bioenergy Research Centers”, *The binding properties of cellulases on cellulose allomorphs and pretreated biomass during enzymatic hydrolysis*, Minneapolis, Oct 2011.
43. Invited seminar by **Shishir Chundawat** at Department of Energy Bioenergy Science Center (BESC) Biomass Characterization Workshop, *Characterizing the effect of alkaline based pretreatments on lignocellulosic cell walls*, Riverside, Jan 2010.
44. Invited seminar by **Shishir Chundawat** at Los Alamos National Laboratory, *“NH<sub>3</sub>”...a potent catalyst for deconstructing plant cell walls to fuels and chemicals*, Los Alamos, Sept 2010.
45. Invited seminar by **Shishir Chundawat** at Department of Energy Inter-Bioenergy Research Center Workshop (Enzymes for biomass degradation), *Effect of ammonia treatments on enzyme-biomass interactions*, Madison, Nov 2010.

46. Invited seminar by **Shishir Chundawat** at the DOE Great Lakes Bioenergy Research Center (GLBRC) Annual Retreat, *Assessing the ability of glycosyl hydrolases to digest ammonia pretreated biomass*, South Bend, May 2009.
47. Invited seminar by **Shishir Chundawat** at Verenium Corporation, *Towards a fundamental understanding of ammonia based pretreatment and enzymatic hydrolysis of lignocellulosic biomass*, San Diego, Feb 2008.

**Contributed Talks** (asterisk\* indicates seminar talk presenter)

1. Kumar M\*, **Chundawat SPS**. *Glycosynthase Engineering for Fucosylated Oligosaccharides Synthesis*. Rutgers BME BESS Annual Meeting 2022, Piscataway. (Oral Presentation by Student Mohit Kumar)
2. Reddy JV\*, Raudenbush K, Yang O, Gyorgypal A, Chaturvedi A, **Chundawat SPS**, Ierapetritou M. *Model based insights on the effect of bioreactor pH and Temperature on N-Linked glycosylation of mAbs produced by CHO cells*. AICHE Annual Meeting 2022, Phoenix. (Oral Presentation by Student Jayanth Reddy in Nov 2022).
3. **Chundawat SPS\***, Bandi CK, Kumar M. *Engineered CynR Regulon for Enzymatic Biocatalysis Enables Milk Oligosaccharides Biosynthesis Using Azido Sugars*. AICHE Annual Meeting 2022, Phoenix. (Oral Presentation by Chundawat in Nov 2022).
4. **Chundawat SPS\***, Gyorgypal A. *N-GLYcanalyzer: An Integrated At-Line Process Analytical Toolkit for Enabling Continuous Biologics Manufacturing*. AICHE Annual Meeting 2022, Phoenix. (Oral Presentation by Chundawat in Nov 2022).
5. Douglass J\*, Nemmaru B, Shankar S, **Chundawat SPS**. *Rational Engineering of Cellulase Enzymes for Improved Biomass Conversion Via Reduced Non-Productive Binding*. AICHE Annual Meeting 2021, Boston. (Presentation by Student In-Person in Oct 2021)
6. Yang O\*, Reddy JV, Raudenbush K, Gyorgypal A, **Chundawat SPS**, Ierapetritou M. *Model-based Investigation of Upstream CHO Cell Culture Process for Production of Monoclonal Antibodies with Desired N-linked Glycosylation*. AICHE Annual Meeting 2021, Boston, In-person Meeting. (Presentation by Student in Oct 2021)
7. Gyorgypal A\*, **Chundawat SPS**. *A sequential injection based on-line PAT for real-time glycosylation monitoring of monoclonal antibodies*. AICHE Annual Meeting 2021, Boston, Virtual Meeting. (On-line Presentation by Student in Oct 2021).
8. Nemmaru B\*, Douglass J, Yarbrough JM, Johnson MM, Lang MM, **Chundawat SPS**. *Rational engineering of polysaccharide-degrading enzymes: A case study on cellulases for improved biomass conversion to biofuels*. ACS Annual Meeting 2021, San Diego. (Online Student Presentation in Aug 2021)
9. Nemmaru B\*, **Chundawat SPS**. *Rational Engineering of Polysaccharide-Degrading Enzymes: A Case Study on Cellulases*. PEGS Annual Meeting 2021, San Diego. (Online Student Presentation in May 2021)
10. Bandi CK\*, **Chundawat SPS**. *Development of High-Throughput Cell Screening Toolkit for the Directed Evolution of Glycosynthase Enzymes for Bespoke Oligosaccharides Synthesis*. AICHE Annual Meeting 2020, Virtual Meeting. (Online Presentation by Student in Nov 2020)
11. Hackl M\*, Nemmaru B, **Chundawat SPS**. *Single-molecule protein-carbohydrate dissociation characterization using acoustic force spectroscopy*. ACS Annual Meeting 2020, Philadelphia. (Oral Presentation Cancelled due to COVID-19)

12. Chopda V\*, Gyorgypal A, Said R, Alter A, **Chundawat SPS**, Zhang H. *Continuous monoclonal antibody (mAb) biomanufacturing and integrated process analytics for mAb N-linked glycans analysis*. ACS Annual Meeting 2020, Philadelphia. (Oral Presentation Cancelled due to COVID-19)
13. Bandi CK\*, Burgin T, Pasture M, Goncalves A, Pingali SV, Gao J, Mayes H, **Chundawat SPS**. *Engineering and mechanistic analysis of carbohydrate binding domain assisted transglycosylation reactions for a novel protein design of multidomain transglycosidases*. ACS Annual Meeting 2020, Philadelphia. (Oral Presentation Cancelled due to COVID-19)
14. Bandi CK\*, Agrawal A, **Chundawat SPS**. *Development of a high-throughput cell screening toolkit for the directed evolution of glycosynthase enzymes for bespoke oligosaccharides synthesis using azido sugars*. ACS Annual Meeting 2020, Philadelphia. (Oral Presentation Cancelled due to COVID-19)
15. Chopda V\*, Gyorgypal A, Said R, Alter A, Zhang H, **Chundawat SPS**. *Optimizing monoclonal antibody (mAb) production: Establishing an in-house platform for continuous biomanufacturing and integrated process analytics*. Rutgers University (RU) BME Department Graduate Research Symposium, Dec 2019, Piscataway. (Oral Presentation by Staff)
16. Agrawal A\*, **Chundawat SPS**. *Development of click chemistry based screening methodology for engineering enzymes that can synthesize glycans*. Rutgers University (RU) CBE Department Graduate Research Symposium, Apr 2019, Piscataway. (Oral Presentation by Student)
17. **Chundawat SPS\***, Nemmaru B, Hilton M, Hackl M, Lopez C, Gnanakaran S, Lang M. *Single-molecule characterization of protein adsorption to multivalent glucan polymers like cellulose*. AIChE Annual Meeting 2018, Pittsburgh. (Oral Presentation by Chundawat)
18. Bandi CK, Goncalves A, **Chundawat SPS\***. *Engineering a multifunctional family 5 glycosyl hydrolase into a transglycosidase*. AIChE Annual Meeting 2018, Pittsburgh. (Oral Presentation by Chundawat)
19. Bandi CK\*, Goncalves A, **Chundawat SPS**. *Engineering a multifunctional family 5 glycosyl hydrolase into a transglycosidase*. ACS Annual Meeting 2018, Boston. (Oral Presentation by Student)
20. **Chundawat SPS\***, Nemmaru B, Hilton M, Hackl M, Lopez C, Gnanakaran S, Lang M. *Single-molecule characterization of protein adsorption to multivalent glucan polymers like cellulose*. ACS Annual Meeting 2018, Boston. (Oral Presentation by Chundawat)
21. **Chundawat SPS\***, Sousa L, Pingali SV, O'Neill H. *In-situ small-angle neutron scattering investigation of cellulose dissolution*. ACS Annual Meeting 2018, Boston. (Oral Presentation by Chundawat)
22. Nemmaru B, Brady SK, Lang MJ, **Chundawat SPS\***. *Single-Molecule Characterization of Protein Adsorption to Multivalent Glycan Polymers*. AIChE Annual Meeting 2017, Minneapolis. (Oral Presentation by Chundawat)
23. Farino C, Nemmaru B, **Chundawat SPS\***. *Site-Directed Mutagenesis of Family 64 CBM Provides Insights into the Anomalous Binding Interactions with Pretreated Cellulose during Biomass Saccharification*. AIChE Annual Meeting 2017, Minneapolis. (Oral Presentation by Chundawat)
24. **Chundawat SPS\***, Brady S, Narayanan V, Lang M. *Providing a Molecular Basis to Modeling Protein Adsorption to Multimodal Carbohydrate-based Ligands*. AIChE Annual Meeting 2016, San Francisco. (Oral Presentation by Chundawat)
25. Brady S\*, **Chundawat SPS**, Lang M. *Cellobiohydrolase behavior visualized at the single molecule level*. Society of Industrial Microbiology and Biotechnology Annual Meeting session on "Biocatalysis: Lignocellulosic Conversion Sponsored by Novozymes" 2016, New Orleans. (Oral Presentation by Collaborator)

26. Brady S\*, **Chundawat SPS**, Lang M. *A Multi-Scale Investigation of Cellulases and Their Interaction with Cellulose Allomorphs*. AICHE Annual Meeting 2015, Salt Lake City. (Oral Presentation by Collaborator)
27. Gnanakaran S, **Chundawat SPS\***, López C, Sousa L, Dale BE, Fox BG. *Engineering More Effective Catalysts for Unnatural Allomorphs of Cellulose*. AICHE Annual Meeting 2014, Atlanta. (Oral Presentation by Chundawat)
28. **Chundawat SPS\***, Gao D, Sethi A, Crews S, Sousa L, Uppugundla N, Balan V, Gnanakaran S, Dale BE. *Increased enzyme binding to substrates does not always increase catalytic activity*. AICHE Annual Meeting 2012, Pittsburgh. (Oral Presentation by Chundawat)
29. Dale BE\*, Sousa L, **Chundawat SPS**, Balan V, Bals B. *A New Low Cost Design for the AFEX Process: Application in Distributed Biofuel Production Systems*. Symposium on Biotechnology for Fuels and Chemicals 2012, New Orleans. (Oral Presentation by PhD Advisor)
30. Pattathil S\*, **Chundawat SPS**, DeMartini JD, Li H, Miller J, Brown V, Kandemkavil S, Biswal A, Saffold T, O'Neill M, York WS, Wyman C, Mohnen D, Dixon RA, Chen F, Dale BE, Hahn MG. *Comparative Glycomics of Plant Biomass and Insights into Cell Wall Components that Affect Recalcitrance*. Symposium on Biotechnology for Fuels and Chemicals 2012, New Orleans. (Oral Presentation by Collaborator)
31. Sousa L\*, Jin M, Uppugundla N, Bokade V, Humpula J, Gunawan C, Foston M, Azarpira A, Ralph J, Bals B, Teymouri F, **Chundawat SPS**, Dale BE, Balan V. *Extractive-AFEX (E-AFEX) Pretreatment: A unified approach for resolving bottlenecks to efficient cellulosic bioethanol production*. Symposium on Biotechnology for Fuels and Chemicals 2012, New Orleans. (Oral Presentation by Collaborator)
32. **Chundawat SPS\***, Uppugundla N, Lipton M, Magyar M, Gao D, Balan V, Dale BE. *Role of enzyme blend composition, biomass particle size and solids loading on pretreated biomass saccharification efficiency*. AICHE Annual Meeting 2011, Minneapolis. (Oral Presentation by Chundawat)
33. **Chundawat SPS**, Dale BE\*. *Fundamental insights to the AFEX process that catalyzes the rapid deconstruction of lignocellulose to fuels and chemicals*. 1<sup>st</sup> Brazilian BioEnergy Science and Technology Conference 2011, São Paulo (Brazil). (Oral Presentation by PhD Advisor)
34. **Chundawat SPS\***, Cheh A, Sousa L, Uppugundla N, Gao D, Langan P, Gnanakaran S, Bellesia G, Agarwal U, Bianchetti C, Phillips G, Balan V, Dale BE. *Cellulose hydrolysis kinetics is closely related to its crystalline structure*. Symposium on Biotechnology for Fuels and Chemicals 2010, Clearwater. (Oral Presentation by Chundawat)
35. **Chundawat SPS\***, Sousa L, Hodge D, Balan V, Dale BE. *Alkaline Based Pretreatments at Great Lakes Bioenergy Research Center*. AICHE Annual Meeting 2010, Salt Lake City. (Oral Presentation by Chundawat)
36. **Chundawat SPS\***, Donohoe B, Sharma L, Elder T, Askeland P, Vismeh R, Agarwal U, Humpula J, Garlock R, Jones D, Chambliss K, Himmel M, Balan V, Dale BE. *Ultra-structural and physicochemical modifications within ammonia pretreated lignocellulosic cell walls that influence enzyme accessibility*. Symposium on Biotechnology for Fuels and Chemicals 2009, San Francisco. (Oral Presentation by Chundawat)
37. **Chundawat SPS\***, Gao D, Krishnan C, Poland J, Stege J, Lipton M, Balan V, Dale BE. *Enzymatic hydrolysis of AFEX treated corn stover by cellulolytic and hemicellulolytic synergistic enzyme cocktails*. AICHE Annual Meeting 2008, Philadelphia. (Oral Presentation by Chundawat)



38. **Chundawat SPS\***, Balan V, Dale BE. *Synergistic Hydrolysis of AFEX treated Corn Stover and Poplar using an Automated 96-well BCRL Microplate Assay*. AICHE Annual Meeting 2007, Salt Lake City. (Oral Presentation by Chundawat)
39. **Chundawat SPS\***, Balan V, Jones D, Sousa L, Lau M, Dale BE. *Towards a Fundamental Understanding of Ammonia Fiber Expansion (AFEX) Pretreatment and its Effect on Enzymatic Hydrolysis and Fermentation*. Symposium on Biotechnology for Fuels and Chemicals 2007, Denver. (Oral Presentation by Chundawat)
40. **Chundawat SPS\***, Venkatesh B, Dale BE. *Enzyme Synergies in the Hydrolysis of AFEX Pretreated Biomass*, AICHE Annual Meeting 2005, Cincinnati. (Oral Presentation by Chundawat)

**Posters** (asterisk\* indicates poster presenter)

1. Johnson M\*, DeChellis A, Nemmaru B, **Chundawat SPS**, Lang MJ. *Processive degradation of cellulose by bacterial cellulase TfCel6B*, Biophysical Society Annual Meeting 2024, Philadelphia (PA). (Poster Presentation)
2. DeChellis A\*, Murphy R, Hackl M, Ganesan G, **Chundawat SPS**. *Characterizing Multivalent Carbohydrate Binding Modules Interactions at Polysaccharide Interfaces with Acoustic Force Spectroscopy*, Biophysical Society Annual Meeting 2024, Philadelphia (PA). (Poster Presentation)
3. Murphy R\*, Hackl M, Lopez C, Kolattukudy SP, Gnanakaran S, Neimark A, **Chundawat SPS**. *Acoustic Force Spectroscopy Reveals Subtle Differences in Interfacial Protein-Polysaccharide Binding Interactions*, Biophysical Society Annual Meeting 2024, Philadelphia (PA). (Poster Presentation)
4. Kumar M\*, Tallavajhula SV, Burgin T, **Chundawat SPS**, *Advancing glycosynthase engineering for oligosaccharide synthesis with azido sugars leveraging transition state stabilization*, Biophysical Society Annual Meeting 2024, Philadelphia (PA). (Poster Presentation)
5. Huh H\*, Lam E, **Chundawat SPS**, Lee SH, *Observing the Dynamic Process of Cellulose Polysaccharide Biosynthesis and Assembly into Cell Walls Through Live Imaging of Plant Cells*, Biophysical Society Annual Meeting 2024, Philadelphia (PA). (Poster Presentation)
6. Kumar M\*, Tallavajhula SV, Burgin T, **Chundawat SPS**, *Directed evolution of glycosynthase enzymes for oligosaccharides synthesis via rapid in-vivo activity screening*, Gordon Research Conference (GRC) on Carbohydrate-Active Enzymes for Glycan Conversions, July 2023, Andover (NH). (Poster Presentation)
7. Kumar M\*, Tallavajhula SV, Burgin T, **Chundawat SPS**, *Directed evolution of glycosynthase enzymes for oligosaccharides synthesis via rapid in-vivo activity screening*, Gordon Research Conference (GRC) on Carbohydrate-Active Enzymes for Glycan Conversions, July 2023, Andover (NH). (Poster Presentation)
8. DeChellis A\*, Nemmaru B, Sammond D, **Chundawat SPS**. *Supercharging cellulolytic enzyme surfaces can increase thermostability & catalytic activity on cellulose and lignocellulosic biomass*, Gordon Research Conference (GRC) on Carbohydrate-Active Enzymes for Glycan Conversions, July 2023, Andover (NH). (Poster Presentation)
9. Jayachandran D\*, Huh H, Lam E, Lee SH, **Chundawat SPS**. *Real-time in vivo visualization of cellulose biosynthesis and assembly as microfibrils into the plant protoplast cell wall matrix*, Gordon Research Conference (GRC) on Carbohydrate-Active Enzymes for Glycan Conversions, July 2023, Andover (NH). (Poster Presentation)

10. Jayachandran D\*, **Chundawat SPS**. *Characterization of cellulose biopolymer synthesizing enzymes reconstituted in vitro*. Rutgers BME BESS Annual Meeting 2022, Piscataway. (Poster Presentation)
11. DeChellis A\*, **Chundawat SPS**. *Enzyme Supercharging for improved waste polymer hydrolysis*. Rutgers BME BESS Annual Meeting 2022, Piscataway. (Poster Presentation)
12. Hackl M\*, Lopez CA, Gnanakaran S, **Chundawat SPS**. *Characterizing the driving forces of protein binding to insoluble carbohydrates*. Rutgers MBGSO Annual Meeting 2022, Piscataway. (Poster Presentation)
13. Jayachandran D\*, **Chundawat SPS**. *Characterization of cellulose biopolymer synthesizing enzymes reconstituted in vitro*. AIChE Annual Meeting 2021, Boston. (Poster Presented by Student In-Person).
14. Douglass J\*, Nemmaru B, Shankar S, **Chundawat SPS**. *Studying the effect of cellulase supercharging on cellulosic biomass hydrolysis*. AIChE Annual Meeting 2021, Boston. (Poster Presented by Student In-Person)
15. Gyorgypal A\*, Yang O, Chaturvedi A, Chopda V, Zhang H, Ierapetritou M, **Chundawat SPS**. *Model-based Prediction and Real-Time Process Monitoring For Glycosylated Biological Drugs Production*. NIH-FDA Glycoscience Research Day 2021, Virtual Meeting. (Online Presentation by Student in June 2021)
16. Nemmaru B\*, Yarbrough JM, Johnson MM, Lang MM, **Chundawat SPS**. *Multimodal characterization and rational engineering of cellulolytic enzymes and cellulose-binding domains enables lowering non-productive enzyme binding to cellulose*. SIM SBFC Annual Meeting 2021. (Online Student Presentation in April 2021)
17. Irfan M\*, Jayachandran D\*, Huh H, Muchero W, Lang M, Lam E, Lee SH, **Chundawat SPS**. *Multimodal imaging of plant protoplasts with regenerating cell walls*. ACS Annual Meeting 2020, Philadelphia. (Poster Presentation Cancelled due to COVID-19)
18. Gyorgypal A\*, Chopda V, Zhang H, **Chundawat SPS**. *Real-time N-linked glycans analysis to facilitate monoclonal antibody manufacturing*. ACS Annual Meeting 2020, Philadelphia. (Poster Presentation Cancelled due to COVID-19)
19. Nemmaru B\*, Ramirez N, Kravchenko N, **Chundawat SPS**. *Reducing non-productive binding of cellulases to improve crystalline cellulose hydrolysis rates*. ACS Annual Meeting 2020, Philadelphia. (Poster Presentation Cancelled due to COVID-19)
20. Chopda V, Gyorgypal A, Zhang H, **Chundawat SPS**, Hausner D\*. *Integration of Process Analytics for Real-Time monitoring of Critical Quality Parameters and Attributes for Continuous Biomanufacturing*. International Foundation Process Analytical Chemistry (IFPAC) Annual Meeting, Feb 2020, North Bethesda. (Poster Presentation by Staff on behalf of student)
21. Gyorgypal A\*, Chopda V, Zhang H, **Chundawat SPS**. *At-Line N-linked Glycan Analysis to Facilitate Monoclonal Antibody Manufacturing*. Rutgers University (RU) BME Department Graduate Research Symposium, Dec 2019, Piscataway. (Poster Presentation by Student)
22. Yang O\*, Chopda V, Muddu SV, Gyorgypal A, Hausner D, Singh R, Tsilomelekis G, Zhang H, **Chundawat SPS**, Ramachandran R, Ierapetritou M. *Continuous Upstream Biopharmaceuticals Manufacturing*. Advanced Process Modelling (APM) Forum 2019, New York. (Poster Presentation by Student)
23. Thokkadam A\*, Wang A, Nemmaru B, **Chundawat SPS**. *Studying the Effect of CBM Supercharging on Endo-Exo Cellulase Hydrolysis Activity*. Rutgers University (RU) SOE Undergraduate James J Slade Research Symposium, Apr 2019, Piscataway. (Poster Presentation by Student)

24. Lee S-H, **Chundawat SPS\***, Lam E, Fabris L, Lang M, Muchero W, Pingali SV. *In planta multimodal single-molecule imaging of cell wall synthesis*. Department of Energy Annual PI Meeting 2019, Vienna. (Poster Presentation by Co-PI Chundawat)
25. Ma S\*, Hackl M, **Chundawat SPS**. *Developing an Acoustic Force Spectroscopy Technique to Measure Carbohydrate Binding Module Interaction with Cellulose*. Rutgers University (RU) Aresty Undergraduate Research Symposium, August 2018, Piscataway. (Poster Presentation by Student)
26. Agrawal A\*, Bandi CK, **Chundawat SPS**. High-throughput cell screening methodology for the directed evolution of glycosynthases. Rutgers University (RU) Society of Women Engineers (SWE) Research Symposium, Apr 2018, Piscataway. (Poster Presentation by Student)
27. Goncalves A\*, Bandi CK, **Chundawat SPS**. Understanding the Role of CBMs in the Transglycosylation Efficiency of GH5 Family Enzymes. Rutgers University (RU) SOE Undergraduate James J Slade Research Symposium, Apr 2018, Piscataway. (Poster Presentation by Student)
28. Esposito B\*, **Chundawat SPS**. *Ammonia Pretreatment of Cellulosic Biomass Increases Efficiency of Biofuels Production*. Rutgers University (RU) Aresty Undergraduate Research Symposium, April 2018, Piscataway. (Poster Presentation by Student)
29. Thokkadam A\*, Bandi CK, Vankayalapati NS, **Chundawat SPS**. *Impact of Cellulase Supercharging on Binding to Lignocellulosic Biomass*. AIChE Northeast Regional Undergraduate Meeting 2018, San Francisco. (Poster Presentation by Undergraduate Student)
30. Liu Y\*, Nemmaru B, **Chundawat SPS**. Characterization of *T. fusca* cellulase activity on unnatural cellulose allomorphs. Rutgers University (RU) CBE Department Graduate Research Symposium, Nov 2017, Piscataway. (Poster Presentation by Student)
31. Gupta S\*, Bandi CK, Thokkadam A, **Chundawat SPS**. Developing designer glycoligands for multimodal protein bioseparations. Rutgers University (RU) CBE Department Graduate Research Symposium, Nov 2017, Piscataway. (Poster Presentation by Student)
32. Vankayalapati N\*, Bandi CK, Thokkadam A, **Chundawat SPS**. Effect of supercharging cellulases on binding to cellulose and pretreated cellulosic biomass. Rutgers University (RU) CBE Department Graduate Research Symposium, Nov 2017, Piscataway. (Poster Presentation by Student)
33. Subhash N\*, Bandi CK, **Chundawat SPS**. Enzymatic Synthesis of Oligosaccharides for Modulating Growth of the Gut Microbiome. Rutgers University (RU) CBE Department Graduate Research Symposium, Nov 2017, Piscataway. (Poster Presentation by Student)
34. Agrawal A\*, Bandi CK, **Chundawat SPS**. High-throughput cell screening methodology for the directed evolution of glycosynthases. Rutgers University (RU) CBE Department Graduate Research Symposium, Nov 2017, Piscataway. (Poster Presentation by Student)
35. Dagia A\*, Nemmaru B, **Chundawat SPS**. Impact of a conserved tyrosine residue on Family 1 CBM binding to cellulose allomorphs. Rutgers University (RU) CBE Department Graduate Research Symposium, Nov 2017, Piscataway. (Poster Presentation by Student)
36. Samantha Cobos\*, Bhargava Nemmaru, **Chundawat SPS**. *Understanding protein adsorption to TEMPO-oxidized cellulose microfibrils*. ACS Annual Meeting, April 2017, San Francisco. (Poster Presentation by Student)
37. Thokkadam A\*, Bandi C, **Chundawat SPS**. *Effect of nucleophilic mutations on hydrolytic and transglycosylation activities of carbohydrate-active enzymes (CAZymes)*. Rutgers University (RU) CBE Department Undergraduate Research Symposium, April 2017, Piscataway. (Poster Presentation by Student)

38. Berger M\*, Bandi C, **Chundawat SPS**. *Negatively charging cellulolytic enzymes can reduce non-productive binding to lignin*. Rutgers University (RU) Aresty Undergraduate Research Symposium, April 2017, Piscataway. (Poster Presentation by Student)
39. Park J\*, McGinley E, Bandi C, **Chundawat SPS**. *Expression and Purification of CelE-CBM3a and its Mutants*. Rutgers University (RU) CBE Department Undergraduate Research Symposium, Apr 2016, Piscataway. (Poster Presentation by Student)
40. Farino C\*, Nemmaru B, **Chundawat SPS**. *Binding Affinity of Family 64 Carbohydrate Binding Modules and its Mutants to Crystalline Cellulose Allomorphs*. Rutgers University (RU) Aresty Undergraduate Research Symposium, April 2017, Piscataway. (Poster Presentation by Student)
41. Bandi C\*, Sahithi N, Berger M, Park J, Whitehead T, **Chundawat SPS**. *Minimizing non-productive binding of cellulases to lignin by supercharging enzyme surfaces*. Gordon Research Conference (GRC) on Cellulases and Carbohydrate-Active Enzymes, July 2017, Andover. (Poster Presentation by Student)
42. Park J\*, McGinley E, **Chundawat SPS**. *Expression and Characterization of Fungal Cellulase Catalytic and Cellulose Binding Domains for Single-Molecule Assays*. Rutgers University (RU) CBE Department Undergraduate Research Symposium, Apr 2016, Piscataway. (Poster Presentation by Student)
43. Gerszberg J\*, **Chundawat SPS**. *t-Test Stepping Algorithm and Variable Stepsize Hidden Markov Models for Characterizing Enzyme Motility Determined Using Optical Tweezers*. Rutgers University (RU) CBE Department Undergraduate Research Symposium, Apr 2016, Piscataway. (Poster Presentation by Student)
44. Farino C\*, Mainardi D, **Chundawat SPS**. *Determining the Binding Affinity of Carbohydrate Binding Modules to Crystalline Cellulose*. Rutgers University (RU) CBE Department Undergraduate Research Symposium, Apr 2016, Piscataway. (Poster Presentation by Student)
45. Lemenze A\*, **Chundawat SPS**. *Rutgers Chem-E-Car: The Drunken Snail*. Rutgers University (RU) CBE Department Undergraduate Research Symposium, Apr 2016, Piscataway. (Poster Presentation by Student)
46. Desai A\*, Webb AP, Bertram R, Ghosh S, Jeong E, Srivastav A, **Chundawat SPS**. *Validation of an Integrated Lignocellulosic Biorefinery Model using Aspen*. Rutgers University (RU) CBE Department Undergraduate Research Symposium, Apr 2016, Piscataway. (Poster Presentation by Student)
47. **Chundawat SPS\***. *A multiscale approach to studying conversion of lignocellulosic biomass to biofuels*. Rutgers University (RU) First Annual Sustainable Symposium, April 2016, Piscataway. (Poster Presentation by Chundawat)
48. Roy S\*, Berger M, Gupta S, Sousa L, **Chundawat SPS**. *Novel Pretreatment Process Enhances Cellulosic Biofuel Production*. Rutgers University (RU) CBE Department Graduate Research Symposium, Dec 2016, Piscataway. (Poster Presentation by Postdoc)
49. Bandi C\*, **Chundawat SPS**. *Engineering multifunctional glycosynthases for glycan synthesis*. Rutgers University (RU) CBE Department Graduate Research Symposium, Dec 2016, Piscataway. (Poster Presentation by Student)
50. Nemmaru B\*, Doran P, Liu Y, Brady S, Lang MJ, **Chundawat SPS**. *Single-molecule characterization of processive glycosyl hydrolase enzymes*. Rutgers University (RU) CBE Department Graduate Research Symposium, Dec 2016, Piscataway. (Poster Presentation by Student)
51. Haarmeyer C, Smith M, **Chundawat SPS**, Sammond DW, Whitehead T\*. *Using Protein Design to Evaluate the Relationship Between Protein Surface Potential and Protein-Lignin Binding for the*

*Eventual of Low Lignin Binding Cellulases*. AICHE Annual Meeting 2016, San Francisco. (Poster Presentation by Collaborator)

52. Poster Presentation by **Shishir Chundawat** at Gordon Research Conference/Seminar on Cellulosomes, Cellulases & Other Carbohydrate Modifying Enzymes, *Native cellulases have abnormal interactions with unnatural cellulose allomorphs*, Andover (NH), Aug 2015.
53. Berger M\*, Alves K, **Chundawat SPS**. *Novel Plant Biomass Pretreatments For Enhancing Biofuel Production*. Rutgers University (RU) Aresty Undergraduate Research Symposium, Aug 2015, Piscataway. (Poster Presentation by Student)
54. Asthana S\*, **Chundawat SPS**. *Characterization of the Binding Affinity of Engineered Carbohydrate-Binding Modules to Lignocellulosic Biomass*. Rutgers University (RU) CBE Department Graduate Research Symposium, Nov 2015, Piscataway. (Poster Presentation by Student)
55. Sharma S\*, **Chundawat SPS**. *Using Confocal Imaging to Study Binding Dynamics of Cellulolytic Enzymes to Cellulose*. Rutgers University (RU) CBE Department Graduate Research Symposium, Nov 2015, Piscataway. (Poster Presentation by Student)

#### **Other Interviews, Presentations, and Public Outreach**

1. Interviewed with Rutgers as part of press release highlighting Chundawat's 2022 PNAS article (<https://www.rutgers.edu/news/rutgers-researchers-develop-method-single-molecule-precision-engineer-enzyme-stickiness>).
2. Interviewed with Rutgers as part of press release highlighting Chundawat's 2022 ACS Analytical Chemistry cover article (<https://newbrunswick.rutgers.edu/news/rutgers-pair-creates-monitoring-toolkit-speed-production-biologic-drugs>).
3. Interviewed with Drug Target Review (DTR) trade magazine in Fall 2021 highlighting how Rutgers group led by Chundawat developed a new process analytical technology (PAT) system for the automated monitoring of antibody N-glycosylation to enable biologics manufacturing. Article available online on DTR website (<https://www.drugtargetreview.com/article/99976/ensuring-the-safety-and-efficacy-of-biologics-products/>).
4. Op-Ed article titled '*Forward to the Future: Cheap, Plant-Based Materials Coming Thanks to Bioengineering Revolution*' co-authored along with Rutgers-New Brunswick's communications team on "Engineering Fields That Will Change the World" essay package submitted to [NJ.com](http://NJ.com) and the Star-Ledger for publication in Fall 2020. Copy of article is available on CBE Website (<https://cbe.rutgers.edu/news/forward-future-cheap-plant-based-materials-coming-thanks-bioengineering-revolution>).
5. Interviewed with journalist Todd Bates in Rutgers Today and as part of ORNL press release highlighting Chundawat's 2020 Green Chemistry article (<https://neutrons.ornl.gov/content/how-make-it-easier-turn-plant-waste-biofuels>).
6. Interviewed with Burt Sempier of WMBCTV showcasing ongoing bioenergy research being conducted at Rutgers Chundawat Lab on Feb 6th 2020: <https://wmbctv.com/portfolio-view/biofuels/>.

7. Fall 2019 CBE newsletter article titled 'How Times Have Changed: CBE Flashback' co-authored with Dr. Rohit Ramachandran and SOE communications team ([Fall 2019 CBE Newsletter](#))
8. Video interview with SOE communications team in Fall 2017 to provide promotional advertising material on relevance of chemical engineering to society and overview to CBE department at Rutgers University ([YouTube Video posted on CBE Homepage](#))
9. Cover story about Chundawat Research Group and interview in SOE's RU Engineer magazine (Winter 2017, Vol. 2, No. 1)
10. Interview with ethanol manufacturer POET in 2017 'Vital' magazine as part of a press release online article (<http://vitalbypoet.com/stories/poet-internship-program-offers-opportunity-for-experience>) highlighting Rutgers CBE student (James Forder) internship at POET.
11. Interviewed on WRNJ Radio (at 11:15 am on July 7th 2017) by Ms. Joyce Estey (WRNJ Radio News Director) to discuss on-going research at Rutgers University on how cellulases.
12. Interviewed with science journalist Todd Bates in Rutgers Today as part of a press release online article (<http://news.rutgers.edu/research-news/cutting-cost-ethanol-other-biofuels-and-gasoline/20170630#.WZ3bXqZ2MmJ>) that highlighted a journal cover article on cellulases.
13. Press coverage in 2016 for journal cover article highlighted by The Royal Society of Chemistry (<http://cbe.rutgers.edu/news/chundawat-group-research-highlighted-royal-society-chemistry-journal-cover-article>).
14. Press coverage in 2016 for journal article highlighted by U.S. Department of Energy Bioenergy Center (<https://www.glbrc.org/research/highlights/next-generation-ammonia-pretreatment-enhances-cellulosic-biofuel-production>).
15. Press coverage in 2016 on collaborative *Nature Communications* article highlighted in social media (<http://www.labmanager.com/news/2015/12/anatomy-of-a-microscopic-wood-chipper#.VnB5LYTWpW8>).
16. Interviewed for coverage on sustainable biofuels focused on 2013 *PNAS* article highlighted in social media (<http://www.biofuelsdigest.com/bdigest/2013/07/02/researchers-find-new-method-to-convert-cellulose-for-better-biofuel-production/>).
17. Press coverage on *Energy and Environmental Science* article in 2011 by The Royal Society of Chemistry and U.S. DOE GLBRC (<http://blogs.rsc.org/ee/2011/01/11/improving-pre-treatments-for-better-biomass-conversion/>).
18. Interviewed for press coverage on *JACS* article on cellulosic biofuels highlighted in *AIChE Chemical & Engineering Progress Magazine* in September Issue (2011, Vol. 107, No. 9) and other social media (<http://greatlakesecho.org/2011/10/26/research-may-strengthen-biofuel-production-from-non-edible-sources/>).
19. Interviewed for press coverage on *J. Phys. Chem. A* journal cover article in 2011 (<http://pubs.acs.org/doi/abs/10.1021/jp203620x>).

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## Service Activities

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### Service to Rutgers University

2023-2024: Faculty Committee Member, Provost's Strategic Task Force on the Life Sciences Alliance

2023-11: Lead Faculty, SOE Freshman Orientation lecture series representing CBE Department. Developed orientation presentation and hands-on demo activity for 8 x 80 min lectures.

2023-ongoing: Supported recruitment of visiting faculty (Anurag Rathore) at CBE Department and launch of a new summer course focused on biopharmaceuticals manufacturing starting in 2023.

2023-ongoing: Co-Organizer (with Dr. Gregory Dignon), CBE Annual Fall/Spring Seminar Series

2020-ongoing: Member, SLAM-Rutgers Strategic Committee for Design of New EP2/CBE building

2015-ongoing: CBE Department Website & Social Media Activities (e.g., Twitter) Committee

2021-2024: Member, CBE Graduate Student Admissions Ad Hoc Review Committee

2021-2022: Chair, CBE Faculty Search Committee

2021-08: Chair, CBE Biochemical Engineering Working Group at Annual CBE Faculty Retreat

2021-03: Member, CBE Representative for Rutgers Giving Day Fund Raising Event for EP2 Building

2020-12: Chair, CBE Department Microsoft Teams Introduction and CBE Channel Launch

2020-2023: Co-Organizer (with Dr. Benjamin Schuster), CBE Annual Fall/Spring Seminar Series

2015-2019: Undergraduate Faculty Advisor for American Institute of Chemical Engineers (AIChE) Rutgers Student Chapter Chem-E-Car Team

2019: Coordinated donations and no-cost loans to Rutgers, together with Dr. Doug Hausner and Dr. Haoran Zhang, of equipment and supplies worth approximately \$450,000 from Agilent, Eppendorf, and Genscript to establish first-of-its-kind biologics manufacturing R&D facility at Rutgers University.

2019-2020: Member, CBE Faculty Search Committee

2019: Invited Ad Hoc Reviewer for Rutgers Vice Chancellor for Research and Innovation Office

2019: Member, CBE-Rutgers Strategic Planning Sub-Committee on CBE/SOE Infrastructure

2018: CBE Committee Member, Graduate Certificate/Concentration in Biochemical Engineering

2017: Speaker, Invited faculty panel speaker at Rutgers Global (GAIA) Grant Symposium on Nov 16th

2017-2018: Chair, Masters Certificate/Concentration in Energy CBE Committee

2017-2018: Chair, CBE Faculty Search Committee

2017: Faculty representative for outreach and support to Chem-E-Car team at AIChE Regional Meeting

2017: Faculty panelist on Engineering & Medicine for admitted Rutgers students

2017: Faculty representative for outreach and representation at NJ Future City Competition

2017: Education and outreach for local NJ high-school students on July 14th, 2017

2017: Faculty representative for CBE outreach, Rutgers Day 2017

2017: Member, SOE Freshman Orientation lecture series representing CBE Department

2017: Organizing tour of research labs for admitted undergraduate students and families

2016: Coordinated donations to Rutgers of equipment and supplies worth approximately \$250,000 from GE Healthcare (Piscataway, NJ).

2016-2017: Member, CBE Faculty Search Committee

2016: Organized a half-day seminar introduction to Chemical Engineering and conducted a hands-on Chem-E-Car design activity for high school students and parents on July 27th, 2016

2016: Organized a half-day seminar introduction to Chemical Engineering and conducted a hands-on Chem-E-Car design activity for pre-engineering summer academy held on Aug 5th, 2016

2016: Faculty representative for CBE outreach, Rutgers Day 2016

2016: Member, CBE Qualifying Exam Committee

2016: Member, CBE-Rutgers Strategic Planning Sub-Committee on Department Infrastructure

2015-2018: Faculty Advisor, CBE Undergraduate Junior Students

2015-2019: Member, CBE Graduate Student Admissions Review Committee

2015-2019: Member, CBE Undergraduate Curriculum Committee

2015-2019: Faculty Advisor, AIChE Rutgers Chapter ChemE Car Team

2015: Judge, CBE Graduate Research Symposium

2015: Member, Masters of Engineering (ME) in Energy Systems CBE Sub-Committee

2015: Member, CBE Qualifying Exam Committee

### **Other Academic Service at Rutgers**

1. Invited CBE department speaker at Rutgers annual SOE Women in Engineering event for ~30 High School Female Students (March 1st, 2019)
2. Invited speaker and guest panelist at Rutgers annual CABLE (Consortium for Advanced Bioeconomy Leadership Education) event on 'Transforming Transportation for a Low-Carbon Future' hosted by Dr. Serpil Guran at Livingston Student Center for ~20 Rutgers Undergraduates (March 7th, 2019)
3. AIChE ChemE Car team faculty co-advisor with Dr. Alex Bertuccio, 2019, 15 advisees per year
4. Introduction to CBE seminar followed by hands-on cellulosic biofuels process design activity for ~45 High School Students as part of 2018 half-day (July 20th) pre-engineering summer academy sponsored by Rutgers University (Division of Continuing Studies)
5. Basic introduction to Foldit online protein modeling/gaming software and 90 mins hands-on training session for volunteer CBE undergraduate students at Rutgers CBE (March 20th 2018)
6. AIChE ChemE Car team faculty advisor, 2018, 15 advisees per year
7. 2017 Introduction to CBE seminar followed by hands-on cellulosic biofuels process design activity for ~45 High School Students as part of 2017 half-day (July 14th) pre-engineering summer academy sponsored by Rutgers University (Division of Continuing Studies)
8. AIChE ChemE Car team faculty advisor, 2017, 15 advisees per year
9. CBE faculty advisor for junior year students, 2017, 119 advisees



10. Introduction to CBE seminar followed by hands-on CBE Rocket-Car design activity, and tour of CBE department for ~50 High School Students and their parents as part of 2016 half-day (July 27th) introduction to engineering summer outreach program sponsored by Rutgers School of Engineering
11. Introduction to CBE seminar followed by hands-on CBE Rocket-Car design activity for ~40 High School Students as part of 2016 half-day (Aug 5th) pre-engineering summer academy sponsored by Rutgers University (Division of Continuing Studies)
12. AIChE ChemE Car team faculty advisor, 2016, 15 advisees per year
13. CBE faculty advisor for junior year students, 2016, 109 advisees
14. AIChE ChemE Car team faculty advisor, 2015, 15 advisees per year

### **Service to Other Public Bodies**

1. 2023: National Science Foundation (NSF) Molecular and Cellular Biosciences (MCB) Program Invited Panel Reviewer
2. 2023: National Science Foundation (NSF) Chemical, Bioengineering, Environmental, and Transport Systems (CBET) Program Invited Panel Reviewer
3. 2023: National Science Foundation (NSF) Chemical, Bioengineering, Environmental, and Transport Systems (CBET) Program Invited Ad Hoc Panel Reviewer
4. 2023: National Science Foundation (NSF) Chemistry (CHE) Program Invited Ad Hoc Panel Reviewer
5. 2022: National Science Foundation (NSF) Chemical, Bioengineering, Environmental, and Transport Systems (CBET) Program Invited Ad Hoc Panel Reviewer
6. 2021: National Science Foundation (NSF) Chemical, Bioengineering, Environmental, and Transport Systems (CBET) Program Invited Panel Reviewer
7. 2020: U.S. Civilian Research and Development Foundation for the Independent States of the Former Soviet Union (CRDF) Global Grant Program Invited Panel Reviewer
8. 2020: National Science Foundation (NSF) Chemical, Bioengineering, Environmental, and Transport Systems (CBET) Program Invited Panel Reviewer
9. 2018: Swedish Research Council (Vetenskapsrådet) Invited Proposal Reviewer
10. 2018: National Science Foundation (NSF) Chemical, Bioengineering, Environmental, and Transport Systems (CBET) Program Invited Panel Reviewer
11. 2015: National Science Foundation (NSF) Chemical, Bioengineering, Environmental, and Transport Systems (CBET) Program Invited Panel Reviewer
12. 2013: Invited Reviewer for Department of Energy (DOE) Small Business Innovation Research and Small Business Technology Transfer Program (SBIR/STTR)
13. 2013: Invited Reviewer for Doctoral Fellowship Program of the Austrian Academy of Sciences
14. 2010: European Research Area Industrial Biotechnology (ERA-IB) Program Invited Proposal Reviewer

### **Rutgers Graduate Program Affiliations**

1. Rutgers Graduate School - New Brunswick, Full Member
2. Rutgers Climate and Energy Institute - New Brunswick, Faculty Member
3. Rutgers Energy Institute - New Brunswick, Faculty Member
4. Rutgers Center for Nutrition, Microbiome, and Health - New Brunswick, Faculty Member
5. Rutgers Graduate Program in Quantitative Biomedicine - New Brunswick, Full Member

6. Rutgers Graduate Program in Biomedical Engineering - New Brunswick, Associate Member
7. Rutgers Graduate Program in Chemical and Biochemical Engineering - New Brunswick, Full Member

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## Other Professional Activities

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### Participation in Organizing or Chairing Conferences, Workshops, and Organizations

1. 2011-ongoing: Chair/Co-chair of the '*Biological Conversions and Processes for Renewable Feedstocks*' session at American Institute of Chemical Engineers (AIChE) Annual Meeting sponsored by the Sustainable Engineering Forum.
2. 2020: Invited virtual panel participant on "*Pharmaceuticals And Bio Technology: Biotherapeutics and Biosimilars (Session V15H1S2)*" moderated by Prof. Anurag Rathore and sponsored by Vaishwik Bharatiya Vaigyanik or VAIBHAV Virtual Summit (Government of India)
3. 2016: Invited panelist/participant on "*Papertronics: Paper-based Electronics for the 21st Century*" hosted by Prof. Aaron Mazzeo and sponsored by NSF in Arlington (VA)
4. 2011: Retreat Planning Committee Area 2 Lead at Department of Energy (DOE) sponsored Great Lakes Bioenergy Research Center Annual Retreat in South Bend (Indiana)

### Academic Journals Peer-Review and Editorial Board Service

#### List of Journals Served to-date as Invited Reviewer (since 2005)

ACS Biochemistry, ACS Catalysis, ACS Nano, ACS Omega, ACS Sustainable Chemistry & Engineering, ACS Synthetic Biology, AIChE Journal, Applied Biochemistry and Biotechnology, Biochemical Engineering Journal, Biomacromolecules, Biomass and Bioenergy, Bioresource Technology, BioResources, Biotechnology Advances, Biotechnology and Applied Biochemistry, Biotechnology for Biofuels, Biotechnology Progress, Carbohydrate Polymers, Cellulose, Chemical and Biochemical Engineering Quarterly, Chemical Reviews, Energy and Environmental Science, Energy and Fuels, Energy, Enzyme and Microbial Technology, Frontiers, Journal of Chemical Technology & Biotechnology, Microbial Cell Factories, Nature Materials, PLoS ONE, Proceedings of the National Academy of Sciences USA, Process Biochemistry, RSC Green Chemistry, Science Advances, The Plant Journal, Wiley Biotechnology and Bioengineering

#### Associate editor (since 2021)

Associate editor for *Frontiers in Molecular Biosciences* journal (Specialty Section: Glycoscience). See journal weblink (<https://www.frontiersin.org/journals/molecular-biosciences/sections/glycoscience>).

#### Review editor (since 2011)

Served as invited review editor for *Frontiers in Energy Research* and *Frontiers in Bioengineering and Biotechnology* journals (Specialty Section: Bioenergy & Biofuels). See journal weblink for responsibilities of review editor (<http://home.frontiersin.org/about/publishing-model>).

List of Open Access Refereed Articles for Frontiers in Energy Research since 2015:

- <https://doi.org/10.3389/fenrg.2021.680313>

- <https://doi.org/10.3389/fenrg.2017.00005>
- <https://doi.org/10.3389/fmars.2017.00293>
- <https://doi.org/10.3389/fenrg.2018.00067>

**Professional Societies Member**

Member of American Chemical Society (ACS)

Member of American Institute of Chemical Engineers (AIChE)

Member of Biophysical Society (BPS)