Leveraging Emerging Technologies To Advance Forest Biomaterials Business

Increasing the Value at IPST

2012 Members Meeting

April 10-11, 2012
IPST Paper Tricentennial Building
Atlanta, Georgia
Study Conducted Last Fall

• Survey
  • Purpose: Determine member interest in member-value initiatives; understand desired value
  • Conducted 18 interviews involving eight member companies, two non-member companies

• Strong messages:
  • It’s about the students
  • Companies want to engage
  • IPST should rebrand
Students

• Concern about bench-strength; interest in interacting with high-calibre, highly trained students
• Requests for resumes—now on web site
• Interest in mentoring and guiding opportunities
• Interest in exposure to student work, at appropriate points
  • Far enough along to be interesting
  • Not so far along that guidance would be too late
Engaging

- Desire for broader, deeper engagement
  - Intra-company
  - With IPST experts
  - With GT experts
  - Here, and at company locations
- More frequent communications
  - Regarding research—tailored, digestible, shareable
  - Regarding the Institute
  - Here and at company locations ("Come meet with our team")
Rebranding

• Strategic Advantages at IPST
  • Graduate education program
  • Georgia Tech
  • History with the industry
  • Expertise in fiber, paper science, process knowledge
• Relative ease of doing business
  • New business model
  • Intellectual property policies
  • Location
Rebranding

• Opportunities
  • Visibility
  • Find the strategic niche; focus
  • Broader, deeper engagement with companies
• Labs & Equipment
  • Pilot equipment
  • Lab capability upgrades
• Greater Federal involvement—NSF, USFS FPL & DoA research arms
Member Preferences

• More learning from experts—distilled, relevant, focused on business value
• More exposure to students
• Greater interest in customer-facing research—not appropriate for consortia with competitors
Comments – The Survey and IPST

• Business Model changed in FY11, and the transition is progressing
• Membership changes
  • Nearly eliminated barrier to entry
  • Value proposition has changed with membership redesign
• Consortium research – only a few opportunities offered
  • “The right consortium projects” was mantra
  • Individual company sponsored research is our new model
• Transition within member companies is part of the challenge
Comments – The Survey and IPST

- Visibility is needed
  - Recognize that communications are insufficient
    - Approval to recruit support
  - Desire to offer the valued and meaningful elements of the RAC
    - This meeting is an outcome of discussion
  - Reconnecting with alumni

- Visibility activities
  - Participation in public hearing, DC meetings, expanding strategic communications, campus visibility ...
  - Scholarly publications
Comments – Survey and PSE Degree Program

• The survey found the following:
  • Desire greater involvement in the educational program
  • Want to participate in presentations of student research, at formative stages of the work
  • Seek means to gain an advantage in attracting qualified candidates to their companies
  • More opportunities to recruit PSE students
• Clearly this is a way of increasing engagement in Georgia Tech and in filling a critical need in industry
• Student presentations at this meeting; resumes on the website; poster session, …
Comments – Survey and PSE Degree Program

- Students choose programs of study based on perceived future opportunities
  - Recruiting of graduate students by industry
  - Co-op opportunities
- Other ways to be engaged:
  - Serve on graduate committees
  - Presentations when on campus (undergraduate and graduate)
- Sponsor students and their research
- Visibility activities - GT Research and Innovation Conference (competition), TAPPI Chapter
- Scholarly awards
The PSE Degree Program

PSE Research (funded FY12 proposals)

• Operational Excellence
  • A New Technology to Eliminate Fouling in BL Evaporators (Aidun)
  • Corrosion Control in Closed Paper Machine Environments (Singh)
  • Auxetic Paper (Griffin/Shofner)
  • Towards Full Recyclable and Sustainable Paper Liquid Packages (Deng)

• Biorefining
  • Renewable Nylon 6 Precursors from Lignin Fragments (Jones/Agrawal)

• Biomaterials
  • Utilization of Nanocrystalline Cellulose (Srinivasarao)
  • Design of Special Surfaces with Micro/Nano-Structure-Enabled Tailoring of Surface Properties (Fedorov)
  • Water-based Processing Strategy for Cellulose/Polymer Nanocomposites (Shofner)
  • Fundamentals of Crosslinking Nanocellulosics (Ragauskas)
The PSE Degree Program

PSE Research (sampling of FY13 proposals)

• Operational Excellence
  • Innovative Liquid Plasma Technology for Deinking of Inkjet
  • Erosion-Corrosion of Stainless Steels in Pulping Liquor Environments
  • Role of Natural Inhibitors and Corrosive Extractives on Black Liquor Corrosivity

• Biorefining
  • Isolation of Value Added Chemicals from Pyrolysis Oils and Waste Streams from Paper Mills by Selective Adsorption
  • Low Temperature Catalytic Cracking of Lignin by Hydrodeoxygenation on Mesoporous Catalyst
  • Metabolic Engineering of E. coli Biocatalysts for Advanced Biofuel Production from Woody Biomass

• Biomaterials
  • Fundamentals of Nanocellulose Ultrastructures
  • High-Performance Cellulose Nanofibril Composites
  • Novel High Strength, Low Weight Biocomposite Materials
  • Carbon Fibers from Kraft Black Liquor Lignin
Benefits of the PSE Program

• For Students
  • Meaningful academic program
  • Alignment with future career opportunities
  • Co-op programs

• For Forest Products Industry
  • Well prepared employment pool
  • Insights and access into GT at large
  • Expert research by top-flight students, mentored by top-flight faculty
  • The forest products industry’s future is growing in areas of GT’s strengths

• Schools
  • Funds to conduct research
  • Access to an expanding forest biomaterials market, critical component of Georgia and southeastern economy
  • Expertise in renewable, sustainable resource processes
  • 21st-century materials development
    • Biofuels, forest derived chemicals, nanocellulose…
  • Opportunity to place students in the industry
Discussion Questions

• What do you (members) hear from your leadership about their external research needs? Their business needs?
• How can we help you sell the IPST-Georgia Tech opportunity?
• When you are attempting to hire, what are the backgrounds and skills you have trouble finding?
• “How can we transform the PSE program so that it is worth a premium?”
• How can we, together, attract top-flight students into the PSE program?