



UPDATE

A Newsletter of the University of Wisconsin-Madison
Biological Systems Engineering Department

Spring 2006

Vol. 9, No. 1

—The Chair's Chips

Spring has sprung in Madison. The weather has been unseasonably warm, with some nourishing rains. The campus is turning greener everyday. Students and faculty are out walking and on their bikes. (With all the construction on the Ag campus these days, walking and biking are the best ways to move around.) Spring always reminds me of the positive changes that keep us fresh and looking toward the future.

This has also been a season of some new and positive changes for our department. First and foremost, Professor Anita Thompson and her husband Eric welcomed a future engineer (we hope) into the world, a baby son. We're all excited for Anita and Eric and know they'll be great parents! I'm sure Anita is already thinking of sand box scale infiltration and runoff experiments she can run in the backyard.

We're also excited about welcoming a new faculty member, Xuejun Pan, to BSE in the fall. Dr. Pan is an expert in bioenergy and bioproducts engineering research, a hot area of interest as the US and the world look for alternatives to petroleum fuels. His background will fit well with our existing programs in machinery and harvesting, dairy forage, forestry, and even food engineering. He comes to us from the University of British Columbia in Vancouver, one of the leaders in this expanding field. He will bring our faculty and our students new areas of research and instruction and broaden our engineering programs.

This summer, we are also anticipating the arrival on campus of the Accreditation Board for Engineering and Technology (ABET) review team for our six year review. We are having the ABET review along with the departments in the UW-Madison College of

Engineering. While this review has required a lot of work to prepare for, it has also given us an opportunity to review our curriculum and meet with our stakeholder groups to make sure our students continue to receive a top notch education which prepares them for the real engineering world they will enter.



I'm happy to report that our reviews and stakeholder input reinforce our feelings that we are on track for meeting the educational needs of biological systems engineers. Our faculty teach at a high level, and our students continue to excel in their studies and find challenging jobs in both the public sector and private industry. The ABET review gives us the confidence that we are not getting complacent, but continue to challenge ourselves to stay in front of the field of biological systems engineering as it grows and broadens to meet society's needs. We look forward to the ABET review and the additional insights it will bring to make our educational efforts better.

So the Spring here on campus is filled with opportunity and positive change. We send a new group of graduates into the real world or to advanced schooling and continue to expand the breadth of our research and extension programs. It should be a great summer here in Madison. Stop in and visit us if you're in town!

Sincerely,
Patrick Walsh
BSE Department Chair

Thank You

The students and faculty greatly appreciate the following for their contributions to the various Biological Systems Engineering funds at the University of Wisconsin Foundation from 10/24/2005 through 5/9/2006.

David Ahlgren
Nathaniel Altfeather
Craig & Elizabeth Beecher
Benjamin Binversie
Wendell Boyer
Norma Brooks
Estate of Janet W. Bruhn
Gary & Sandra Bubenzer
Frederick Buelow
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William Pick
Robert Pofahl
Norval & Marjorie Rather
James Rauwerdink
Philip Risser
Stephen Rohleder
Kenneth Russell
Bob & Teresa Satori
Ronald Schuler
Russell and Carol Schuler
Rakesh Singh
Richard Straub
Richard Stowell
Anita Thompson
Todd Wehler

Student News

Midwest Rally

Student ASABE clubs recently had a rally hosted by Purdue University students which was attended by Aaron Flouro, senior in structural systems from Tony, WI, and Hannah Uhlenhake, a freshman in machinery systems from Bristol, WI. Aaron is currently serving as president of the National Council of student clubs. Hannah was elected parliamentarian of the Midwest group of clubs.



Transport Rack

During the winter break in January, several ASABE student members were able to design and fabricate a ladder rack for Habitat for Humanity. The rack was designed to fit on a Habitat for Humanity pickup truck, which permits safe transport of extension ladders between home building sites. The idea for this project was brought to the students by BSE Professor Emeritus James Peterson, who retired in March, 2005.



Pickup truck with the ladder transport rack fabricated for Habitat for Humanity.

Student News

Two BSE Students Receive Awards from the Wisconsin Section of ASABE

Nathan Dudenhoeffer, BSE senior in Machinery Systems from Vermont was named the BSE Student Engineer of the Year by the Wisconsin Section of ASABE. Nathan is pursuing a BS degree in Biological Systems Engineering from the UW-Madison with an expected graduation date of December 2007. This summer and fall he has accepted an internship with John Deere Ottumwa Works. Nathan currently works part time during the academic year in the UW Biological Systems Engineering lab. Additionally, he has worked on farms in Vermont, Nebraska, New Hampshire, and Maine where he gained experience operating equipment and feeding cows. While a member of the



Nathan Dudenhoeffer receiving Wisconsin Section of ASABE Undergraduate Student Award from Daniel Thiemke, Awards Chair.

ASABE Student Branch at UW, he has served as Engineering Expo Chair in 2005, Treasurer for 2005-2006, and is the current

Quarter-scale Tractor Team leader for 2005-2006. He is also a current member of Alpha Gamma Rho Fraternity as well as the Badger Dairy Club.

Amanda Crowe was named the BSE Graduate Student of the Year by the Wisconsin Section of ASABE. Amanda is pursuing a MS degree in Biological Systems Engineering from the UW-Madison. While a member of the ASABE student branch she has served as Secretary as well as AEM report co-chair for 2005-2006. She is a Soil and Water Conservation Society member and also a member of the American Society of Agronomy – Soil Science Society of America. Amanda has won numerous scholarships and awards during her academic career including the Ham and Janet Bruhn Wisconsin Distinguished Graduate Fellowship in 2004.



Amanda Crowe receiving Wisconsin Section of ASABE Graduate Student Award from Daniel Thiemke, Chair of Awards Committee.

Her research on surface water quality has the goal of improving our understanding of environmental impacts of managing intensive rotational grazing.

Student Tours

On April 20, six students and two faculty toured the Kuhn-Knight facilities in Brodhead, WI. Director of Operations at the Brodhead facilities, George Cicci, provided a history and overview of the company, and Tim Osterhaus, product test manager, provided an excellent tour of their manufacturing, test and other areas. Kuhn-Knight staff have been good friends to BSE, hiring our undergraduates for summer engineering experience and our graduates.

A group of students traveled to Northeast Wisconsin for tours of Manitowoc Crane, Miller-St. Nazianz, Spancrete, Manitowoc Maritime Museum, and Lambeau Field. Students also participated in a manure management tour, a visit to the Farm Show in Oshkosh, and two Wisconsin Section of ASABE Meetings (Manitowoc, January 12 and Oshkosh, March 29).



Faculty News

AgrAbility of Wisconsin Recognized for Outstanding Partnership

AgrAbility of Wisconsin received one of the Mutual of America's Community Partnership Awards for 2006. Easter Seals Wisconsin, one



of AgrAbility's partners, submitted the application for the award to Mutual of America, which is an insurance company specializing in serving nonprofit organizations. The AgrAbility of Wisconsin partners receiving this award include UW-Extension (BSE), Easter Seals Wisconsin (FARM program), Wisconsin Department of Agriculture, Trade, and Consumer Protection (Farm Center) and Wisconsin Department of Workforce Development (Division of Vocational Rehabilitation). Mutual of America recognizes outstanding nonprofit organizations in the U. S. that have shown exemplary leadership by facilitating partnerships with public, private or social sector leaders who are working together as equal partners, not as donors and recipients, to build a cohesive community that serves as a model for collaborating with others for the greater good.

Since 1991, AgrAbility of Wisconsin has provided education and assistance to farmers with disabilities. Funds are provided through the USDA and are a part of the U. S. Farm Bill. Through this partnership, more than 1,400 Wisconsin farmers with disabilities received direct assistance and returned to farming.

Funding of the assistive technology for the farmers is provided by DWD-DVR. ESW-FARM staff provide the on-the-farm worksite assessments and BSE staff provide the education and outreach.

The partnership was recognized at a luncheon April 26, 2006 at the Concourse Hotel in Madison sponsored by Mutual of America. Administrators from the four partners attended the luncheon. In BSE Cally Ehle, Associate Outreach Specialist, provides the education and outreach for the program and Ron Schuler serves as the project director.



Cally Ehle is the Associate Outreach Specialist for AgrAbility of Wisconsin.



Thomas Gilliam (right), Chair and CEO of Mutual of America presenting award to Richard Klemme (left), Associate Dean, CALS, and Ron Schuler (center), BSE.

Faculty News

Dr. Xuejun Pan Joins BSE Faculty

This fall Dr. Xuejun Pan will join the BSE faculty as an assistant professor in Bioenergy/Bioprocessing Engineering. Currently, Dr. Pan is a Research Associate with the Bioconversion Group in the Department of Wood Science at the University of British Columbia.

He has a 1999 PhD degree in Biomass Conversion and Wood Chemistry from the Applied Bioscience Division at the Hokkaido University, Japan where his thesis research was on Biomass Conversion of Rice and Wheat Straws by Atmospheric Acetic Acid Process. In addition he has a 1993 PhD in Paper Science and Technology from the Department of Chemical Engineering, Tianjin University of Science and Technology, China. Dr. Pan's dissertation was titled "Characterization and Value-added Application of Rice Straw Alkali Lignin and Reed Lignosulfonate Isolated from Pulping Spent Liquors by Ultrafiltration". His bachelor's and master's degrees are in Paper Science and Technology, Department of Chemical Engineering, Tianjin University of Science and Technology, China.

Dr. Pan has been at the University of British Columbia since 2002. Additional professional experience includes work in the Department of Biosystems and Agricultural Engineering, University of Minnesota;

Institute of Paper Science and Technology in Atlanta; Department of Chemical Engineering in Tianjin, China, and Laboratory of Wood Chemistry at Hokkaido University in Sapporo, Japan.



Dr. Xuejun Pan, a Research Associate, will join the BSE faculty as an assistant professor in Bioenergy/Bioprocessing Engineering.

With a teaching and research appointment in BSE, Dr. Pan will be teaching undergraduate and graduate courses in the Machinery Systems and Bioprocess Engineering areas. His research will focus on integrated engineered systems for the generation of renewable energy and products. This work will include processing, conversion and utilization of biomass from renewable energy, and industrial product development.

What do Food and Bioprocess Engineers do?

Food and bioprocess engineers develop and manage equipment and systems that process and distribute food and other biologically based materials. The food industry needs such engineers to help develop processes that add value to food products. These processing technologies are designed to improve the storage life and marketability of food products, reduce their transportation costs, handle processing wastes, and develop alternative uses for biological materials. (For example, newspaper and soy flour are used to make the construction material, Environ™, and corn stalks can be used to make chemical absorbent pads.)

Alumni News

Uhlenhake Honored for Leadership

Naomi Uhlenhake, BS 2005, received a leadership award from the Wisconsin Agricultural and Life Sciences Alumni Association during the annual December Commencement. Naomi was one of two CALS graduates to receive this award. She was recognized for her leadership roles in the BSE student club and American Women in Agriculture (AWA). Naomi served as president of the BSE club during 2004-05 and held several other offices and committee positions. Naomi is currently employed at Resource Engineering Associates of Middleton, WI as an engineer developing manure management plans for numerous dairy and livestock farms.

Bob Satori Receives Award

Robert 'Bob' Satori, BS 1994, received the Agricultural Engineering Young Engineer Award from the Wisconsin Section of ASABE during a banquet on March 29 in Oshkosh, WI.

Bob is currently an Engineering Manager for Manitowoc Cranes Company in Manitowoc, WI. He manages a staff of up to 15 full time engineers in the structural design and finite element analysis of lattice crawler and mobile hydraulic cranes. He also coordinated the ISO 9000 re-certification to the 2000 standard for engineering at Manitowoc Cranes. Prior to his promotion to engineering manager, he worked as a Staff Project Engineer and also a Design Engineer where he served on a number of assignments including coordinating the design team



for the development of a 120 metric ton foundation crane. Bob received his Masters of Engineering in Professional Practice degree from the UW-Madison in 2004. Prior to working for Manitowoc Cranes Company, he worked as a Product Engineer and Production Supervisor for Case Corporation and also as a Production Supervisor for Archer Daniels Midland Company. Bob received his Professional Engineering License in September 2000. The award was presented by Steven Lohr, Engineering Manager for Manitowoc Crane Group.

Alumni Recognized During Wisconsin Section Meeting

During the Wisconsin Section meeting, membership awards were presented to Robert (Bob) Fick, Adjunct Assistant Professor in BSE and Senior Agricultural Engineer with Alliant Energy (25 years), Lawrence (Larry) Gruenberger, Engine Applications Engineer with Briggs and Stratton (25 years), and Mark Purschwitz, Adjunct Associate Professor in BSE and Research Scientist at the National Farm Medicine Center in Marshfield (25 years). Larry is active with the Quarter-scale ASABE Tractor Competition.

Professional Dairy Producers of Wisconsin Honors Koepke

Alan H. Koepke, BS '63, was honored by the Professional Dairy Producers of Wisconsin (PDPW) at their Annual Business Conference in March. Al was a founding member of PDPW in 1992 and has served as chair of their Public Policy Committee since 1998. He is also a founding member of the PDPW Education Foundation. Al's other activities include Wisconsin Holstein Association, UW-Madison Center for Dairy Profitability Advisory Committee, UW-Madison Dairy Science Department Advisory Committee, Wisconsin Electric Power Company's Advisory Council, Wisconsin Agricultural and Life Sciences Alumni Association Board of Directors. Al returned to the family farm immediately after graduating in 1963 and today he farms with his two brothers and a nephew. They crop 800 acres and milk 320 cows. Al, his wife, Mary, and their three daughters are all graduates of the UW-Madison.

— Biological Systems Engineering Fund —

Please consider contributing to one of the Biological Systems Engineering Department Funds listed below:

Ham Bruhn BSE Scholarship
Ham and Janet Bruhn Distinguished Graduate Fellowship
Ham and Janet Bruhn Fund
Gail and Janice Janssen BSE Scholarship
Sixties Decade Computer Lab Equipment
Rural Energy Issues
BSE Student Activities Fund
Agricultural Safety and Health

Orrin Berge Scholarship
BSE General Fund
Wisconsin BSE Scholarship
Lynndon and Norma Brooks Scholarship
Dick and Grace Stith Scholarship
Robert and Willa Meier Scholarship
Ervin Schroeder Scholarship
Farm Machinery Research

From the University of Wisconsin Foundation:

We sincerely wish to thank our alumni and friends who have generously supported the College of Agricultural and Life Sciences and the Department of Biological Systems Engineering. Your gifts today are more important than ever as the University faces challenging budget constraints. Gifts made to the Department of Biological Systems Engineering help us with scholarships, building remodeling, endowed professorships and graduate fellowships, and carrying on our tradition as leaders and innovators in the biological systems engineering field.

An annual household gift of \$500 or more qualifies you and your spouse for membership in the College of Agricultural and Life Sciences Dean's Club. As a member of the Dean's Club you will receive special invitations to the Dean's Football Brunch held in the Fall, the annual Dean's Club Recognition program in May, as well as periodic mailings about the College and a Dean's Club Pocket Calendar. An invitation to join the prestigious Bascom Hill Society is extended to those who provide support of \$25,000 or more to the department or to a specific project or program of their choice. You can pledge your commitment over a 10-year period, provide for a gift in your will, or give a gift of annuities or appreciated stock. If you have specific questions about giving, please contact Sandra Brown at the UW Foundation (Phone: 608-265-2925; e-mail: sandra.brown@uwfoundation.wisc.edu).

Department of Biological Systems Engineering Fund

I/we would like to join other alumni and friends in support of the Department of Biological Systems Engineering Fund.

- I/we wish to pledge \$ _____ over _____ years. Please remind me of my pledge in _____ (month).
- I/we wish to contribute \$ _____. My/our contribution is enclosed. (Make check payable to UW-Foundation)
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- I/we wish to have my contribution support _____ fund.

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Cardholder's name as it appears on credit card (please print): _____

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Alumni Update

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News to share: _____

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