Pulp and Paper Industry Faces Systemic Change; Georgia Tech Offers Wide Range of Research Opportunities

Forest Bioproducts Industry Transformation Required - IPST Can Help

Transformation strategies will be required for the forest bioproducts industry to thrive 20 years from now, according to the outcome of the annual Executive Conference of the Institute of Paper Science and Technology at Georgia Tech (IPST) in April. The industry will be facing an emerging global middle class, a burgeoning population and higher demand for critical resources, based on futurists’ forecasts.

Sten Nilsson, CEO of Forest Sector Insights, Sweden, told the conference, “Only systemic change will keep pace in the rapidly changing world. The U.S. is not alone – the entire Northern hemisphere is in the same situation.” Projected increases in pulp production will serve a U.S. export market, which will have to grow. “IPST research is looking toward the future,” said Norman Marsolan, Director of IPST at Georgia Tech. “We are focused on advancing the pulp and paper processes for the existing industry, while developing technology options for innovative new products and processes that will meet consumer demand in the future.”

Georgia Tech is an internationally respected research institute offering highly competitive capabilities in materials science, engineering and chemistry, as well as supply chain, logistics, business leadership, and other fields of critical expertise to support business transformation. IPST provides a portal facilitating the industry’s access to the Georgia Tech intellectual powerhouse. Simultaneously, it provides a window for Georgia Tech experts into the industry that processes forest-based cellulose into 21st-century materials. IPST’s 50 graduate students work in interdisciplinary settings to tackle priority challenges.

Mills to Become Platforms for New Bioproducts Technologies

A survey of dozens of existing forecasts of the forest bioproducts industry by a range of government, industry and NGO interests over the last several years revealed a call for mills to become host platforms for new bioproducts, and they will be pressured to show significant reductions in emissions, waste, and use of energy and water. IPST commissioned Dr. Ron Brown, president of the Agenda 2020 Technology Alliance, to prepare the study of existing industry forecasts, which served as the basis for observations presented to the IPST Executive Conference. The summary report is available to IPST member companies.

“The sustainable manufacturing will require new technologies – today’s technologies are not sufficient,” observed Brown. Global demand for traditional paper products could increase 1.5 percent a year over the next 40 years. The industry may see a global pulp shortage by 2020, and wood removals by 2050 may occur at triple the current rate, according to the studies. There was significant support among the 25 participating companies and organizations at the Conference for research that advances the manufacturing capabilities of today’s pulp and paper companies.

**Advancing the Horizons of the Forest Bioeconomy**

- **Biomaterials**
  - Parsia Poyyam
    - PhD candidate
- **Biorefining**
  - Tyrone Wells
    - PhD candidate
- **Operational Excellence**
  - Sandeep Mora
    - PhD candidate
Industry Has Access to Full Range of Georgia Tech Research and Expertise

“Through IPST, your industry has access to the full range of our research and expertise,” Georgia Tech President G.P. “Bud” Peterson told participants at the IPST 2013 Executive Conference. “More importantly, our experts across Georgia Tech have a portal into the industry with expertise on cellulose and its practically unlimited potential. Bring us your problems – we have answers. We also want to continue to listen to you, the experts in the field, as we move forward with new innovations and solutions for the industry,” Peterson said. “As a world-class educational and research institution, we can offer even more to progressive companies like yours, companies willing to look 20 years into the future to evaluate the implications, opportunities, and challenges that most certainly will be different from those we face today.”

Examine Sustainability Strategies against a Context of Rising World Populations, Declining Natural Systems

Reversing the decline of ecosystems in the face of rapidly increasing demands on them is possible only through significant changes in policies and practices that are not currently being undertaken, according to Beril Toktay, PhD, of the Center for Business Strategies for Sustainability, Scheller College of Business. Addressing the IPST 2013 Executive Conference, she challenged company representatives to examine their sustainability strategies against a context of rising world populations and declining natural systems. As examples, she cited projections that water demands will increase 40% in the next 20 years, and that some 2.8 billion people live in water-stressed areas. Dr. Toktay contrasted internally focused sustainability strategies aimed at reducing waste and improving positioning to externally focused strategies focused on customers, stakeholders, and partnerships to address unmet societal needs. The Center for Business Strategies and Sustainability offers business strategies and innovations that promote economic, environmental, and social value, and techniques for the management and commercialization of sustainable technologies.

Georgia Tech Develops Flexible Contract, Intellectual Property Approaches

“Tech’s research spans from discovery to application, providing a wellspring for industry transformation,” said Don McConnell, executive director, Industry Collaboration & Commercialization. “Current industrial science and technology strategies assume a growing central role for external technology in an ‘open innovation’ environment.”

McConnell emphasized Georgia Tech’s flexibility in dealing with intellectual property issues in contracting with its industrial partners. He cited a more nimble suite of contract options to address successive stages of research development, requiring less case-by-case negotiation and faster time to project initiation. Today’s research contract agreements are targeted to address industry challenges, streamline the contract process, provide straightforward intellectual property terms, and enable translational research. Georgia Tech’s research organization has a long history of translating discovery into innovation. Research awards in fiscal year 2012 totaled $640 million, and Tech consistently ranks in the upper tier for public universities with graduate and undergraduate engineering programs. As McConnell stated, “The research strategy at Tech seeks to create transformational opportunities through strong and sustained collaborative partnerships that enhance economic and societal impact.”