Deepti Tanjore

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Summary

10+ years' research experience in Method and Process Development in (Bio)Catalysis
Research focus on rheology and mass transfer of suspended solids and its influence on bio-catalysis

Substantial Experience in raising funds through Grant Proposal Writing and Industrial Collaborations
Raised > $1M as a co-author of proposals

Rational Managerial Skills with 4+ years' Mentorship Experience
Managed direct reports and project teams with members from other technical groups

4+ years' experience in collaborating with Industry
Managed Tech Transfer projects and supported Commercialization Efforts (Lab to Pilot Scale studies)

Appointments

Research Scientist, Career – Lawrence Berkeley National Laboratory, CA — Since 2011
Manager of the Fermentation and Recovery labs at AB PDU
Applying Project Management tools to lead R&D and Scale-Up projects
Determining scope of work, performing resource analysis and budgeting, estimating timelines

Postdoctoral Research Scholar – University of California, Riverside, CA — 2009 – 2011
Chemical and Bio- Catalysis for the production of Bio-Jet Precursors
On-Site Technical Consultant to Menon Inc. on Fungal Fermentations for Lipid (TAG)

Instructor – Biological Transport Phenomena (BE 302), Penn State University, PA — Spring 2009

Internships –
Dupont Industrial Biosciences (Formerly Genencor), Palo Alto, CA — Summer 2007
Developed an FT-NIR method to rapidly screen cellulases and obtain real-time kinetics
Hindustan Petroleum Corporation Limited (HPCL), Vizag, AP — Summer 2002

Education

Ph.D. in Biological Engineering, Pennsylvania State University, State College, PA — 2005 – 2009
Fermentation and Biocatalysis: Ligninase and Cellulase Production and application

M.S. in Biological Engineering, North Carolina State University, Raleigh, NC — 2003 – 2005
Minor in Statistics; Vane Method Development for Rheological Property Determination

B. Tech. in Chemical Engineering, Andhra University, Visakhapatnam, India — 1999 – 2003
Minor in Biotechnology; Senior Thesis on Evaluation of Waste Water Treatment Plant

Awards

The 2015 Women @ Lab Award, November 2015, *"for supporting and inspiring women working in STEM"*, 14 out of 1030 women employees at the LBNL were presented the award.

The Berkeley Lab Spot Recognition Award, September 2014, "*for leadership, initiative, and relentless hard work that drove several proposals to fruition at the ABPDU*."

The Physical Biosciences Division Award of Excellence, December 2012, "*for dedicated participation in a team designing a novel reactor for Scale-Up of Heterogeneous Catalytic Reactions of viscous particulate materials*."

The Berkeley Lab Safety Spot Recognition Awards, October 2012, "*in honor of vigilance to unforeseen safety risks along with a sensible solution to the problem."*

The prestigious University Graduate Fellowship, April 2005, *highest award for a graduate student* at Pennsylvania State University, 80 out of 9808 students (99.2th percentile) received the award.

Scholarly Work and Leadership Activities

Grant proposal writing: Experience in soliciting funds from DOE, DARPA, NSF, BRDC, USDA, and LDRD.

Invited Lectures:

1. An overview of renewable sugar sources and their conversion to fuel and chemical products, 2015 Chabot Space and Science Center Guest Lecture Series, Oakland, California
2. Next Generation Biomass Conversion Short Course 2014, Philadelphia, Pennsylvania

Reviewer for peer reviewed journals: *Chemical Soc. Rev.* (Impact Factor-IF: 24.2), *Green Chem.* (IF: 6.7), *RSC Advances* (IF: 3.7), *Cellulose* (IF: 3.1), *Bioresource Tech.* (IF: 5.4), *Analyst* (IF: 3.5), *BioMed. Res. Int.* (IF: 2.9), and *Int. J. of Prod. Research* (IF: 1.46). Reviewed 28 manuscripts to date.

Affiliations: Senior Member of AIChE (American Institute of Chemical Engineers) and Member of SIMB (Symposium of Industrial Microbiology and Biotechnology); previously a member of IBE (Institute of Biological Engineers) and IIChE (Indian Institute of Chemical Engineers)

Session Chairing Activities at International Conferences:

1. SIMB SBFC, 2015: Bioprocessing, Reactor Design, and Separations Technology
2. SIMB Symp. of Biotech. for Fuels and Chemicals (SBFC), 2014: Pretreatment Scale-Up & Industrial Efforts
3. AIChE NorCal Process Development Symposium, 2014: Industrial Case Studies
4. AIChE, 2014: Advances in On-line tools for Pilot Plants
5. AIChE, 2014: Process Intensification by Miniaturization
6. AIChE, 2013: Separation Challenges in Production of Fuels & Chemicals

Patent Applications:

1. Tanjore D, Gardner J, Perry P, and Rasson J. A stirred pressure reactor for aqueous heterogeneous catalysis of particulate mixed biomass at high viscosity. Submitted October 2014.
2. Application in preparation

Committees Served:

Communications Task Force, Biosciences Area, Lawrence Berkeley National Laboratory

Undergraduate Studies Committee, Biological Engineering, Pennsylvania State University

Outreach and Leadership Activities:

CleanTech Open Mentor (2014-15) for Rethink Green Inc, a Start-up Company focused on converting used carpets to fuels and chemicals

Co-founder and President (2006-9) of Two Cents of Hope (TCH - ***www.twocentsofhope.org***), a 501c(3) registered non-profit organization; currently acting as a Chapter Liaison, a position in the Executive Committee

Manager (2006-7) of Pennsylvania State University iGEM (International Genetically Engineered Machine) team that won a gold medal at the iGEM Jamboree organized at MIT

Media

PRNewswire reported "Innovative Microvi Bio-Ethanol Technology Validated at Lawrence Berkeley National Laboratory" on June 24th 2015.

Greencarcongress.com reported "Lygos completed first pilot-scale production of malonic acid from renewable resources at the Berkeley Lab's ABPDU" on March 3rd, 2015.

Biomass Magazine, Greencarcongress.com, and Biofuelsdigest.com noted that the speakers for "Next Generation Biomass Conversion" short course were experts in their respective fields on September-October 2013.

One of my journal paper was mentioned in Biofuelsdigest.com in an article titled "Switchgrass advance: JBEI's ionic liquid pretreatment, enzymatic hydrolysis scales effectively" by Jim Lane, January 16th 2013.

Another journal paper was mentioned:
In Renewable Energy global innovations as a Key Scientific Article in the Bioenergy section by Paul Richards, August 8th 2014 &
In Ethanol Producer Magazine, an article titled "In search of Biomass Storage Solutions" by Jerry W. Kram, January 10th 2008.

Publications and Presentations

***Book Chapters*:**

1. Tanjore D and Richard TL*. A Systems View of Lignocellulosic Hydrolysis. In *Advances in Bioprocess Technology* (Ed. by R. Pogaku), *Springer Series* (2015) 387-419.
2. Tanjore D, Shi J, and Wyman CE*. Dilute Acid and Hydrothermal Pretreatment of Cellulosic Biomass. In *Chemical and Biochemical Catalysis for Next Generation Biofuels* (Ed. by B. A. Simmons), *RSC Energy Series* (2011) 64-88.

Publications in Peer Reviewed Journals:

1. Gardner J, He W, Li C, Wong J, Sale K, Simmons B, Singh S, and Tanjore D*. Calorimetric Evaluation indicates Lignin Conversion to Advanced Biofuels is Vital to improving Energy Yields, *RSC Advances* 5 (2015) 51092.
2. Sun N, Xu F, Sathitsuksanoh N, Thompson VS, Cafferty K, Li C, Tanjore D, Narani A, Pray TR, Simmons BA, and Singh S*. Blending municipal solid waste with corn stover for sugar production using ionic liquid process, *Bioresource Technology* 186 (2015) 200.
3. Li C, Tanjore D, He W, Wong J, Gardner JL, Sale K, Simmons B and Singh S*. Scale-up of Ionic Liquid Based Fractionation of Single & Mixed Feedstocks, *Bioenergy Research* 1939 (2015) 1234.
4. Parreiras LS, Breuer RJ, Narasimhan RA, Higbee AJ, Reau AL, Tremaine M, Qin L, Willis LB, Bice BD, Bonfert BL, Pinhancos RC, Balloon AJ, Uppugundla N, Liu T, Li C, Tanjore D, Ong IM, Li H, Pohlmann EL, Serate J, Withers ST, Simmons BA, Hodge DB, Westphall MS, Coon JJ, Dale BE, Balan V, Keating DH, Zhang Y, Landick R, Gasch AP, Sato TK*, Engineering and two-stage evolution of a lignocellulosic hydrolysate-tolerant Saccharomyces cerevisiae strain for anaerobic fermentation of xylose from AFEXTM pretreated corn stover. *PLoS ONE* 9 (2014) e1074992014.
5. Li C, Tanjore D, He W, Wong J, Gardner JL, Sale K, Simmons B, Singh S*. Scale-up and Evaluation of High Solid Ionic Liquid Pretreatment and Enzymatic Hydrolysis of Switchgrass, *Biotechnology for Biofuels* 6 (2013) 154.
6. Tanjore D, Richard TL*, and Marshall MN. Methods to study laboratory-scale ensilage of lignocellulosic biomass as a storage unit process for biofuel production, *Biomass and Bioenergy* 47 (2012) 125-133.
7. Tanjore D and Daubert CR*. A vane-in-cup approach to measure viscoelastic properties of gelatin gels through torque-time responses from Brookfield YR-I viscometer, *Applied Rheology* 21 (2011) 63172.

Publications in Preparation:

8. Coffman P, McAffrey N, Gardner J, and Tanjore D*. *In-situ* Rheological Measurements to Assess Cellulases for Application on Biomass at High Solids Concentrations. Submitted to *Analytical Chemistry*
9. Tanjore D*, Xing R, Huber GW, and Wyman CE. Both Chemical and Biochemical Processes Improve Conversion of Lignocellulosic Biomass into Bio-Jet Precursors. Prepared for *Energy and Environ. Sci.*
10. Tanjore D*, Li C, Wong J, He W, Gardner J, Sale K, Singh S, and Simmons BA. Varying hygroscopicity of pretreated feedstocks influence enzymatic hydrolysis of low and high solids loading and the prospects of enzyme recycle. Prepared for *Green Chemistry*
11. Narani A, Gardner JL, Coffman P, Yang G, Thomspon V, Keeney K, Gresham G, Pray T, and Tanjore D*. Predictive modeling can de-risk bio-based production. Prepared for *Green Chemistry*
12. Tanjore D*, Li C, He W, Wong J, Gardner J, Sale K, Singh S, and Simmons BA. Rheological properties of Mixed Biomass Types treated with Ionic Liquids at various solids loading. Prepared for *Soft Matter*
13. Narani A, Gardner J, Coffman P, Perry P, Rasson J, Li C, and Tanjore D*. Design and operation of a "T-CuP" reactor for scale-up of aqueous phase heteregenous catalytic reactions. Prepared for *Chemical Eng Journal*
14. Tanjore D, Richard TL*, and Marshall MN. Process Intensification of Lignocellulosic Biomass Hydrolysis by *in-situ* Cellulase production and application under unsterile conditions. Prepared for *App Micr and Biochem*
15. Tanjore D, Richard TL*, and Marshall MN. Modeling an anaerobic/aerobic fermentation system with *P. ostreatus* and *T. reesei* for lignin and cellulose depolymerization. Prepared for *Bioresource Technology*

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Oral Presentations:

1. SIMB SBFC 2015: *As a corresponding author*, "Predictive modeling can de-risk bio-based production."
2. SIMB SBFC 2015: *As a co-author*, "Impact of municipal solid waste paper mix as a blending agent on enzymatic hydrolysis and acidolysis."
3. SIMB SBFC 2015: *As a co-author*, "Scale-up and process integration of sugar production by acidolysis of single and mixed feedstocks in ionic liquids"
4. SIMB SBFC 2014: "*In-Situ* Rheometry to Assess Cellulases for Application on Enzymatic Hydrolysis of Biomass at High Solids Concentration."
5. AIChE Annual Meeting, 2013: "*In-Situ* Rheometry to Identify Mass Transfer Issues in Enzymatic Hydrolysis of Biomass at High Solids Concentration."
6. AIChE Annual Meeting, 2010: "Aqueous Processing of Lignocellulosic Biomass to Reactive Intermediates for Biological and Catalytic Conversion to Liquid Fuels and Other Products."
7. AIChE Annual Meeting, 2008: "Improving the Quality of Corn Stover Biomass through Biological Pretreatments."
8. IBE, 2008: "Controlled Growth of Filamentous Fungi along with Ensiled Storage of Corn Stover Biomass."
9. Sun Grant 2008, North East Conference: "Engineering Biological Pretreatments to Improve Corn Stover Biomass Quality."
10. IIChE ChemCon (Annual Meeting), 2002: "Efficiency of Wastewater Treatment Plant – A Case Study."

Poster Presentations:

1. SIMB SBFC 2015: *As a co-author*, "Blending municipal solid waste with corn stover for sugar production using ionic liquid process."
2. BERC Energy Summit 2014: *As a corresponding author*, "Predictive modeling can de-risk bio-based production."
3. SIMB SBFC 2013: "Resolving Process Scale-Up Issues of Ionic Liquid Pretreatment and Saccharification of Biomass to Monomeric Sugars."
4. SIMB SBFC 2011: "A Semi-Continuous Solids Pretreatment Method to Improve Cellulosic Hydrolysis at Low Enzyme Loading."
5. SIMB SBFC 2009: "Biological Pretreatments of Corn Stover for Ethanol Production."
6. SIMB SBFC 2007: "Pretreatment Effects of White-Rot Fungi during Ensiled Storage of Corn Stover Biomass."
7. ASABE (American Society of Agricultural and Biological Engineers), 2006: "Effects of Freezing, Drying, and Refrigerated Preservation on Subsequent Ensilage of Corn Stover Biomass."
8. IFT (Institute of Food Technologists), 2005: "Viscoelastic Property Determination: A New Application for Brookfield Viscometers."

Operational Skill-Set

Rheology: Brookfield YR-I viscometer, Instron Testing Machine, and Bohlin, ATS, DSR, TA Stress Controlled, and Malvern Kinexus Rheometers.

Recovery and Separations: 2L Karr Column, GE Akta Avant Preparative Chromatography, 10L Cogent Tangential Flow Filtration

Software (in the order of proficiency): JMP, SAS, Stella, Sigmaplot, ASPEN Tech, LabVIEW, C, Minitab, ImageJ, and ANSYS. Also, FileMaker Pro through SeedCode for Project Management and Microsoft Sharepoint

Analytical Equipment: Dionex, Waters, and Agilent HPLC, Agilent GC/MS 5973, Nitrogen and Total Organic Carbon (TOC) Analyzer, Coy Anaerobic Chamber, and Bruker MPA FTIR and Tensor spectrometers (NIR and MIR with plate reader)

Molecular Biology Basic Techniques: DNA extraction, purification, transformation, PCR; Protein purification methods, SDS- PAGE Gel Electrophoresis, Tissue culture, Southern, northern, and western blotting, and Phase, DIC, and Fluorescence microscopy

Fermentation Equipment: Sarotorius liquid fermenter (2 liters) and Bioengineering Reactors (3.7 liters)

Catalytic Scale-Up Reactors: 2 and 50L IKA, 1 and 10L Parr, and 210L customized reactors

Wet Chemistry Tests: NREL LAPs, ANKOM Fiber (NDF, ADF, and ADL), Acetyl Bromide Lignin, BCA protein, and Reducing Sugar determination (DNS, TFA, and phenol-sulfuric acid) methods