Wisconsin Institute for Sustainable Technology

Annual Report

October 2016

Wisconsin Institute for Sustainable Technology
College of Natural Resources
University of Wisconsin-Stevens Point

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Contents

Research, laboratory services and education provided by the Wisconsin Institute for Sustainable Technology (WIST) help businesses and organizations meet their goals in ways that make more sustainable use of natural resources. Technology and ideas developed by WIST and its partners will spur economic growth in Wisconsin and the region and help preserve a healthy environment for future generations.

WIST is an institute within the College of Natural Resources at the University of Wisconsin-Stevens Point. It is a multidisciplinary institute powered by the energy and expertise of faculty, staff and students across the UW-Stevens Point campus.

A Note from the Director

Paul Fowler
Executive Director

Thank you for taking the time to read this sixth annual report describing some of the highlights of WIST in the past year.

Among a number of successful achievements in the past 12 months, there are two of which we are most proud: first, gaining international recognition of the quality and expertise of our compostability testing laboratory; and second being selected as one of 17 centers across the United States to be a recipient of an Economic Development Administration-funded i6 Challenge grant. Both of these accomplishments are covered separately in this report but a single attribute links together the two: both successes were the result of WIST staff working together to make things happen. I am extremely privileged to work with the staff of WIST: you may read their profiles on pages 20 and 21 of this report.

In our Laboratory Services division, we have continued to build capability and scope, delivering a number of high-dollar projects for several of our clients. We were delighted earlier in the year to be accepted into the Wisconsin Economic Development Corporation's "Made in Wisconsin" program for one of our own niche products for commercial use.

WIST's Focal Point conference continues to mature and is beginning to carve out a space uniquely devoted to the opportunities for Wisconsin's specialty paper industry in food packaging and service ware applications. Focal Point conference highlights are covered on page 18.

I hope you enjoy learning more about some of the diverse work that goes on within the walls of WIST as you browse the following pages. If you have any questions or would like more details, please do not hesitate to contact me at 715-346-3767.

WIST Teams with TAPPI on Education

The big news in WIST's professional educational program is a new partnership the institute forged with TAPPI, the professional association of the papermaking industry. TAPPI and WIST signed a joint marketing agreement in early 2016 to promote WIST courses.

"The goal there was really to broaden the reach of our marketing, to get beyond our regional contacts from the standpoint of trying to reach a national audience," said Paul Fowler, WIST executive director. "And I think, generally speaking, we've achieved that, maybe not the full reach yet, but it's just the first year. We've had success in bringing in people from further afield within the (United) States but also North America – Canada and Mexico, too."

Previously, WIST sometimes had to cancel course offerings because of lack of enrollment but since the TAPPI marketing program started in March, all of the papermaking classes have met at least minimum enrollment numbers. Still, most classes have had seats available, and Fowler is optimistic that as awareness builds with another year of joint marketing, those seats will be taken.

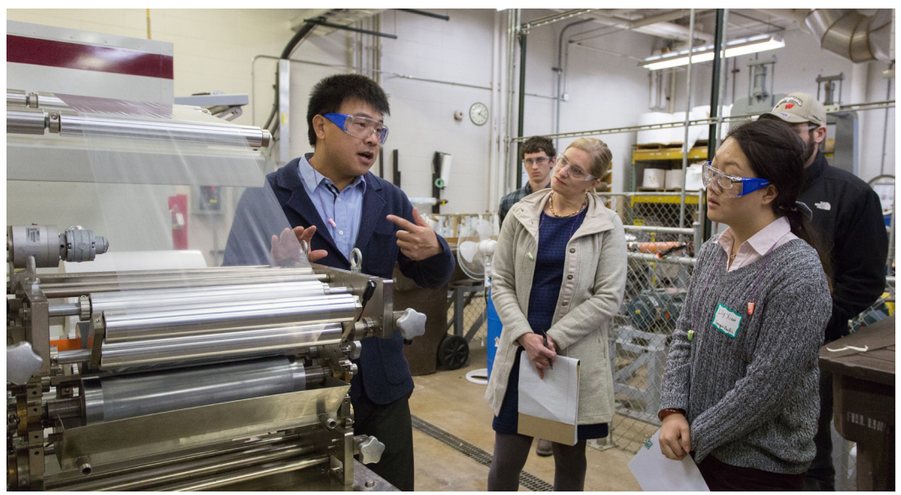
"As we head into next year, we hope that we have full classes, rather than half classes," Fowler said.

TAPPI is known worldwide for the quality of its face-to-face training and company classrooms, which present a variety of learning opportunities covering introductory to advanced materials. Courses are instructed by recognized industry leaders. TAPPI handles course registration on its website and provides exposure to the WIST courses in a number of ways, including listing the courses in the TAPPI event schedule, emailing information about each course to TAPPI membership, and distributing information at TAPPI events.

"As new industry technologies, improvements and innovations become available, continuing education is becoming more crucial than ever," said Mary Beth Cornell, TAPPI Training Director. "We are proud to partner with WIST to help support and advance the education of both current and future work forces."

WIST lists TAPPI as a course partner, provides links to TAPPI from the WIST site and offers a discounted course registration fee to TAPPI members.

One thing hasn't changed: All courses feature hands-on experience on pilot-scale equipment along with classroom lecture and discussion, a format that students have consistently praised.



Roland Gong, assistant professor of paper science and engineering at UW-Stevens Point, instructs a WIST-TAPPI class in coating and lamination for packaging applications.

Participants say...

Hands-on Papermaking

"Phenomenal course offering an in-depth background on paper-making while simultaneously offering challenging, solution oriented tasks to develop group work skills, leadership, project design and trouble-shooting specific to the paper industry" — S. Johnson, Imerys Kaolin North America.

Loved the course, loved the instructor and instruction. Dr. Ring is very knowledgeable on papermaking and history or paper. Totally recommend this class" — A. Fink, WestRock

Additives course

"This course is an excellent source for increasing knowledge for the basics that occur at the wet end of the machine, especially the mechanisms for the interactions" – M. Wilson, Georgia Pacific

Optimizing Sheet Structure

"This course does a good job explaining paper formation and how it affects numerous other paper qualities, as well as how it can be manipulated and improved ... to be successful" — A Pope, Verso

Coating and Lamination

"Overall, this is a good introduction of lamination and coating for people in the papermaking industry working on converting/packaging. I am a research scientist in product development. My background is chemical engineering and paper making. I found this course useful and helpful for my project and it helps to generate new ideas in product development" — L. Xiao, Georgia-Pacific

"Dr. Roland Gong comprehensively covered the materials and processes of packaging coatings and laminations. This was done in a successful manner, which has appropriately increased my value to my customers and my knowledge of their operation and end use needs" — K. Helein, Daikin-America

WIST Short Courses

Hands-on Papermaking

This two-day class features morning classroom sessions followed by afternoon sessions of guided exercises operating the UW-Stevens Point Fourdrinier pilot paper machine. This combination has proven to be a highly effective and enjoyable way to gain fundamental knowledge of the commercial papermaking process. This WIST course is designed for anyone who needs the basics, transferred from another industry, is new to operations, does maintenance, or supervises employees.

Introduction to Papermaking Additives

This course provides an overview of the common papermaking additives used in the industry today. Clear descriptions of how and why these additives work are presented in classroom discussions. Attendees will participate in discussions focused on where additives are introduced into the paper making process, potential interactions with both equipment and other additives, and the relationship between additives and enhanced performance of paper.

Optimizing Sheet Structure for Maximal Product Performance

With this course, participants gain understanding in key performance issues including why paper making fibers floc, manufacturing techniques that minimize fiber floccing, the relationship between paper properties and formation, both visual and instrumental measurement of formation, and the difficulties associated with the correlation of visual formation assessment and the instrument measurement.

Coating and Lamination in Packaging Applications

This course is designed for those working in paper converting, coating, printing and flexible packaging. The content will be particularly beneficial to engineers, technicians, chemists, scientists, sales representatives, and customer service representatives. Representatives of companies that supply adhesives, inks, silicones, papers, plastic films and aluminum foils will also find this curriculum very useful.

Compostability Testing Laboratory

Mission accomplished: Compostability Testing Laboratory achieves ISO 17025 certification

WIST's Compostability Testing Laboratory has been certified by the ANSI-ASQ National Accreditation Board (ANAB) to meet ISO 17025 standards. The certification is an internationally recognized mark of quality work, given to laboratories that pass a rigorous audit of their procedures.

Amber Davidson, manager of the testing lab, said the certification is good news for the lab and for its customers. "Having the policies and procedures manual really assures that no matter which of our staff is working on a particular task, we know it will be done the same way every time and done in a top-quality way," Davidson said. "Our customers can have complete confidence in our test results."

The WIST Compostability Testing Laboratory determines whether materials compost under industrial composting conditions. The full protocol includes a disintegration test, a biodegradation test and a plant toxicity test, and may take up to 180 days to complete.

An ANAB assessor audited the laboratory over several days in fall 2015, and WIST was notified of its achievement in December. The certification process had taken more than a year, as WIST staff examined every aspect of the testing laboratory and drafted a quality policy manual and standard operating procedures, created a records-keeping system and upgraded equipment where needed.

All lab personnel completed third-party proficiency testing and continue to do proficiency testing to assure consistent performance.

"This is a strong endorsement of the professionalism of our staff and the care we take with our work," said Paul Fowler, WIST executive director. "This achievement is the result of a team effort and a commitment to quality all the way through our organization."

Composting as an end-of-product-life solution

WIST created the compostability testing laboratory to help companies meet the growing demand for compostable materials. For example, recycling has been successful in diverting large amounts of packaging from landfills, but post-consumer food packaging has been difficult to recycle because of the food contamination. Food residue is not an issue in compostability, so companies are developing packaging and even service-ware for quick-serve restaurants that can be composted rather than landfilled.

Davidson said the WIST laboratory currently is wrapping up a year-long contracted research project on compostability parameters for certain types of paperboard. Paperboard is recyclable, "but not when it has been in food contact," Davidson said. A project goal is to better determine conditions under which the paperboard will disintegrate. Ultimately, paperboard and packaging manufacturers will share information with industrial and municipal composting facilities to improve the success of composting as a landfill-diversion solution.

As companies seek to market products as compostable, it is important to have third-party support for those claims. The Federal Trade Commission's Green Guides advise that companies "need competent and reliable scientific evidence" to support compostability claims. The WIST Compostability Testing Laboratory can provide that evidence.

Amber Davidson, manager of the WIST Compostability Testing Laboratory, checks the condition of material in a disintegration trial. The laboratory performs a three-part test for compostability that can take up to 180 days to complete.

Papermaking and Laboratory Services

WIST staff member travels to Colombia to help laboratory services customer improve product quality

When Lindsey Hoffman fielded an inquiry about WIST's pulp testing services earlier this year, she had no idea it would lead to a trip to Bogota, Colombia, and consultation work for a recycled pulp manufacturer.

Hoffman is WIST's laboratory and papermaking project specialist. She and other WIST staff, including student employees, provide a wide range of analytical and testing services for the paper, pulp and packaging industries. The first inquiry from the company was typical enough.

"They found us through our website," Hoffman said. "It started as a lab service, where I did basic testing on their pulp and compared it to another recycled fiber."

She issued a report to the company but that was just the start of things. Once the company learned more about Hoffman's work, they asked her come to Colombia.

Hoffman traveled to Bogota in July, where she toured the family-owned company's plants.

One facility makes paper cups for hot and cold beverages, and another facility takes the scrap from the cup manufacturing process, plus post-consumer fiber, and pulps it into recycled fiber.

"They needed help with improvement of the current quality of the pulp they produce," Hoffman said. "They're looking at expanding what they offer and provide a better-quality product."

Hoffman said it was a great experience for her. "They were so warm and welcoming," Hoffman said. "They really took what I said to heart."

WIST is continuing to work with the company and another trip to Colombia may be in the cards, Hoffman said.

Meanwhile, WIST continues to improve and expand its paper testing, papermaking and laboratory services.

Blotter paper made by WIST staff and paper science and engineering students is prepared for shipping. The cartons bear the "Made in Wisconsin" logo; WIST began participating in the Made in Wisconsin program in 2016.

"We now have bench-top wax coating capability," Hoffman said. "We can test different wax substrates on different papers."

Modifications and maintenance on the UW-Stevens Point pilot paper machine have increased its capabilities and the machine can now produce paper as light as 20 grams per square meter, she added.

Paul Fowler, WIST executive director, pointed to another area of expanded service.

"We've had a number of inquiries that have translated into pilot plant trial work, new product development," Fowler said. "So I think that area of new product development we started with the blotter paper and RiverPoint (fine art paper) has opened up opportunities around new product development more generally. It's causing us to up our game as far as the complexity of the services that we offer."

The university installed a state-of-the-art coating and laminating pilot line two years ago capable of handling paper, film, foil and nonwovens on rolls up to 300 mm wide. So far, WIST has performed trial work for a paper manufacturer testing a new concept and has fielded a number of additional inquiries.

"We've done some preliminary studies that might lead to subsequent work on the pilot machine," Fowler said. WIST also is exploring whether coating can be done in-line on the pilot paper machine, he added.

Lindsey Hoffman, WIST laboratory and papermaking project specialist, prepares a handsheet as part of a pulp-test protocol for a laboratory services customer.

Proof of Concept Center

Residual materials left from processing Wisconsin's specialty vegetable crops could be a source for valuable industrial chemicals.

It's a common sight for people in Central Wisconsin: truckloads of potatoes coming off the fields and trundling down the highway to processing plants, such as Del Monte's in Plover. In fact, from Interstate 39, you can see the hive of activity as trucks cross the weigh scale and then dump their cargo, the spuds conveyed into the plant for peeling and processing. Peelings plus undersized, blemished and otherwise unsuitable potatoes amount to about 15 percent of the crop and end up as "residuals," processing waste that must be disposed.

That 15 percent adds up to thousands of tons of potato processing residuals in Wisconsin each year. Now, a project underway by WIST and partners seeks to find value in that material – and not just potato residuals but in other specialty vegetables grown and processed in Wisconsin. Dubbed a "proof of concept center" by U.S. Economic Development Administration, which is funding the work, the project over the next three years will zero in on chemicals that can be extracted from the residuals and sold as valuable industrial commodities.

The impact could be huge. Wisconsin ranks second among U.S. states in harvested acreage and total production of processing vegetables, and ranks third for production value. Growing and processing these crops contributes more than $6 billion in economic activity and supports nearly 30,000 jobs in the state, according to University of Wisconsin-Extension data. Deriving additional value from waste would improve profitability of the specialty vegetable industry, support jobs and help grow the rural economy.

The project began in March and in the first six months has already shown significant quantities of a potentially valuable antioxidant in potato peels, said Paul Fowler, executive director of WIST.

"Potato peels have a chemical called chlorogenic acid," Fowler said. "We're able to quantify that pretty accurately and the goal now is to understand the market opportunity for this."

The laboratory analysis is done by Justin Hall, project specialist at WIST. He uses methods derived from existing scientific literature, and where needed develops new methods to extract and evaluate the presence of a number of target chemicals. In the first stage of the project, Hall evaluated material from several varieties of potato, and from various processing methods to determine, for example, if the available chemicals varied depending on whether the potatoes were steam-peeled or abrasion-peeled.

Chlorogenic acid is an antioxidant, a type of chemical important to industry applications such as stabilizers for longer shelf life of products. More people know antioxidants for their health-enhancing properties, and antioxidants are used in health supplements. The proof of concept center is aiming for industrial rather than health or medicinal applications, at least initially, because it is an easier market to enter from a regulatory standpoint.

"The current production of chlorogenic acid is all in China," Fowler said. "Depending on purity, it could be somewhere from $60 a kilo up to $10,000 a kilo. I've done some work just trying to understand what the possibility is and whether it's technically and economically feasible, whether it's worthwhile going forward."

Chlorogenic acid is present in only small amounts in the peels, but depending on price, a high-purity product could well be attractive for production. More research is needed to understand the market size, the market potential and the infrastructure required to process materials in commercial quantity.

WIST and project partners will be pursuing that information in coming months.

Fowler and Hall presented findings to a steering committee comprising representatives of project partners (see sidebar) at a meeting in Antigo in September. The committee identified target residual materials to evaluate in the next six months and reviewed project goals.

The project group is also putting together a one-day conference set for February 28, 2017, that will bring together specialty vegetable producers and processors, potential industrial end-users of extracted chemicals, and economic development specialists to explore market potential, processing requirements and costs, and business development ideas.

The U.S. Economic Development Administration is funding the proof of concept center through a three-year, $499,965 grant in its i6 Challenge program. Matching funding from WIST and project partners brings the total expected project value to $1, 016, 811.

Justin Hall, WIST project specialist, places samples for analysis in a High Performance Liquid Chromatography machine in a laboratory at UW-Stevens Point.

Wisconsin in 2015 produced nearly 1.4 million tons of potatoes, with processing residuals amounting to an estimated 208,000 tons. Processing residuals could be a source of valuable industrial chemicals.

Project Partners

- Wisconsin Institute for Sustainable Technology
- Del Monte Foods
- Heartland Farms
- Pavelski Legacy Partners
- Midwest Food Processors Association
- Wisconsin Potato and Vegetable Growers Association
- Wisconsin Economic Development Corporation
- WiSys Technology Foundation

Student Spotlight

Each year since its founding in 2010, WIST has employed UW-Stevens Point students in a variety of roles. Within the past year, 18 students have gained experience and earned a paycheck while working on real-world projects ranging from papermaking and paper testing services to laboratory research.

Julia Petreshen is a senior majoring in hydrology. When her summer employment plans fell through last spring she contacted one of her professors to see about possibilities on campus, and learned about the laboratory assistant opening in WIST's Compostability Testing Laboratory. She worked full time during the summer and is continuing in the laboratory part time during the school year.

"I've been doing a lot of mixing and prepping vessels, with different parameters, different carbon-nitrogen ratios, different carbon-phosphorus ratios, different moisture content, to see how they have been progressing in the breakdown of the test items we have in those vessels," she said.

Although the compostability testing work isn't closely related to her major, Petreshen said it has provided valuable, practical experience. She is aiming for graduate school in 2017.

"A large part of graduate school is doing your own research or being a research assistant," she said. "I've learned a lot about laboratory etiquette and the standards that you have to follow. There's a lot of repetition in science, I've realized, and especially in doing research you have to make sure everything's very precise, you have to record everything. It's opened my eyes up to the whole research side of science."

Julia Petreshen checks samples being evaluated in WIST's Compostability Testing Laboratory as part of her daily routine as laboratory assistant.

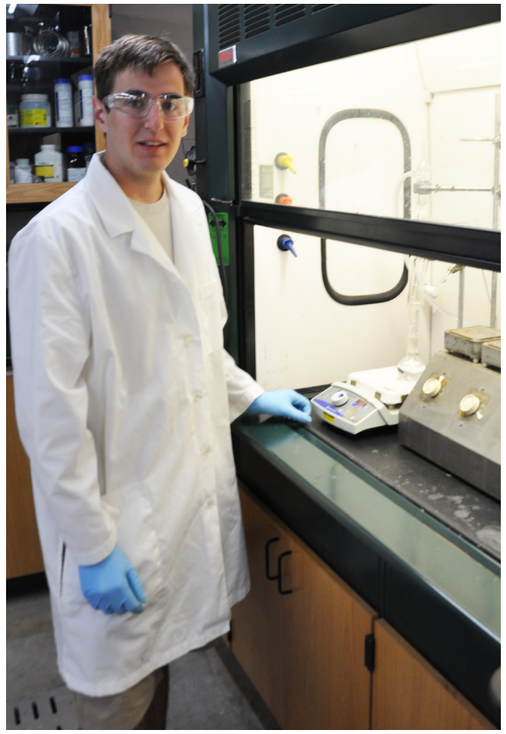
Wyatt Beyers' interest was piqued by an article in the Pointer newspaper about a new WIST research project.

WIST and private industry partners are developing a "proof of concept center" to explore possibilities of extracting valuable chemicals from vegetable processing waste (see pages 12-13 for more on that project).

Beyers, a senior in biochemistry, signed on as a laboratory assistant.

"I knew it was going to be analytical chemistry," Beyers said. "I thought it was really interesting to take this residual plant material and get something out of it besides just using it as compost. It's just a cool concept to me."

Wyatt Beyers, a senior biochemistry major, is assisting on a federally funded WIST research project, gaining experience that will help him in graduate school.



Byers said working in the lab has given him practice in basic research procedures that apply to all fields of chemistry.

"I think it's been an excellent experience," he said. "I'm planning on going to graduate school. Just having done chemistry research, it's not necessarily working with proteins or DNA, like I probably will in graduate school, but just the lab setting, recording everything in a notebook, doing dilutions all the time – that applies to all fields of chemistry.

"We've been doing some literature research as well, so getting to read these scientific papers and write a protocol based on that, that's a good skill."

Courtney Kaleel grew up in a Chicago suburb but found her way to Stevens Point through a Pointer connection.

"My (advanced placement) environmental teacher was an alumnus of UWSP and I was really involved with outdoors, loved being outdoors and wanted to do something in natural resources, so he kind of pointed me here," she said. "It's great."

Kaleel started out in forestry in the College of Natural Resources, but after doing more of the field classes she realized that wasn't what she wanted to do every day. She enjoys being outdoors but said, "It's more of a hobby and my leisure, and having to do that for work kind of changed my mindset about being outdoors. When I took plant biology I fell in love with doing lab-oriented research."

Now she's majoring in biology, with emphasis in micro and cellular biology, and is on track to graduate in 2018. She hopes to attend graduate school in the West. Kaleel was employed through the summer at WIST's Compostability Testing Laboratory, which tests materials such as packaging to determine whether the material decomposes under industrial composting conditions.

With her interest in cellular biology, she's been looking more at the organisms that break down the material.

"It's been giving me a lot of really great experience, like following standards, and just getting laboratory experience in general," she said. "I really enjoy working for WIST."

Courtney Kaleel evaluates decomposition of material being tested for compostability and keeps daily records of her observations. A biology major, Kaleel works as a laboratory technician for WIST.

WIST Advisory Board Adds New Members

Alan Rudie, supervisory research chemist at the USDA Forest Service Forest Products Laboratory in Madison, has joined the WIST Advisory Board, along with Nelson Dahl, executive director of Centergy. Introductory bios of Rudie and Dahl are on the opposite page and a complete listing of the current board membership is below.

Several members left the board in the past year, with our appreciation for their service: Ted Wegner, former assistant director of the Forest Products Laboratory; Peg Sullivan, former director of Centergy; Lori Dehlinger Van Alstine, former director of the Portage County Business Council; and Tad Campana, president of Services Plus in Green Bay.

The WIST Advisory Board was formed in 2011 and meets twice annually with WIST staff to discuss institute priorities and provide guidance. The board comprises members with a range of perspectives and experiences, with representation from the agriculture sector, both in production and marketing, biotechnology, manufacturing, forest products, higher education, economic development and venture capital. The board members, all accomplished in their own fields, lend their expertise and provide critical links to economic sectors WIST seeks to help with its research, education and laboratory services.

Advisory Board Members

Mary Blanchard
Associate Director
Wisconsin Energy Institute
Madison, Wisconsin

David A. Brukardt
Associate Vice President
Office of Economic Development
University of Wisconsin System
Madison, Wisconsin

Ed Buehler
Vice President, Business Development - Specialty
Verso Corporation
Stevens Point, Wisconsin

Nelson Dahl
Executive Director
Centergy, Inc.
Wausau, Wisconsin

Tamas Houlihan
Executive Director
Wisconsin Potato and Vegetable Growers Association
Antigo, Wisconsin

Meleesa D. Johnson
Director
Marathon Co. Solid Waste
Ringle, Wisconsin

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Heartland Farms
Naples, Florida

Francis J. Podvin
Podvin Law Firm
Wisconsin Rapids, Wisconsin

Alan Rudie
Supervisory Research Chemist
US Forest Service
Forest Products Laboratory
Madison, Wisconsin


Alan Rudie

Alan Rudie received a Bachelor of Arts degree in 1973 from Wartburg College with majors in chemistry and mathematics and a Ph.D. in inorganic chemistry in 1978 from the Massachusetts Institute of Technology. In 1978, Rudie took a job with International Paper Company at the Corporate Research Center in Sterling Forest, New York, where he worked on development projects in both kraft and mechanical pulping and bleaching. In 1989 he accepted an appointment as Associate Professor at the Institute of Paper Science and Technology in Atlanta, Georgia, where he focused on research in mechanical pulping and trace metals management in pulp mill bleach plants.

While at IPST, Rudie served as the Faculty Chair from 1998 to 2002 and chaired the Reaccreditation Self-Study Committee from 1999 to 2002. Rudie took his current position as Project Leader of the Fiber and Chemical Sciences Work Unit at the Forest Products Laboratory in 2003. Current research interests are on cellulose nano-materials and catalytic delignification of wood. Rudie has over 70 career publications and is a TAPPI Fellow.


Nelson Dahl

Nelson Dahl is the Executive Director for Centergy, the leader of economic development in central Wisconsin serving five counties including Marathon, Lincoln, Wood, Portage and Adams. Centergy's key strategic initiatives include Economic Competitiveness, Talent Development, Innovation and Entrepreneurship, and Regional Marketing. Nelson began this new position and role August 1, 2016.

Dahl recently retired from Mid-State Technical College where he served as Vice President, Finance and Information Technology, a role he held for most of his 36-year career with Mid-State Technical College District. Knowledge and skill development included areas of collaborative leadership; team-building; business process improvement; financial forecasting, planning and budget development; and becoming a dedicated champion for embracing technology. He dedicated his entire career to serving the Wisconsin Technical College System mission and central Wisconsin.

Many collegewide capital equipment and facilities projects occurred under his leadership. A notable statewide project includes the formation of a Wisconsin Technical College Insurance Trust, which led to the creation of Districts Mutual Insurance (DMI), owned and operated by all sixteen Wisconsin Technical College Districts. DMI has successfully held premium rates relatively constant for property and casualty coverage, while expanding insurance coverage and loss control and risk management services.

Dahl was also instrumental in creating a three-college IT Consortium to pool and leverage IT resources for the implementation of a large ERP information system, which later expanded to include management of IT resources of all three technical colleges under the oversight of one CIO.

Earned degrees include a Bachelor's of Business Administration – Finance from UW-Whitewater and a MBA from Cardinal Stritch University, Milwaukee. Dahl serves as Chairman of the Key Savings Bank Board in Wisconsin Rapids, serves on the Aspirus Riverview Hospital and Clinics Board, and is a long-time Rotarian having rotated through various board seats to President of the Wisconsin Rapids Noon Rotary Club.

Conferences and Other Outreach

WIST hosted Focal Point 2016 at UW-Stevens Point on October 18. The sixth annual conference drew nearly 80 participants representing paper, packaging and converting companies from across the country. Wisconsin Lt. Governor Rebecca Kleefisch opened the conference with remarks on the long-standing importance of these industries in Wisconsin. With 10 presenters from major companies such as Daikin-America and The Wendy's Company, the conference highlighted opportunities and innovation in paper- based food packaging and serviceware.

Besides hosting a conference, WIST exhibited at another national event to showcase its capabilities in laboratory services. SustPack 2016 was held in April in Chicago, and WIST shared a booth with IPS Testing of Appleton, Wisconsin. WIST and IPS have collaborated since 2011 on paper testing services and together offer a recyclability and repulpability certification test for coated corrugated. SustPack annually brings together more than 500 stakeholders in the sustainable packaging industry.

Back at home, National Campus Sustainability Day also saw WIST participation, with the institute hosting a booth as part of a fair hosted by the UW-Stevens Point Office of Sustainability in the Dreyfus University Center.

WIST communications include a monthly e-newsletter distributed to more than 1,100 readers. (Subscription to the newsletter is available free; sign up on the institute's website.) Institute activities also attracted media coverage, including articles in Central Wisconsin publications about WIST's new research project to identify valuable chemicals that may be extracted from vegetable production and processing waste (read more on that project on pages 12-13).

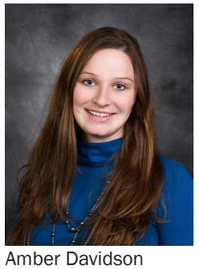
Participants in the sixth annual Focal Point conference hosted by WIST listen to a presentation.

Shelly Thobe, director of culinary innovation for The Wendy's Company, addressed the Focal Point 2016 audience, October 18, at the Dreyfus University Center.

WIST Staff


Brian Bandow

Brian Bandow is WIST's paper machine and laboratory specialist. Bandow's duties span activities in both WIST and the paper science and engineering department. He assists in operating and maintaining the pilot paper machine and equipment in support of the paper science and engineering undergraduate program. For WIST, Bandow supports the institute's industry-focused contract research laboratory projects. His work includes outreach, research, testing, analytical and paper machine services to industry and other clients. Bandow brings a wealth of experience in papermaking and in related industries. He has a bachelor's degree from UW-Oshkosh and did post-graduate studies at UW-Eau Claire.


Amber Davidson

Amber Davidson is the compostability testing laboratory manager at WIST. She oversees the compostability testing services provided by the institute and performs laboratory tests to determine how well certain packaging composts under industrial composting conditions. In addition to laboratory work, she assists WIST in public outreach for compostability testing. She is a December 2012 graduate of UW–Stevens Point with a B.S. in water resources and a minor in soil science and business administration.


Paul Fowler

Paul Fowler, WIST executive director, has 17 years of experience in contract research and development of new products and opportunities from biobased materials. At WIST, Fowler is networking with public- and private-sector organizations and companies to develop new sustainable technologies with commercial applications to benefit the economy and the environment. Before taking the helm at WIST in 2010, he was director of the Welsh Institute for Natural Resources, a financially self-supporting unit at Bangor University in Wales, UK. Fowler has a Ph.D. in organic chemistry and extensive knowledge of biobased, renewable materials and applications.


Justin Hall

Justin Hall is a project specialist at WIST. His duties include analytical work on WIST research projects. He also provides support for WIST research projects by maintaining and operating analytical instrumentation. Hall is experienced in ion chromatography, gas chromatography, liquid chromatography, and mass spectrometry. In addition to research support Hall provides laboratory services for outside companies. He is a 2011 graduate of UW-Stevens Point with a bachelor's degree in water resources and a minor in chemistry.


Angie Hauer

Angie Hauer, WIST program development coordinator, coordinates daily office activities, supplies and correspondence. She has a bachelor's degree in resource management from UW-Stevens Point and a master's in outdoor recreation administration from Southern Illinois University at Carbondale.


Lindsey Hoffman

Lindsey Hoffman carries out industry-focused projects and work performed on the UW-Stevens Point pilot paper machine as well as paper testing provided by WIST. She also coordinates student and contract work, along with providing support for the paper science and engineering undergraduate program. Hoffman graduated in 2014 from UW-Stevens Point with a bachelor's degree in paper science and engineering and a minor in chemistry.


Ron Tschida

Ron Tschida, WIST communications manager, handles public relations, marketing and outreach, institute publications and the WIST website. Before coming to UW-Stevens Point in 2005, Tschida was city editor of the Bozeman Daily Chronicle in Bozeman, Montana. He has a master's degree in journalism from the University of Montana.


Rebecca Vagts

Rebecca Vagts, WIST business manager, is responsible for the fiscal management of the WIST grants and contracts including developing budgets in grant narratives, budget review, account reconciliation and fiscal reporting. Vagts has an MBA with a global emphasis and a bachelor's in business management from Upper Iowa University.

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The Wisconsin Institute for Sustainable Technology —

Creating sustainability solutions and economic opportunities

WIST is an institute within the UW-Stevens Point College of Natural Resources. Offices and laboratories are in the Science Building and the Dan Trainer Natural Resources Building on the UW-Stevens Point campus.

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