The Forest Products Laboratory
Research and Development
USDA Forest Service

Emerging Forest Products Opportunities

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Our Mission. “…To promote healthy forests and forest-based economies through the efficient, sustainable use of our wood resources.”

Our Vision. “…Through innovation at the highest level, we enhance the quality of life of all Americans.”
The Forest Products Laboratory:

FPL Fast Facts

- In operation since 1910.
- 164 employees, including 60 scientists.
- 8 research work units.
- A new Forest Products Marketing Unit.
- A new Termite Control and Science Unit.
- The FPL:
  - Makes America competitive.
  - Enhance the economy.
  - Creates new jobs.
  - Develops and transfers technology.
  - Strengthens the housing markets.
  - Helps create resilient forests.
  - Reduces wildfire risk and costs.
  - Serve all across the rural to urban land gradient.
FPL’s Science Themes:

Forest Products Laboratory
Major Science Themes

1. Underutilized Woody Biomass
2. Nanotechnology
3. Biorefinery/Bioenergy
4. Advanced Composites
5. Advanced Wood Structures
Our Focus:
1. Resilient Forests
2. Improved Economy
3. New Jobs

Through: Effective Biomass Uses

1. Wood-Based Nanotechnology
2. Green Building Construction
3. Biomass for Energy

“...Help create healthy, sustainable forests that are more resilient to disturbances through *restorative actions.*”
Wood-based nanotechnology and other “biomass uses” offer a grand opportunity to create healthy, sustainable forest that are more resilient to disturbances through restorative actions…
Wood-based Nanotechnology

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When added to other materials, “cellulose nanomaterials” (CNCs) help produce high-value products that are:

- Stronger
- Lighter
- Cheaper
- Renewable

Tensile strength of CNCs.
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High-value, high volume products and applications...

- Defense applications.
- Batteries.
- Super-capacitors.
- “Smart” paper.
- Paints, coatings & films
- Sporting goods.
- Building materials.

Wood-Based Nanotechnology
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Green Building Construction

Wood as a Sustainable Building Material

Advanced Composites

The “cannon”
Biomass for Energy

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Banding together and sharing resources can make a huge difference in deploying a wood-based nanotechnology and other “biomass uses” to:

- Accelerate forest restoration.
- Diversify our economy.
- Create new jobs.
- Reduce catastrophic fires.
- Keep our forests healthy, sustainable and more resilient to disturbances.

**Federal Partners in Biomass Uses**
Department of Agriculture (USDA); Department of Defense; Department of Energy; Department of Commerce; Environmental Protection Agency (EPA); National Science Foundation; National Institute for Occupational Safety & Health; National Institute for Science and Technology.

**Non-Federal Partners in Biomass Uses**
U.S. Endowment for Forestry and Communities; “Agenda 2020 Technology Alliance” (forest industry); Mississippi State University; Penn State University; University of California; Purdue University; Georgia Tech; Oregon State University; University of Tennessee; North Carolina State University; University of Maine.