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Education

Ph.D.	Agricultural Engineering (<i>Food and Bioprocess Engineering</i>)	University of Illinois at Urbana-Champaign <i>Dec 2006</i>
M.Tech.	Food and Agricultural Engineering (<i>Dairy and Food Engineering</i>)	Indian Institute of Technology, Kharagpur, India <i>Jan 2003</i>
B.Tech.	Agricultural Engineering	North Eastern Hill University, Shillong, India <i>June 2001</i>

Professional Affiliations

- **Assistant Professor**, Biological and Ecological Engineering, Oregon State University; January, 2007 to Present
- **Adjunct Assistant Professor**, Molecular and Cellular Biology, Oregon State University; January, 2010 to Present
- **Graduate Research Assistant**, Agricultural and Biological Engineering, University of Illinois at Urbana-Champaign; August, 2003 to December, 2006
- **Graduate Scholar**, Food and Agricultural Engineering, Indian Institute of Technology, Kharagpur, India; July, 2001 to January, 2003

Peer Reviewed Publications

1. Murthy, G.S., Rausch, K.D., Johnston, D.B., Tumbleson, M.E., and Singh, V. 2011. Effects of maize harvest moisture content and postharvest drying temperature on dry grind ethanol production. *J. Agril Engineering*. (Submitted)
2. Dalton, D.A., Murthy, G.S. and Strauss, S.H. 2011. Production of traditional and novel biopolymers in transgenic woody plants. *Rec. Adv. Phytochem.*(Accepted)
3. Kumar, D. and Murthy, G.S. 2011. Life cycle assessment of ethanol production from grass straws using various pretreatment processes. *Intl. J. LCA*.doi:10.1007/s11367-011-0376-5
4. Juneja, A., Kumar, D., Williams, J.D., Wysocki, D.W. and Murthy, G.S. 2011. Analysis of biomass from CRP lands for ethanol production in Pacific Northwest US. *J Renewable and Sustainable Energy*. 3:63102 doi:10.1063/1.3658399
5. Murthy, G.S., Rausch, K.D., Johnston, D.B., Tumbleson, M.E., and Singh, V. 2011. Design and evaluation of an optimal controller for simultaneous saccharification and fermentation process. *Appl. Biotechnol. Biochem*.doi:10.1007/s12010-011-9406-9
6. Murthy, G.S., Rausch, K.D., Johnston, D.B., Tumbleson, M.E., and Singh, V. 2011. A simultaneous saccharification and fermentation model for dynamic growth environments. *Bioprocess Biosys. Eng*.doi:10.1007/s00449-011-0625-9

7. Kumar, D. and Murthy, G.S. 2011. Impact of pretreatment and downstream processing technologies on economics, energy and water use in cellulosic ethanol production. *Biotechnol. Biofuels.* 4:27 doi:10.1186/1754-6834-4-27
8. Kumar, D., Prasad, S. and Murthy, G.S. 2011. Microwave assisted hot air drying of okra. *J. Food Sc. and Technol.* doi:10.10007/s13197-011-0487-9
9. Murthy, G.S., Rausch, K.D., Johnston, D.B., Tumbleson, M.E., and Singh, V. 2011. Scaleup and industrial evaluation of a dynamic controller for simultaneous saccharification and fermentation of corn. *Ind. Biotechnol.* 7:298-307.
10. Murthy, G.S., Rausch, K.D., Johnston, D.B., Tumbleson, M.E., and Singh, V. 2011. Starch hydrolysis modeling: Application to fuel ethanol Production. *Bioprocess Biosys. Eng.* 34:879-890.
11. Kumar, D. and Murthy, G.S. 2011. Pretreatments and enzymatic hydrolysis of grass straw for ethanol production in Pacific Northwest US. *Biological Eng.* 3:97-110.
12. Sanders, K. and Murthy, G.S. 2010. Life cycle analysis of algae biodiesel. *Intl. J. LCA.*15:704-714.
13. Murthy, G.S., Sall, E.D., Metz, S.G., Foster, G., and Singh, V. 2009. Fermentation of degermed and debraned corn from different hybrids in dry grind process. *Ind. Crops and Products.* 29:67-72.
14. Martinez-Amezuga, C., Parsons, C.M., Singh, V., Srinivasan, R., and Murthy, G.S. 2007. Nutritional characteristics of corn distillers dried grains with solubles as affected by amounts of grains versus solubles and different processing techniques. *Poultry Sci.* 86:2624-2630.
15. Murthy, G.S., Rausch, K.D., Johnston, D.B., Tumbleson, M.E., and Singh, V. 2006. Evaluation and strategies to improve fermentation characteristics of modified dry grind corn processes. *Cereal Chem.* 83:455-459.
16. Murthy, G.S., Singh, V., Johnston, D.B., Rausch, K.D., and Tumbleson, M.E. 2006. Improvement in fermentation characteristics of degermed corn flour by lipid supplementation. *J. Ind. Microbiol. Biotechnol.* 33:655-660.
17. Murthy, G.S., Townsend, D.E., Meerdink, G.L., Bargren, G.L., Tumbleson, M.E., and Singh, V. 2005. Effect of aflatoxin B1 on dry grind ethanol process. *Cereal Chem.* 82:302-304.

Proceedings, Abstracts and Presentations

Proceedings

1. Murthy, G.S., Rausch, K.D., Johnston, D.B., Tumbleson, M.E., and Singh, V. 2011. Industrial evaluation of a dynamic controller for simultaneous saccharification and fermentation process. *Intl. Starch Technol. Conference.* Urbana, IL.
2. Avanasani, R. and Murthy, G.S. 2010. Hemicellulose fermentation by industrial yeast *Saccharomyces cerevisiae*. ASABE Paper No. 1009508. ASABE, St. Joseph, MI.
3. Avanasani, R., Murthy, G.S. and Chaplen, F.R. 2010. A flux balance based approach of hemicellulose fermentation to ethanol by industrial yeast *Saccharomyces cerevisiae*. ASABE Paper No. 1009509. ASABE, St. Joseph, MI.
4. Murthy, G.S. and Sander, K. 2010. Algal biofuels modeling and life cycle assessment. ASABE Paper No. 1009151. ASABE, St. Joseph, MI.
5. Joshi, C.J., Chaplen, F.R. and Murthy, G.S. 2010. Modeling lipid and carbohydrate distribution in green algae, using constraints-based modeling. ASABE Paper No. 1009926. ASABE, St. Joseph, MI.
6. Abourached, C., Murthy, G.S. and English, M. 2010. Treatment of different wastewater sources by algae. ASABE Paper No. 1009926. ASABE, St. Joseph, MI.

7. Kumar, D. and Murthy, G.S. 2010. Effect of grass straw composition and pretreatment processes on ethanol yields in Pacific Northwest US. ASABE Paper No. 1008751. ASABE, St. Joseph, MI.
8. Murthy, G.S, Kumar, D., Strauss, S.H., Dalton, D. and Vinocur, J. 2010. Extraction Analysis of Poly- β -Hydroxybutyrate (PHB) from hybrid poplar leaves. ASABE Paper No. 1009380. ASABE, St. Joseph, MI.
9. Avanasani, R., Murthy, G.S. and Chaplen, F.R. 2009. Consolidated bioprocessing of corn pericarp using *Eubacterium cellulosolvens*. Abstract No. 095956 ASABE, St. Joseph, MI.
10. Sanders, K. and Murthy, G.S. 2009. Enzymatic degradation of algae cells for production of biofuels. Abstract No. 096054 ASABE, St. Joseph, MI.
11. Miller, W. and Murthy, G.S. 2009. Evaluation of reed canary grass, annual ryegrass, wheat straw, corn cobs, corn pericarp, and waste newspaper feed stocks for cellulosic ethanol production. Abstract No. 096302 ASABE, St. Joseph, MI.
12. Abourached, C., Murthy, G.S. and English, M. 2009. Purification of wastewater by algae for reuse in irrigation. Abstract No. 090043 ASABE, St. Joseph, MI.
13. Murthy, G.S. and Hackleman, D. 2008. Beyond cellulosic biofuels. Oregon Tilth.
14. Murthy, G.S. and Schnekenburger, R. 2008. Design and evaluation of internally illuminated photobioreactors for algae production. ASAE Abstract No. 085122 ASABE, St. Joseph, MI.
15. Miller, W. and Murthy, G.S. 2008. Gorse: Prospecting for valuable products in an invasive weed. ASAE Paper No. 084559. ASABE, St. Joseph, MI.
16. Murthy, G.S. and Vales, I. 2008. Consolidated bioprocessing of novel feedstocks for natural colors (anthocyanin) and ethanol production. Abstract No. 084560. ASABE, St. Joseph, MI.
17. Murthy, G.S., Singh, V., Medanic, J.V., Rausch, K.D., Johnston, D.B., and Tumbleson, M.E. 2006. Mathematical modeling of enzymatic hydrolysis of starch: application to fuel ethanol production. ASAE Paper No. 066229. ASABE, St. Joseph, MI.
18. Murthy, G.S., Singh, V., Rausch, K.D., Johnston, D.B., and Tumbleson, M.E. 2006. Effect of B vitamin and lipid supplementation in improving fermentation characteristics of modified dry grind process: Applications to high gravity fermentations. ASAE Paper No. 066067. ASABE, St. Joseph, MI.
19. Murthy, G.S., Johnston, D.B., Rausch, K.D., Tumbleson, M.E., and Singh, V. 2005. Strategies to improve fermentation characteristics of degermed corn flour. ASAE Paper No. 057048. ASAE, St. Joseph, MI.
20. Murthy, G.S., and Prasad, S. 2005. A completely coupled model for microwave heating of foods in microwave oven. ASAE Paper No. 056062. ASAE, St. Joseph, MI.
21. Murthy, G.S., and Singh, V. 2005. Effect of harvest moisture content and drying temperature on the extractable and fermentable corn starch. ASAE Paper No. 057017. ASAE, St. Joseph, MI.
22. Murthy, G.S., Rausch, K.D., Johnston, D.B., Tumbleson, M.E., and Singh, V. 2004. Effect of corn endosperm hardness on different stages of dry grind corn process. ASAE Paper No. 046063. ASAE, St. Joseph, MI.
23. Singh, V., Murthy, G.S., Graeber, J.V., and Tumbleson, M.E. 2004. Grain quality issues related to corn dry grind processing. Panel discussion on management approaches to meet customer needs for quality grains - End user and processor perspective. Proc. Intl. Quality Grains Conf., P. 6. Indianapolis, IN.

Abstracts

1. Juneja, A., Kumar, D. and Murthy, G.S. 2012. Microwave assisted steam explosion pretreatment of wheat straw for ethanol production. ASABE, St. Joseph, MI. (Submitted)
2. Kumar, D. and Murthy, G.S. 2012. Stochastic modeling of enzymatic hydrolysis of cellulose for ethanol production. ASABE, St. Joseph, MI. (Submitted)
3. Kumar, D., Juneja, A., William Hohenschun, John D. Williams and Murthy, G.S. 2012. Study of chemical composition of lignocellulosic feedstocks from different sites of conservation reserve program lands. ASABE, St. Joseph, MI. (Submitted)
4. William Hohenschun, Kumar, D., Ronald Hector and Murthy, G.S. 2012. Strategies to maximize pentose utilization in genetically modified yeast strains. ASABE, St. Joseph, MI. (Submitted)
5. Singh, V., Murthy, G.S., Tumbleson, M.E. and Rausch, K.D. 2012. Effects of maize harvest moisture content and postharvest drying temperature on the dry grind ethanol production. ISAE Annual Meeting. (Submitted)
6. Juneja, A. and Murthy, G.S. 2011. Effect of light cycles on algae growth rate. ASABE Abstract No.1111056. ASABE, St. Joseph, MI.
7. Kumar, D. and Murthy, G.S. 2011. Life cycle analysis of ethanol production from perennial ryegrass straw in Pacific Northwest US. ASABE Abstract No.1111032. ASABE, St. Joseph, MI.
8. Murthy, G.S. and Kumar, D. 2011. Control of enzymatic hydrolysis of cellulose for ethanol production using a kinetic model. ASABE Abstract No.1111039. ASABE, St. Joseph, MI.
9. Kumar, D. and Murthy, G.S. 2011. Process model of ethanol production from grass straws using dilute acid pretreatment. ASABE Abstract No.1111104. ASABE, St. Joseph, MI.
10. Murthy, G.S. and Avanasani, R. 2011. Effect of furfural and higher inoculum on hemicellulose fermentation and a dynamic flux balance analysis. ASABE Abstract No.1111208. ASABE, St. Joseph, MI.
11. Juneja, A., Kumar, D. and Murthy, G.S. 2011. Composition analysis of mixed species of grass straws from CRP lands. ASABE Abstract No.1111035. ASABE, St. Joseph, MI.
12. Kumar, D., Prasad, S. and Murthy, G.S. 2011. Optimization of process parameters of microwave-convective drying of Okra using response surface methodology. ASABE Abstract No.1111033. ASABE, St. Joseph, MI.
13. Kumar, D. and Murthy, G.S. 2010. Effect of pretreatment processes on hydrolysis yield from grass straws in Pacific Northwest US. Oregon BEST. Portland, OR.
14. Avanasani, R., Murthy, G.S. and Chaplen, F.R. 2010. Flux balance analysis of pentose fermentation to ethanol by *Saccharomyces cerevisiae*. Oregon BEST. Portland, OR.
15. Murthy, G.S., Kumar, D., Strauss, S.H., Dalton, D. and Vinocur, J. 2010. Feasibility Analysis of Poly- β -Hydroxybutyrate (PHB) Extraction from Hybrid Poplar Leaves. Oregon BEST. Portland, OR.
16. Prindle, C.J. and Murthy, G.S. 2010. Life cycle analysis of cellulosic ethanol from wheat straw in the Pacific Northwest US. S1041 Multistate Meeting. Philadelphia, PA.
17. Avanasani, R., Murthy, G.S. and Chaplen, F.R. 2010. A flux balance based approach of hemicellulose fermentation to ethanol by industrial yeast *Saccharomyces cerevisiae*. S1041 Multistate Meeting. Philadelphia, PA.
18. Abourached, C. and Murthy, G.S. 2010. Treatment of different wastewater sources by algae for water reuse in irrigation. NWSA Seattle, WA.

19. Sander, K. and Murthy, G.S. 2010. Modeling algae growth in a novel open pond design. NNAS Seattle, WA.
20. Prindle, C.J. and Murthy, G.S. 2009. Life cycle analysis of cellulosic ethanol from wheat straw in the Pacific Northwest US. Oregon BEST. Portland, OR.
21. Miller, W. and Murthy, G.S. 2009. Cellulosic ethanol from seven Northwest feedstocks. Oregon BEST. Portland, OR.
22. Abourached, C., Murthy, G.S. and English, M. 2009. Purification of wastewater by algae for reuse in irrigation. Oregon BEST. Portland, OR.
23. Murthy, G.S. 2007. Biofuels productions in Pacific Northwest: Opportunities and challenges. Abstract No. 26. Fourth International Starch Technology Conference. Urbana, IL.
24. Murthy, G.S., Singh, V., Medanic, J.V., Johnston, D.B., Rausch, K.D., and Tumbleson, M.E. 2006. Dynamic control of the fermentation in the dry grind corn processing. Abstract No. 26. Proc. Corn Util. Technol. Conf. (Tumbleson, M.E., ed.) P. 155. NCGA, St. Louis, MO.
25. Murthy, G.S., Singh, V., Rausch, K.D., Johnston, D.B., and Tumbleson, M.E. 2006. Strategies to improve fermentation characteristics of degermed corn flour: Effect of yeast strain and addition of proteases. Abstract No. 27. Proc. Corn Util. Technol. Conf. (Tumbleson, M.E., ed.) P. 157. NCGA, St. Louis, MO.
26. Murthy, G.S., Singh, V., Rausch, K.D., Johnston, D.B., and Tumbleson, M.E. 2006. Mathematical modeling of enzymatic hydrolysis of starch: Application to fuel ethanol production. Abstract No. 28. Proc. Corn Util. Technol. Conf. (Tumbleson, M.E., ed.) P. 156. NCGA, St. Louis, MO.
27. Murthy, G.S., and Singh, V. 2005. Improvement in fermentation characteristics of degermed corn flour by lipid supplementation. Abstract No. P10. Proc. Soc. Ind. Microbiol. Conf. P. 11. Chicago, IL.
28. Murthy, G.S., Townsend, D.E., Meerdink, G.L., Bargren, G.L., Tumbleson, M.E., and Singh, V. 2005. Fate of aflatoxin B1 in dry grind ethanol process. Abstract No. 1313. The Toxicologist 84(S-1). New Orleans, LO.
29. Murthy, G.S., and Singh, V. 2005. Lipid supplementation improved fermentation characteristics of degermed corn flour. Abstract No. 97. Proc. AACC, P. 91. St. Paul, MN.
30. Murthy, G.S., Townsend, D.E., Meerdink, G.L., Bargren, G.L., Tumbleson, M.E., and Singh, V. 2005. Distribution of aflatoxin B1 in dry grind corn process streams and its effects on fermentation. Abstract No. C-105. AOAC Intl. Midwest Section Prog. P. 64. Kansas City, MO.
31. Murthy, G.S., Johnston, D.B., and Singh, V. 2004. Comparison of dry and wet milling degerm and defiber processes for ethanol production. Abstract No. 97. Proc. AACC, P. 82. St. Paul, MN.
32. Murthy, G.S., Townsend, D.E., Meerdink, G.L., Bargren, G.L., Tumbleson, M.E., and Singh, V. 2004. Effect of aflatoxin B1 on dry grind ethanol production. Abstract No. 1. In: Proc. Corn Util. Technol. Conf. (Tumbleson, M.E., ed.) NCGA, St. Louis, MO
33. Murthy, G.S., Rausch, K.D., Johnston, D.B., Tumbleson, M.E., and Singh, V. 2004. Effect of endosperm hardness on ethanol yields. Abstract No. 2. In: Proc. Corn Util. Technol. Conf. (Tumbleson, M.E., ed.) NCGA, St. Louis, MO.

Invited Presentations

1. Murthy, G.S. and Kumar, D. 2011. Impact of pretreatment and downstream processing technologies on economics, energy and water use in cellulosic ethanol production. Oregon BEST. Portland, OR.

2. Murthy, G.S. 2011. Life cycle analysis of cellulosic ethanol. *New Phytologist*. INRA, Nancy, France.
3. Murthy, G.S. and Kumar, D. 2011. Impact of pretreatment and downstream processing technologies on economics, energy and water use in cellulosic ethanol production. *Intl. Starch Technol. Conference*. Urbana, IL.
4. Murthy, G.S. 2010. Energetic and environmental impact assessment of algae biofuels production processes. *BIO Pacific Rim Conference*. Honolulu, HI.
5. Murthy, G.S. 2010. Overview of cellulosic and algal biofuels. *Indian Institute of Technology, Kharagpur, India*.
6. Murthy, G.S. 2010. Overview of second and third generation biofuels. *NERIST, Nirjuli, India*.
7. Murthy, G.S. 2009. Overview of challenges in Life Cycle Analysis. *Bioenergy Workshop*. Oregon State University, Corvallis, OR.
8. Murthy, G.S. 2009. Overview of microalgae harvesting and processing technologies. *Algae Workshop*. Oregon State University, Corvallis, OR.
9. Murthy, G.S. 2009. Overview of second and third generation biofuels. *Indian Institute of Technology, Kharagpur, India*.
10. Murthy, G.S. 2008. An overview of corn ethanol production technologies. *International workshop*, Yeungnam University.
11. Murthy, G.S. 2008. An overview of second and third generation biofuels. *Gyeongsangbuk-do Forest and Environment Research Institute*.
12. Murthy, G.S. 2008. Rising food and energy prices: US food policy at cross roads. *Corvallis, OR*.
13. Murthy, G.S. 2007. Sustainable technologies for liquid biofuels. *Indian Institute of Technology, Kharagpur, India*.
14. Murthy, G.S. 2007. Sustainable technologies for algae biodiesel production. *Corvallis Benton Chamber Coalition*. Corvallis, OR.
15. Murthy, G.S., Singh, V., Rausch, K.D., Medanic, J., Johnston, D.B., and Tumbleson, M.E. 2007. Dynamic controller for simultaneous saccharification and fermentation process: Application to fuel ethanol production. *International Starch Technology Conference*. Urbana, IL.
16. Murthy, G.S. 2007. Biobased products and fuels in the western region. *Harvesting Energy Summit 2007*. Salt Lake City, UT.
17. Murthy, G.S. 2007. Biofuels in Oregon: Challenges and opportunities. *Oregon Institute of Technology*. Klamath Falls, OR.
18. Murthy, G.S. 2006. Fuel ethanol technology in India: Challenges and opportunities. *Maharana Pratap University of Agriculture and Technology, Udaipur, India*.
19. Murthy, G.S. 2006. Development of a controller for fermentation in the dry Grind corn process. *Indian Institute of Technology, Kharagpur, India*.
20. Murthy, G.S., Johnston, D.B., Singh, V., Rausch, K.D., and Tumbleson, M.E. 2006. Effect of yeast strain and protease addition on modified dry grind process. *Eastern Regional Research Center, USDA, Wyndmoor, PA*.
21. Murthy, G.S. 2006. Dynamic controller for simultaneous saccharification and fermentation process: Application to fuel ethanol production. *Golden Triangle Energy Cooperative, Craig, MO*.

22. Murthy, G.S., Johnston, D.B., Singh, V., Rausch, K.D., and Tumbleson, M.E. 2004. Effect of aflatoxin B1 on dry grind ethanol process. Eastern Regional Research Center, USDA, Wyndmoor, PA.

Book Chapters

1. Murthy, G.S. 2011. Overview and assessment of algal biofuels production technologies. In book: New generation biofuels: Feedstocks and process development. Eds. Pandey, A., Larroches, C., Ricke, S.C. and Dussap, C.G.
2. Kumar, D., Tiwari, G. and Murthy, G.S. 2012. Microwave and radio frequency heating of food products: Fundamentals, modeling and applications. (Under Preparation).

Patent and invention disclosure

- **Patent: A dynamic optimal controller for control of fermentation processes. Office of technology management, University of Illinois at Urbana-Champaign.** US Patent No: 7,862,992. Issued 4th January, 2011.

This technology has been successfully tested in two commercial dry grind corn plants.

- **Invention disclosure: A design of internally illuminated photobioreactor and efficient processing technologies for algae biodiesel production. Technology transfer office, Oregon State University.**

A photobioreactor design, a process to recover algae and technology that combines algae oil extraction with ethanol production process.

Teaching Experience

Course and Curriculum Development

- Advanced bioproduct systems: Feedstocks (BEE 690) (Winter 2008, Fall 2008).
- Advanced bioproduct systems: Ethanol production (BEE 693) (Spring 2008).
- Bioprocess control systems (BEE 585) (Spring 2009,2010).
- Biofuel feedstocks and production (BEE 499) (Fall 2009, Winter 2011, Winter 2012).
- Ecological engineering design I (BEE 469) (Fall 2009, 2010, 2011).
- Ecological engineering design II (BEE 470) (Winter 2010,2011, 2012).
- Biofuels overview (Fall 2009). URL:

http://stl.bee.oregonstate.edu/Biofuels_pachyderm/index.html

Other Instruction Related Activities

- Saturday Academy Apprenticeship in Science and Engineering (ASE) program is a highly effective eight week intensive research experience for high school students. Our lab has trained three students in 2010 and 2011. One of the students who worked in our laboratory during Summer, 2011 has been accepted to Yale for undergraduate degree.
- SESEY Program: The SESEY is one week intensive program to provide exposure to traditionally underrepresented students to science and engineering. The student presented her work at a poster presentation after the conclusion of the program. Participated in SESEY program (2009-2011) and mentored four students.

- Mentoring School Students: Mentored two middle school and high school students from Portland area in their school science projects. One of the students Ms. Meghana Rao working on algal biofuels project, won first place in her category at North West Science Expo (2008), award from navy and best of the fair out of 288 projects.

Other Scholarship and Creative Activities

- Algae Institute: In collaboration with Drs. Jan Auyong and Craig Marcus, I formed the three member core group at OSU that initiated discussions into formation of an algae centre of excellence at OSU with regional focus. We organized two algae institute workshops at OSU and brought together a group of over 30 professionals from the region. The efforts led to submission of one collaborative proposal (not funded) with NETL to US DOE. We are currently initiating discussions with potential collaborators for submission of a proposal to AFRI USDA.
- Sustainable Technologies Laboratory: Sustainable Technologies Laboratory in BEE Department was started by Dr. Murthy with a vision to develop environmentally benign and sustainable bioprocess technologies for processing renewable bioresources. Utilizing a combination of start up funds and grants, the laboratory was equipped with HPLC, CHN Elemental analyzer, water baths, fermenters, photobioreactors, 1200 L algae pond and other miscellaneous equipment.
- Commercialization of Technology: A patent was filed (US Patent Application No: 20080064022) for the Dynamic Controller technology developed by Dr. Murthy at Univ. of Illinois. Since the technology was developed on a 15L laboratory scale, in collaboration with Drs. Vijay Singh, Tumbleson and Rausch, the technology was demonstrated in an industrial setting scale to prove the concept. A research and demonstration license was obtained by World Wide Bioenergy for investigating commercialization potential. Industrial trials were conducted in a commercial plant in Missouri at 1,200,000 L scale over a period of five months (March- June, 2007). Dr. Murthy led the team in installing the dynamic controller system and trained the operators who operated it for over four months. The technology demonstration was successful and resulted in direct savings of \$130,000 in savings per year for a 40 mgpy without affecting the process performance. Initial investment to modify existing plants to use the current technology was under \$15,000. After the successful trial, the technology licensor, World Wide Bioenergy partnered with Trident Technologies, a control systems company that develops control systems for commercial dry grind corn ethanol plants. The software developed by Dr. Murthy was integrated into a commercial package and installed in a 40 mgpy ethanol plant in Iowa. The technology transfer was complete as the licensee and their technology partner installed the dynamic controller and tested successfully in the plant.
- Business Project Competitions: Partnered (non-commercial) with Mr. Ravikiran Yekula and Mr. Baijnath Ramraika graduates from Virginia Tech, Darden School of Business and won several competitions for an algae based water treatment technology business plan (<http://www.clean-india.com/index.html>). This team won several awards for best combination of business plan and technology.
- Biofuels Overview: Attended a workshop on using Pachyderm, a multimedia authoring tool in May, 2009 sponsored by College of Agricultural Sciences. Developed a biofuels over view application. The objective of the project was to develop a self learning tool that could be used in undergraduate teaching and educating general public. The "biofuels overview" is available at (http://stl.bee.oregonstate.edu/Biofuels_pachyderm/index.html).

Awards and Honors

- Graduate Fellowship, University of Illinois (2004-2005, 2005-2006).
- Gamma Sigma Delta professional development award (2006).

- First place, poster competition at CUTC-2006, Dallas, TX (2006).
- American Association of Cereal Chemists International, Anheuser Busch/Campbell Taggart Endowment Fellowship (2006).
- American Association of Cereal Chemists International, Milling and Baking Division M. Rella Dwyer Graduate Fellowship (2005).
- An Incomplete List of Teachers Ranked as Excellent: Fall 2004 (ABE 499).
- Third prize, product development competition, AACC/TIA 2004 annual meeting, San Diego, CA (2004).
- Travel Award, AACC-Process and Engineering Division (2004, 2005).
- Gamma Sigma Delta, inducted 2006.
- Alpha Epsilon, inducted 2004.
- Graduate Scholarship, Ministry of Human Resources Development, Government of India (2001-2003).
- Best Masters' Thesis award, Indian Institute of Technology, Kharagpur, India (2003).
- Summer Research Fellowship, Indian Academy of Sciences, Bangalore, India (2001).
- Gold medal, best academic performance in undergraduate studies, North Eastern Hill University, Shillong, India (2001).

Professional Society Activities and Service

- Chair, Perspectives on Indo-US collaboration projects, Invited Session, ASABE Annual International Meeting (2010,2011).
- President, Association of Agricultural, Biological and Food Engineers of Indian Origin, ASABE. (2011-2012).
- Vice president, Association of Agricultural, Biological and Food Engineers of Indian Origin, ASABE. (2009, 2010).
- Session Organizer, Bioprocessing for value added coproducts. (2008-2012).
- Member, Western Sun Grant Director Search Committee (2011)
- Member, College of Agriculture and Life Sciences, Interim Dean Search Committee (2008).
- Chair, Graduate Committee, Biological and Ecological Engineering, Oregon State Univ. (2008-2011).
- Member, American Society of Agricultural and Biological Engineers (ASABE) (Since 2004).
- Member, Psychological Society of America (PSA) (Since 2011).
- Member, American Association of Cereal Chemists International (AACC International) (2004-2006).
- Reviewer, Grant review panel. National Science Foundation (2007-2012).
- Reviewer, Grant review panel. USDA (2011, 2012).
- Reviewer, NC Sun Grant Center (2009).
- Member, W505, Western States Algae Biofuels and Biotechnology Initiative (2010-2012)
- Member, S1041 The science and engineering for a biobased industry and economy (2010-2012).

- Member, NC 506 Sustainable corn refining systems (2007, 2008, 2009).
- Reviewer (reviewed more than 50 manuscripts), Transactions of the ASABE, Letters in Applied Microbiology, Biotechnology Progress, Bioresource Technology, Biotechnology and Bioengineering, Biosystems Engineering, Cereal Chemistry, Environmental Science and Technology, Food and Bioproducts Engineering, Journal of Biotechnology, Journal of Microencapsulation, Journal of Food Process Engineering, International Journal of Molecular Sciences, Applied biochemistry and biotechnology, Transactions of ISAE, Environmental Science and Technology, Applied Energy, National Sciences and Engineering Research Council of Canada, Waste Management (2007-2011).
- Vice chair, student division, AACCC International (2005).
- Student member, Gamma Sigma Delta and Alpha Epsilon Honor society

Outreach Activities

- Active collaboration with University of Illinois and World Wide Bioenergy to commercialize dynamic controller technology for fuel ethanol production.
- Presentations and demonstrations on sustainable biofuel technologies to middle and high school students from different Oregon school districts.

Collaborators and Other Affiliations

- **Collaborators (last 48 months)**
 - Dr. Vijay Singh, Agricultural and Biological Engineering, Univ. of Illinois at Urbana-Champaign.
 - Dr. Kent Rausch, Agricultural and Biological Engineering, Univ. of Illinois at Urbana-Champaign.
 - Prof. M.E. Tumbleson, Agricultural and Biological Engineering, Univ. of Illinois at Urbana-Champaign.
 - Dr. Frank Chaplen, Biological and Ecological Engineering, Oregon State University.
 - Dr. Roger Ely, Biological and Ecological Engineering, Oregon State University.
 - Dr. Hong Liu, Biological and Ecological Engineering, Oregon State University.
 - Dr. Marshall English, Biological and Ecological Engineering, Oregon State University.
 - Dr. Isabel Vales, Crop and Soil Sciences, Oregon State University.
 - Dr. David Hannaway, Crop and Soil Sciences, Oregon State University.
 - Dr. Jan Auyong, Western Sun Grant Center, Oregon State University.
 - Dr. Craig Marcus, Environmental and Molecular Toxicology, Oregon State University.
 - Dr. Richard Roseberg, Klamath Basin Research and Extension Center, Oregon State University.
 - Dr. Donald Wysocki, Columbia Basin Agricultural Research Center, Oregon State University.
 - Mr. Bryan Charlton, Klamath Basin Research and Extension Center, Oregon State University.
 - Dr. Michael H. Penner, Food Science and Technology, Oregon State University.
 - Dr. Vincent Remcho, Chemistry, Oregon State University.
 - Dr. Christine Kelly, School of Chemical, Biological and Environmental Engineering, Oregon State University.
 - Dr. Gregory L. Rorrer, School of Chemical, Biological and Environmental Engineering, Oregon State University.

- Dr. Curtis Lajoie, School of Chemical, Biological and Environmental Engineering, Oregon State University.
- Dr. Karl Haappala, Mechanical, Industrial and Manufacturing Engineering, Oregon State University.
- Dr. David Porter, Mechanical, Industrial and Manufacturing Engineering, Oregon State University.
- Dr. John Simonsen, Wood Science and Engineering, Oregon State University.
- Dr. Steve Strauss, Forest Ecosystems and Society, Oregon State University.
- Dr. David Dalton, Biology, Reed College.
- Dr. John Williams, ARS, USDA.
- Dr. Ronald Hector, ARS, USDA.
- Dr. Andrew Hashimoto, University of Hawaii.
- Dr. Shulin Chen, Washington State University.
- Dr. John Cushman, University of Nevada, Reno.
- Dr. Michael Ceballos, University of Montana.
- Trilium Biofuels, Corvallis, OR.
- World Wide Bioenergy, Jefferson City, MO.
- Golden Triangle Energy, Craig, MO.

- **Graduate and Postdoctoral Advisers**

- Dr. Vijay Singh, Agricultural and Biological Engineering, Univ. of Illinois at Urbana-Champaign.
- Dr. Kent Rausch, Agricultural and Biological Engineering, Univ. of Illinois at Urbana-Champaign.
- Dr. David B. Johnston, Crop Conversion Science and Engineering Research, Eastern Regional Research Center, USDA-ARS.
- Prof. M.E. Tumbleson, Agricultural and Biological Engineering, Univ. of Illinois at Urbana-Champaign.
- Prof. Juraj Medanic, General Engineering, Univ. of Illinois at Urbana-Champaign.
- Prof. Suresh Prasad, Food and Agricultural Engineering, Indian Institute of Technology Kaharagpur, India.

- **Advising**

- *Major Professor*

- * Deepak Kumar, PhD. (Expected Winter, 2013)
- * Ankita Juneja, PhD. (Expected Winter, 2014)
- * William Hohenschuh, PhD. (Expected Fall, 2015)
- * Martine Torres, BS. (Expected Spring, 2012)
- * Wesley Miller, MS.(Graduated, 2011)
- * Ragothaman Avanasani, MS.(Graduated, 2010)
- * Kyle Sanders, MS.(Graduated, 2010)
- * Chintan Joshi MS, PSM Biotechnology (Graduated, 2010)

- *Minor Professor*

- * Robert Holmes, MS, Biological and Ecological Engineering (Graduated, 2011)
- * Kelsey Yee, PhD, Chemical Engineering (Graduated, 2010)

* Cosmo Prindle, MS.(Graduated, 2009)

– *Graduate Committees*

* Xiaofeng Ren, PhD, Wood Science and Engineering (Expected Spring, 2012)

* Nathan Knapp, MS, Chemical Engineering (Graduated, 2011)

* Rosalee Rasmussen, PhD, Food Science and Technology (Graduated, 2009)