Analytical Methods for Wood-Based Composites R&D

June 8-9, 2005

Presented by the
Wood-Based Composites Center
Blacksburg, Virginia

Location: 318 Cheatham Hall
Virginia Tech
Blacksburg, VA

Cost: The cost for the two-day short course is $1295.00 per person. Members of the WBC Center are eligible for a reduced registration fee of $970.00 for Supporting members or $1165.00 for Contributing members. Due to the highly specialized nature of the course, complimentary registrations are not available for this class. Course participation is limited to 12, and members of the Wood-Based Composites Center have priority for course registration. The class will be opened up to the public for registration after April 21, 2005, if the slots are not yet filled by Center members. The registration fee includes all workshop materials as well as lunch, refreshments, and transportation during the class.

Lodging: You are responsible for making your own lodging reservations. A block of rooms has been reserved at the Donaldson Brown Hotel and Conference Center for participants at a special room rate of $76.00 per night. Reservations can be made by calling (877) 200-3360 or (540) 231-5156. Be sure to mention your participation in the WBC Center Analytical Methods short course in order to receive the special room rate. The reserved rooms will be released to the public on May 17th. Rooms are not guaranteed to be available after this date, and the reduced rate will no longer be offered, so reservations should be made early.

About the Short Course

This laboratory-intensive course introduces participants to the fundamentals underlying several different analytical tools and methods pertinent to polymers, adhesives, wood and wood-based composites. Participants will acquire the basic knowledge needed to appreciate how particular instruments operate, and what various methods will provide for the R&D professional. The objective will be to help participants learn how these various methods could benefit their R&D activities.

Agenda:

DAY One
8:00 a.m. Welcome and Introductions (Frazier, Rials, Zink-Sharp)
8:15 a.m. Optical Microscopy (Zink-Sharp)
9:00 a.m. Laboratory Exercises and Demonstrations
            Groups 1 and 2: Optical Microscopy (Zink-Sharp)

10:00 a.m. Break

10:15 a.m. Basic Rheology of Newtonian and Non-Newtonian Fluids (Frazier)

11:00 a.m. Thermogravimetric Analysis (Roman)

11:45 a.m. Lunch (Donaldson Brown Hotel)

1:00 p.m. Size Exclusion Chromatography (Frazier)

1:45 p.m. Differential Scanning Calorimetry (Rials)

2:30 p.m. Break

2:45 p.m. Laboratory Exercises and Demonstrations
        Group 1: Elementary Viscometry and Rheology (Frazier)
        Group 2: Differential Scanning Calorimetry (Rials)

3:45 p.m. Nuclear Magnetic Resonance, Solutions and Solids (Frazier)

4:15 p.m. Questions and Discussion
            Day One Wrap-up

**DAY Two**

8:00 a.m. Dynamic Mechanical Analysis (Frazier)

8:45 a.m. Microdielectric Analysis and Dielectric Spectroscopy (Rials)

9:30 a.m. Break

9:45 a.m. Laboratory Exercises and Demonstrations
        Group 1: Dynamic Mechanical Analysis (Frazier)
        Group 2: Microdielectric Analysis and Dielectric Spectroscopy (Rials)

10:45 a.m. Surface Analysis (Frazier)

11:30 a.m. Lunch (Donaldson Brown Hotel)

12:45 p.m. Thermomechanical Analysis (Frazier)
Laboratory Exercises and Demonstrations

Group 1:  Surface Analysis (Frazier)
Group 2:  Thermomechanical Analysis (Frazier)

Break

Infrared Spectroscopy (Labbe)

Mode-I Fracture, Adhesion Testing (Frazier)

Laboratory Exercises and Demonstrations

Group 1:  Near Infrared Spectroscopy (Rials)
Group 2:  Mode-I Fracture, Adhesion Testing (Frazier)

Questions and Discussion
Course Evaluation and Wrap-up

About the Instructors:

Dr. Chip Frazier is an Associate Professor in the Department of Wood Science and Forest Products at Virginia Tech. He specializes in adhesives and adhesion.

Dr. Tim Rials is a Professor and Director of the Tennessee Forest Products Center at the University of Tennessee in Knoxville. He specializes in polymer science and specifically in the structure and properties of wood/polymer interfaces.

Dr. Audrey Zink-Sharp is an Associate Professor in the Department of Wood Science and Forest Products at Virginia Tech. She specializes in wood anatomy, structure and property relations, and microscopic analysis.

Dr. Maren Roman is an Assistant Professor in the Department of Wood Science and Forest Products at Virginia Tech. She specializes in natural and bio-based polymers and composites, properties and applications of cellulose nanocrystals.

Dr. Nicole Labbe is a Post-Doctoral Associate at the University of Tennessee in Knoxville. She specializes in wood and wood-based products characterization by infrared spectroscopy.

To Register...

Contact Ms. Patsy Dillon-Long, Conference Registrar, Virginia Tech Division of Continuing Education, by phone at (540) 231-6002 or by email at patsydl@vt.edu to register. Registration is limited to members of the WBC Center through April 21st, or until all 12 slots are filled, whichever occurs first. Registration to the general
public will commence on April 22nd, and will continue until all available slots are filled, or until May 17th, whichever occurs first. Participants will receive a map and parking instructions prior to the start of the course.

For More Information…
Contact Linda Caudill, Managing Director, Wood-Based Composites Center at (540) 231-7092 or by email at lcaudill@vt.edu.