

Bio-carbon initiatives at Lakehead University

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CCRA Working meetings on June 12-13
At the Ontario Investment and Trade Centre
250 Yonge Street, 35th Floor, Toronto, ON M5B 2L7

Team at LU

Chemical Engineering :

Prof Sudip Rakshit and Dr. Padram Fatehi

Pyrolysis, value added products, product separation, biochemical conversions

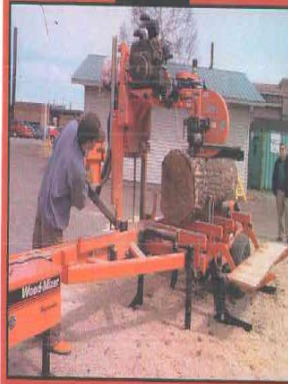
Natural Resource Management :

Dr. Mathew Leitch, Dr. Nancy Luckai, Dr. Reino Pulkki,
Dr. Chander Shahi

Harvesting, Transport, Wood and waste stream logistics, market sector analysis, application of biochar



LU Wood Science and Testing Facility (LUWSTF)



LUWSTF

Lakehead University
Wood Science &
Testing Facility

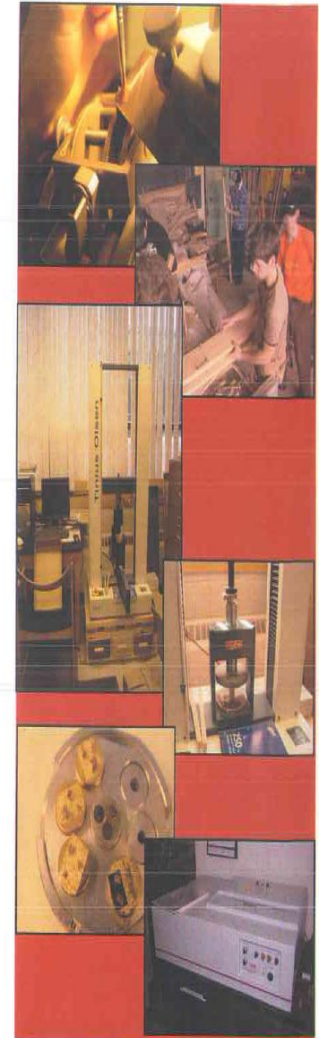
LUWSTF is a state-of-the-art facility for conducting wood property testing. Tests include all mechanical testing, thermal testing, microscopy studies, hot-press studies, portable bandsaw milling studies, portable kiln development studies, pellet studies, thermal modification studies, x-ray densitometry studies and more.

Education In Wood Science/ Forest Products and Marketing

The LUWSTF conducts research as well as teaching. In the area of teaching the labs are involved in 2nd year Tree Development and Function; 3rd year Wood Science; 4th year Advanced Wood Science; 4th year Portable Milling Technologies; Graduate level courses on Wood Science. The labs also produce between 3 and 6 undergraduate theses per year and several postgraduate students (MScF and PhD) are working in the labs at all times. There are generally opportunities for postgraduates in the program.



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WOOD
IS GOOD

Possible roles of LU team

Which biomass sources are best suited to steel and coke operations?

- Availability of biomass and waste streams for such purposes
- Properties of processed (eg. Waste in major paper mill like Resolute, Thunder Bay) and unprocessed waste streams in forest industry
- Applicability of biochar for steel industry and agriculture – carbon sequestration

How should biomass materials be prepared for steel and coke operations?

- Use of biomass with appropriate properties to produce biochar/coke with desirable characteristics like carbon content using pyrolysis
- Separation of undesirable residuals to increase efficiency of process
- **Life Cycle Analysis (LCA)** of the use of biomass based carbon in the steel industry as compared to the present processes taking into account the broader climate issues.

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