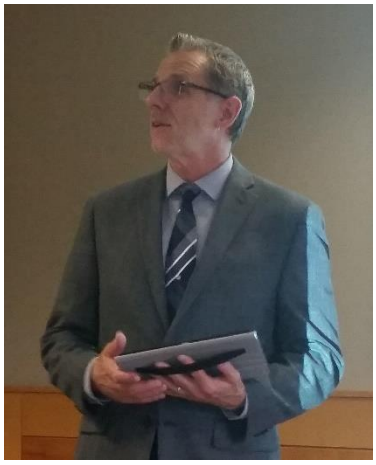
University of Minnesota Hosts APPTI All-Members' Meeting

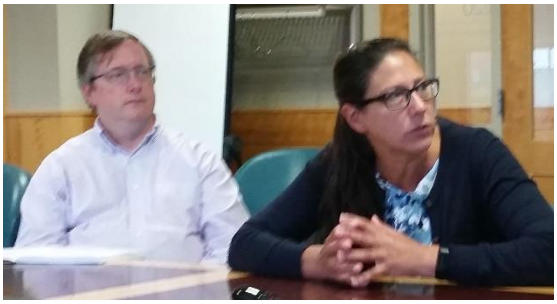


BBE department head Gary Sands welcomed APPTI members and guests to the University of Minnesota campus

St Paul, Minnesota, September 20, 2018—The University of Minnesota's Department of Bioproducts and Biosystems Engineering (BBE), College of Food, Agriculture, and Natural Resource Sciences, hosted the Fall 2018 all-members' meeting of the Alliance for Pulp & Paper Technology Innovation (APPTI) today on its St Paul campus.

Department Head Gary Sands, PhD, welcomed the group. "Our long-standing support for forest products and pulp and paper stems from the industry's presence here in Minnesota, and are evidenced by our academic programs, our research, and our students," said Dr. Sands. "We're proud to host a TAPPI student chapter here as well."

BBE professor Shri Ramaswamy, Ph.D., led the campus visit and served as master of ceremonies for presentations by a number of faculty who discussed their research interests with the group. The tour included several laboratories for biomaterials including materials from lignin as well as traditional pulp & paper products. Ramaswamy also serves as the renewable bioproducts section lead for the Rapid Advancement of Process Intensification and Deployment (RAPID), of which APPTI is a member.



Nalco-Ecolab corporate scientist Laura Rice, PhD, presents the team update on Process Effluent Reuse as Dwight Anderson of International Paper Company looks on

Participants listened to an overview of the current APPTI research portfolio, now totaling $2.25 million over three years and climbing. "We are now reaping results from our members' and partners' research investments," observed executive director David Turpin. "Our projects on membrane-based separation of black liquor is resulting in successful bench-scale demonstrations and new characterization and performance capabilities for the industry. We've achieved promising pulp yield increases at bench scale. We've gained insights into paper sheet drying mechanisms, and how to go about constructing useful modeling projects for efficiency in water use. Seminal literature surveys on top-priority areas in nanocellulose are being concluded and will support a spring workshop. We're on the move.

"Forty-four percent of research investment has been provided by industry companies and 42% by government agencies," Turpin continued, "and 15% by academic institutions. This shows how APPTI can be a force-multiplier for effective use of research resources."

Turpin reported that three APPTI projects (two on next-generation pulping; one on drying energy) have been co-funded by the Department of Energy's Advanced Manufacturing Office High-performance Computing For Manufacturing initiative. A project on black liquor concentration has received funding from the RAPID Institute on Process Intensification, also supported by the Department of Energy. *[Please see the APPTI website for further details: www.appti.org.]* The US Forest Service National Forest Products Laboratory has also provided funding for priority research, as has Georgia Tech's Renewable Bioproducts Institute.

APPTI also announced formation of an initiative to explore shortcomings and challenges in existing containerboard testing methods and research and development projects that might address them. Further details will be forthcoming over the next few months.

APPTI team-leads from member companies provided updates on their teams' progress and plans. A few highlights:

- The Cellulose Nanomaterials team is planning a workshop for May of 2019.
- The Next-Generation Pulping team hopes to announce funding soon for additional projects offered in response to its recent request for proposals.
- The Reuse of Process Effluents team has developed a concept paper on modeling of discharges and will shortly commence work on a Best Practices/Best Available Technology in the area, both designed to reduce risk to operations desiring to make more efficient use of fresh water intake.
- The Reduced Drying Team will receive a commissioned report in November on rewet and wet pressing.
- The Black Liquor Concentration team is pursuing projects to explore addition of membrane-based separation at Georgia Tech with support from the Institute, member companies, and RAPID.

For further information, contact David Turpin (David.Turpin@APPTI.org) and visit the APPTI website (www.APPTI.org). Future meetings are planned in December 2018, April 2019, and September, 2019 [see related article]. There is no registration fee. Contact David Turpin if interested in obtaining an invitation.