

FOREST PRODUCTS LABORATORY

Alan Rudie

Project Leader: Fiber and Chemical
Sciences Research Work Unit

the Forest Products Lab

- ▣ 100 years old (next year).
- ▣ ~45 RGEG Scientists
- ▣ The major site of forest products research within the forest service.
- ▣ Wood materials properties
- ▣ Engineering and testing
- ▣ Decay resistance
- ▣ Composites and panel products
- ▣ Wood chemistry
- ▣ Beneficial use of biochemistry
- ▣ Finishes and adhesives

A bit about me

- ▣ Chemist (actually inorganic)
- ▣ 11 Years pulping and bleaching (IP)
- ▣ 13 years pulping and bleaching (IPST)
- ▣ FPL since 2003.
 - Prehydrolysis kraft
 - Pretreatments
 - Dilute acid hydrolysis
 - Trace metals management.

FPL Projects

- ▣ Biorefinery Pilot Plant
 - \$5 MM for engineering
 - Joint ARS, FSR
- ▣ Value prior to pulping (prehydrolysis-kraft)
 - ~ \$2 MM DOE project
 - Rudie, Houtman, Bilek, Ince
 - Research partners: Syracuse, NCSU, UMO. GT
- ▣ Gasification using a molten metal gasifier
 - Dietenberger, with UW Madison
- ▣ SPORL
 - Zhu, with UW Madison

FPL Projects

- ▣ National biorefinery siting project
 - Skog with Western Governors Association
- ▣ Economic modeling of wood-based gasification – FT
 - Ince, with U. of Tenn, and TRI
- ▣ Life Cycle of wood-based biofuels
 - Skog with Corrim, U Washington lead.
- ▣ Xylose fermentation with *Pichia stipitus*
 - Jeffries

Equipment

- ▣ CD-300. 1-3 tpd CTMP continuous pilot plant. Plug screw feeder (PREX) chemical contact system and washing system. Stainless.
- ▣ Rotating Digesters (350 L - pressure vessels). Stainless
- ▣ Digesters: 2 cu ft, and 1 L. Stainless
- ▣ Membrane filtration system
- ▣ 60 -L bioreactor (fermenter)