



VirginiaTech

College of Natural Resources

Department of Wood Science & Forest Products

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www.woodscience.vt.edu

Department of Wood Science and Forest Products

Faculty Directory

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Philip A. Araman Adjunct Professor

Philip Araman is a Research Project Leader and Scientist with the USDA Forest Service Southern Research Station and an adjunct faculty member in Wood Science and Forest Products. He and his research project are located at the Brooks Forest Products Center at Virginia Tech. His project's research mission is to develop advanced tree evaluation and processing technologies, automated hardwood processing technologies, new or improved products made from low- and medium-grade hardwood sawtimber and nonselect species, and to develop effective wood product recovery, reuse, and recycling (<http://www.srs4702.forprod.vt.edu>). They are also conducting non-timber forest products research (<http://www.sfp.forprod.vt.edu>). Please visit the listed web sites for more information. Phil has extensive experience in pallet production, recovery, repair, and reuse; in processing logs into lumber, and lumber into pallets, furniture and cabinet product; in international trade of hardwood products.

Areas of Expertise:

- R&D Project Leader
- Rough Mill Cut-Up Operations
- Scanning Technologies and Advanced Wood Processing
- Wood Recovery, Reuse, and Recycling
- International marketing and trade

Contact:

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Brian Bond Associate Professor

Brian H. Bond, Ph.D., serves as extension specialist in Wood Products where his current extension and research program focuses on improving efficiency in lumber production and drying operations in Virginia. He teaches the WOOD 3534 Lumber manufacturing and drying and co-teaching Wood 5984: Fundamentals of Wood Material Science. Dr. Bond is currently conducting research on reducing warp during drying and developing drying schedules for tropical hardwoods.

Areas of Expertise:

- Lumber processing and drying
- Wood Performance in Manufacturing
- Wood Identification

Education:

B.S. - Clemson University, 1991

M.S. - Virginia Polytechnic Institute & State University, 1993

Ph.D. - Virginia Polytechnic Institute & State University, 1998

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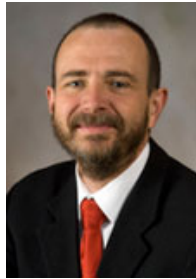
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Urs Buehlmann Associate Professor

Urs works in the area of manufacturing systems engineering and business competitiveness. His activities also address issues relating to globalization. He teaches secondary wood products manufacturing. He is a member of the Sloan Foundation Forest Industries Center, an Adjunct Professor at Université Laval, a member of the board of WoodLINKS USA, and a member of the education committee of the Association of Woodworking and Furnishing Suppliers (AWFS). Urs moved to Virginia Tech in 2007 from Enkeboll Designs, where he was General Manager.

Areas of Expertise:

- Manufacturing Systems Engineering
- Lean Manufacturing
- Business Benchmarking
- Competitive Strategy
- Globalization

Education:

B.S. - Swiss Institute of Wood Technology, 1993

M.S. - Virginia Tech, 1998

Ph.D. - Virginia Tech, 1998

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Robert J. Bush

Professor

My work involves the marketing of forest products and the management of wood-based companies. Within this area, my activities include teaching, research, outreach, and consulting. Specific research activities include studies of the North American lumber, furniture and pallet industries, as well as international trade in wood products. I am a member of the Center for Forest Products Marketing and Management and serves as Associate Dean for Research and Graduate Studies, College of Natural Resources.

Areas of Expertise:

- Measurement of Customer Perceptions and Needs
- Competitive Strategy
- Capital Budgeting and Decision Making
- Structural Characteristics of Wood-Based Industry
- Forest Products Marketing
- Forest Products Business Management

Education:

B.S. - University of Minnesota,

M.S. - Virginia Tech,

Ph.D. - Virginia Tech,

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Kevin Edgar Professor

Dr. Edgar focuses on the synthesis, analysis, and structure-property-performance evaluation of polysaccharide derivatives. He has particular interest in the creation of novel drug-delivery systems based on polysaccharide derivatives, in order to address critical patient needs. He is interested in novel methods to control and utilize the microstructure of polysaccharides and derivatives. His research also addresses the broad and vital issue of identifying novel, high value biomaterials from biomass, and viable processes for their preparation. He is Associate Director for Research Initiatives in the Macromolecules and Interfaces Institute (MII), is an active member of the Institute for Critical Technologies and Applied Science (ICTAS) and serves on its Faculty Advisory Board, and is a member of the Wood-Based Composites Center (WBC) and the Sustainable Engineered Materials Institute (SEMI). Dr. Edgar leads the Bio-based Materials and Processing Group under ICTAS.

Dr. Edgar moved to Virginia Tech in 2007 from Eastman Chemical Company, where he was a Technology Fellow focusing on cellulose ester chemistry, drug delivery, and the creation of technology portfolios and organizations to support new business initiatives.

Areas of Expertise:

- Creation of drug delivery systems to meet patient needs
- Bioavailability enhancement
- Synthesis of novel polysaccharide derivatives
- Chemistry of cellulose and its derivatives
- Polysaccharide chemistry
- Structure-property-performance relationships of biomaterials and derivatives
- Biomass conversion to high value biomaterials

Education:

B.S. - Bucknell University, 1975

Ph.D. - Duke University, 1979

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Charles E. Frazier

Thomas M. Brooks Professor

Dr. Frazier works in the area of adhesion and polymer science with an emphasis on wood-based composite materials. He is the Director of the Wood-Based Composites Center ([WBC](#)); and he is also active in the Sustainable Engineered Materials Institute ([SEMI](#)), and the Macromolecules and Interfaces Institute ([MII](#)).

Areas of Expertise:

- Wood Adhesion
- Characterization of the Wood/Adhesive Interphase
- Wood Rheology
- Thermoplastic and Thermosetting Adhesives for Wood
- Fracture Testing of Bonded Wood

Education:

B.S. - Virginia Polytechnic Institute & State University, 1985
M.S. - University of Washington, 1987
Ph.D. - Virginia Polytechnic Institute & State University, 1992

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Wolfgang G. Glasser

Professor Emeritus

Dr. Glasser is involved in the area of polymer and materials science with an emphasis on biobased materials and composites. He participates in the Wood-Based Composites Center (WBC) and the Polymer Materials and Interfaces Laboratory (PMIL). He serves as Editor-in-Chief of CELLULOSE by Kluwer Academic Publishers, and he is on the editorial boards of the Journal of Applied Polymer Science, Holzforschung, Cellulose Chemistry and Technology, and the Journal of Wood Science.

Areas of Expertise:

- Molecular Structure and Reactions of Wood
- Thermoplastic and Thermosetting Polymers from Wood
- Separation of Wood Components
- Biobased Materials and Composites
- Structure-Property Relationships of Biomaterials
- Wood Chemistry

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A.L. "Tom" Hammett
Professor

Dr. Hammett serves on the staff of Virginia Tech's [Center for Forest Products Marketing and Management](#). The Center provides education programs and market information for the forest products sector. On campus he teaches courses in non-timber forest products, global natural resources, and world forestry and forest products. He heads Virginia Tech's program focused on [non-timber forest products](#) (NTFPs). His outreach and research is focused on niche markets, small forest-based enterprises and forest products certification. Dr. Hammett currently has projects focused on the utilization and marketing of NTFPs in the Appalachian region, as well as in Nepal, South and Central America, and Africa.

He moved to Virginia Tech in 1995 from the position of Research Scientist and Senior Faculty Fellow at Yale University's School of Forestry where he served three years as the Team Leader for a project that supported the development of Nepal's only forestry college. While in Asia his research activities focused on utilization and trade of non-timber forest products and the management of forest-based enterprises. Dr. Hammett has authored a book on trade of forest products and numerous articles and publications based to his work in the US and overseas. His international work has included developing a locally managed market information systems for non-timber forest products in the Philippines, identifying value added opportunities for NTFPs in Asia, conducting a sustainable natural resources-based enterprises training in the Dominican Republic, organizing local forest industry centers in Thailand, and coordinating the first regional training program in marketing of NTFPs for Asia.

In his spare time, Dr. Hammett enjoys biking, tennis, gardening, and traveling.

Areas of Expertise:

- International marketing and trade
- Non-Timber Forest Products Utilization and Marketing
- Forest-Based Economic Development
- Forest Products Marketing
- Certified Forest Products
- Niche Markets

Education:

B.S. - University of New Hampshire, 1974
M.S. - University of Georgia, 1986
Ph.D. - University of Georgia, 1991

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Daniel Hindman Assistant Professor

Daniel P. Hindman, Ph.D., serves as assistant professor in Wood Products where his research program focuses upon the efficient use of structural wood composite materials for residential and commercial applications. He teaches the *Mechanics of Wood Materials II* and the graduate level *Timber Engineering* course in addition to the *Design of Wood Structures* class in Civil and Environmental Engineering. Dr. Hindman has studied the differences of engineered wood products compare to solid-sawn material. This work includes measurement of material elastic constants, bending stiffness and torsional stiffness. The differences of EWPs and solid-sawn lumber cause differences in the lateral torsional buckling response of joists. This phenomenon can also lead to safety issues of workers installing bracing during construction. Recently, Dr. Hindman has also started modeling the intra-ring properties of earlywood and latewood layers in wood strands. The elastic properties of earlywood and latewood have been shown to be dramatically different, yet the current models for consolidation of wood composites assume that strands are homogenous with uniform properties. The different intra-ring properties may lead to stress concentrations compare to a more uniform material.

Areas of Expertise:

- Wood Building Design
- Mechanical Properties of Wood
- Stability of Wood I-joists
- Torsional Stiffness of Wood Members
- Modeling of Intra-Ring Properties of Wood Strands

Education:

B.S. - Pennsylvania State University, 1997

M.S. - Pennsylvania State University, 1999

Ph.D. - Pennsylvania State University, 2003

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Geza Ifju Professor Emeritus

Dr. Ifju had been a faculty member at Virginia Tech for 37 years (from 1964 to 2001) and 22 years (from 1979 to 2001) as the Department Head of Wood science and Forest Products. He helped develop the department as one of the top wood science programs in North America. He is past president of the [Forest Products Society](#) and the [Society of Wood Science and Technology](#). His special interest is in wood science education and research.

Also, He was previously Editor of [Wood and Fiber Science](#)

Areas of Expertise:

- Wood Structure-properties Relationships
- Wood Mechanics
- Quantitative Wood Anatomy
- Academic administration

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D. Earl Kline Professor

I am a professor of manufacturing systems in the Department of Wood Science and Forest Products at Virginia Tech and the Director of the Sloan Foundation Forest Industries Center. For the past 20 years at Virginia Tech, my passion has been to teach and mentor students for the next generation of managers and leaders. Subjects I teach include computer control applications for forest products manufacturing, lean manufacturing, production operations management, and systems engineering design principles. Recently, I have been primary student advisor to the Wood Enterprise Institute, an experiential learning class where students practice what they learn in a manufacturing business environment. I have extensive training and experience in the area of industrial engineering and process control technologies to improve upon wood products manufacturing. Highlighting one of the key successes in this area, I have worked closely for many years with scientists from Electrical Engineering and from the USDA Forest Service to develop and patent machine vision technologies applied to lumber scanning and grading. My experience has shown that developing or applying a technology in isolation from the core market focus of a business usually gets in the way of its value-adding effectiveness. Such experience has shifted my focus now toward applying systems engineering technologies to help link production capability more closely to true market demand. This focus has led to the joint venture between the College of Natural Resources and Pamplin's College of Business through the creation of the Sloan Foundation Forest Industries Center at Virginia Tech. The main goal of the Sloan Center is to facilitate collaborative efforts between the two Colleges and their stakeholders to help develop sustainable methods that keep activities in the forest industry's value chain in balance with consumer demand. The bottom line message from the Sloan Center's efforts: it much easier to balance the equation "business sustainability = resource sustainability" when the end-consumer is considered as an integral part of the system.

Areas of Expertise:

- Manufacturing Systems Engineering
- Continuous Improvement Technologies
- Lean Manufacturing Methods
- Production Operations Management
- Computer Applications in Manufacturing
- Process Automation and Process Control

Education:

B.S. - Virginia Tech, 1982

M.S. - Virginia Tech, 1984

Ph.D. - Texas A&M University, 1987

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Fred M. Lamb
Professor Emeritus

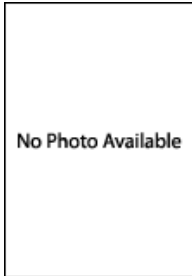
Areas of Expertise:

- Rough Mill Cut-Up Operations
- Wood Processing and Manufacturing
- Wood Machining
- Furniture Manufacturing Technology
- Insect Infestation, Mold, and Mildew in Wood

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Liam Leightley
Adjunct Professor

Contact:

Institute for Advanced Learning and Research
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Joseph R. Loferski

Professor

Areas of Expertise:

- Wood Engineering and Structural Design Procedures
- Performance of Wood and Wood Composites in Buildings
- Moisture Problems and Wood Deterioration in Buildings
- Wood Flooring
- Fasteners and Connections
- Product Design and Development
- Preservation of Historic Wood Buildings

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Henry Quesada-Pineda

Assistant Professor

Henry works in the area of business management processes and modern manufacturing systems. He is also interested in studying supply chain management issues and the application of lean thinking principles in order to reduce waste and increase value for the wood products industry. His teaching duties includes Forest Products Business Management, and Forest Products Business Systems. Before Henry moved to VA Tech he was a faculty at the Costa Rica Institute of Technology (Costa Rica Tech) for ten years .

Areas of Expertise:

- Business Process Management
- Manufacturing Systems
- Lean Supply Chain Management
- Automation of Manufacturing Systems
- Innovation

Education:

B.S. - Costa Rica Institute of Technology, 1997

M.S. - Purdue University, 2001

Ph.D. - Purdue University, 2004

Contact:

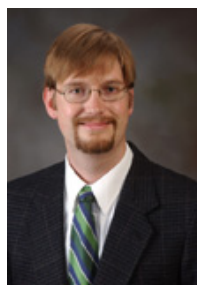
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Scott Rennecker

Assistant Professor

I work in the area of wood and bio-based composites. My background is in wood science with an emphasis on polymer chemistry. I received my PhD degree from Virginia Tech. Prior to joining the department I studied at the University of California, Berkeley for my MS degree.

My discovery program is focused on research to determine the interactions of nanoparticles and polyelectrolytes with plant-based macromolecules in order to create functionalized plant-based composites. From this broad theme, my interests are two-fold: 1) combining nanotechnology into contemporary wood-based composites and 2) creating biobased composites from the bottom-up (controlled placement of nanoscale building blocks). My long term research goal is to create a wood-like material from any source of biomass with prescribed functionality by placement of the appropriate nanoscale materials.

Components of this research involve the elucidation of the fundamental behavior of polymers and nanoscale materials at the solid-liquid interface (interactions with the polymers in the cell wall or model plant-based polymer surfaces), facile methods to process biomass into the constitutive polymer components such as steam explosion processing, and using layer-by-layer nanoassembly to create highly structured materials. I teach Wood Adhesion and Composites II and co-instructs Wood Materials Science and Technology.

Dr. Rennecker is currently seeking qualified graduate students to join his research group.

Areas of Expertise:

- Biomimetic (bottom-up) composites
- Applications of nanotechnology to traditional wood-based composites
- Novel processing methods for biomass

Education:

B.S. - Virginia Tech, 1997

M.S. - University of California, Berkeley, 1999

Ph.D. - Virginia Tech, 2004

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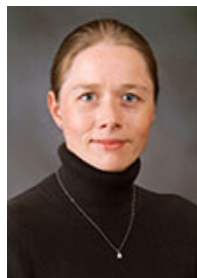
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Maren Roman

Assistant Professor

Dr. Roman works in the area of natural and bio-based polymers and composites. Her background is in chemistry with an emphasis on polymer chemistry. Dr. Roman received her PhD degree from the SUNY College of Environmental Science and Forestry. Prior to joining the department, she held a postdoctoral position at the Pulp and Paper Research Centre at McGill University.

Dr. Roman's research program is centered around the properties and applications of cellulose nanocrystals. The program spans both fundamental and applied projects in wood and materials science. Dr. Roman teaches *Wood Chemistry, Products, and Processes and Wood Materials Science and Techniques*.

Areas of Expertise:

- Self-assembly and colloidal properties of cellulose nanocrystals
- Surface functionalization of cellulose nanocrystals
- Complexation of cellulose nanocrystals with polyelectrolytes
- Interactions of cellulose with proteins and cells
- Applications of cellulose nanocrystals in targeted drug delivery and tissue engineering
- Enzymatic cellulose degradation in the bioethanol process

Education:

M.S. - Clausthal University of Technology, 1996

Ph.D. - State University of New York, 2002

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Al Schuler
Adjunct Professor

Forestry Sciences Lab 241 Mercer Springs Road Princeton, WV 24740

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Robert L. "Bob" Smith Associate Dean and Professor

Bob works in the area of the marketing of forest products. Specific interests include industrial marketing, strategic planning, and personal selling in the forest products industry. Bob teaches marketing, sales, and wood products continuing education courses throughout the US. He is the Director of the Center for Forest Products Marketing and Management (CFPMM) and is on the faculty advisory boards for the Wood-based Composite Center (WBC) and the Sustainable Engineered Materials Institute (SEMI).

Areas of Expertise:

- Forest Products Marketing
- Industrial Marketing
- Personal Selling
- Sales Management
- Forest Products Business Management
- International Marketing
- Strategic Management

Education:

B.S. - Michigan Tech, 1977

M.S. - MBA - Wisconsin/Oshkosh, 1990

Ph.D. - Virginia Tech, 1994

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Marshall S. "Mark" White Professor Emeritus

Dr. Marshall "Mark" White has been a member of the faculty in the Department of Wood Science & Forest Products at Virginia Tech since 1975. Originally from New Jersey, Dr. White received degrees from Colorado State University and Virginia Tech. Dr. White is the director of the William H. Sardo Jr. Pallet & Container Research Laboratory and the Center for Unit Load Design. His research and extension programs through the pallet lab and the unit load design lab focus on unit load materials handling efficiency. As a result of his research expertise, Dr. White has written many national and international standards for pallets and containers. He is head of the US delegation to the International Organization of Standardization (IS) TC51 Committee on International Pallet Standards and chairs the American Society of Engineers MH1 Committee on Pallet & Container Standards. Mark enjoys vacationing on New Jersey beaches and raising Newfoundlands.

Areas of Expertise:

- Pallet Design and Performance
- Sawmilling, Log & Lumber Grading
- Unit-Loads, Automated Material Handling Systems

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Paul M. Winistorfer

Dean College of Natural Resources

Dr. Paul Winistorfer is Dean of the College of Natural Resources and Professor of Wood Science and Forest Products with overall responsibilities for the College's programs in learning, discovery and engagement. The College of Natural Resources at Virginia Tech is a national leader in the arena of natural resources and the environment.

Dr. Winistorfer came to Virginia Tech as Department Head in May of 2001 following a 16 year faculty appointment at the University of Tennessee and a Post-doctoral appointment at the University of Georgia. He was appointed the third Dean of the College August 1, 2009.

Dr. Winistorfer, 53, has extensive experience in the field of wood composites, directing a research program at The University of Tennessee that focused on density and densification of these products during manufacture. This work led to successful national USDA Research Initiative Competitive grants, a stream of important publications and technology that has been commercialized in the private sector and is in place at over 120 manufacturing facilities, R&D labs, Government and university labs worldwide. Winistorfer was the founding Director of the Tennessee Forest Products Center on the UT campus, which included development and building of a new leading laboratory on that campus. He is a U.S. patent holder and twice recipient of the American Museum of Science and Energy Emerging Technology Awards in 1999 and 2000.

Dr. Winistorfer holds the Doctorate in Forestry (Wood Science) from Iowa State University and also participated in the Undergraduate Honors degree program, encompassing studies in forest products, industrial engineering and education. He is an elected Fellow in the International Academy of Wood Science.

In support of his profession, he has served as President of the Forest Products Society (www.forestprod.org), and President of WoodLINKS USA, a grassroots educational platform to bring modern wood manufacturing to high schools, community colleges and universities. WoodLINKS is currently present in 125 schools in 22 states.

Winistorfer's duties currently include leadership of the college's programs in learning, discovery, engagement and development. He serves as the chief academic and fiscal officer of the college.

Areas of Expertise:

- Densification in Wood Composites
- Wood Performance in Application
- Wood Composites Manufacture, Testing and Performance
- Wood Identification and Use

Education:

B.S. - Iowa State University, 1978

Ph.D. - Iowa State University, 1985

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Frank E. Woeste

Professor Emeritus

Frank E. Woeste, Ph.D., P.E. is Professor Emeritus at Virginia Tech and Adjunct Professor of Wood Science and Forest Products. Since 1972, he has researched the design, installation, and performance of metal-plate-connected wood trusses and the engineering properties of lumber. His recent research is focused on the inspection and design of wood decks and balconies; and jointly with Dr. Loferski, they have produced a manual for the inspection of wood decks and balconies. Frank is the lead author of "Wood Bits" that appears three times annually in the International Code Council (www.iccsafe.org) magazine *Building Safety*.

Areas of Expertise:

- Performance of Metal-Plate-Connected Wood Trusses
- Truss Bracing
- Wood Building Design
- Residential Floor Vibration Control
- Lumber Strength
- Post-Frame Building Design
- Deck and Balcony Design
- Ceramic Tile on Wood Joists

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Robert L. Youngs
Professor Emeritus

Bob Youngs has extensive experience in both government and academia and on the international scene. His first career was in the U.S. Forest Service, where he served for 34 years as a researcher and research administrator. His research was primarily in wood drying, wood physics, and wood mechanics. His research administration was at the Forest Products Laboratory in Madison, WI., where he served as Director; in the Washington, DC, office of the Forest Service, where he served as Associate Deputy Chief for Research; and as Director of the Southern Forest Experiment Station, headquarters in New Orleans, LA, where he directed research in forestry throughout the Mid-South.

After retirement from the Forest Service, he moved to Virginia Tech, where he served for 10 years as a professor and organized courses in world forestry, agroforestry, and principles of wood utilization. He worked on several international projects, involving the restructuring of forestry research in India, reforestation in Senegal, and others. He has also led in establishing and implementing exchange and collaboration agreements with universities in Taiwan and France. He continues much of that activity as professor emeritus.

Upon retirement from his active faculty role at Virginia Tech, he became editor of *Wood and Fiber Science*, the journal of the Society of Wood Science and Technology. This led to further development of his interest in scientific writing and to development of a course in scientific writing in English for Chinese scientists.

He has been active on the international scene, especially through the International Union of Forestry Research Organizations (IUFRO). He served in leadership roles on several working parties, as Coordinator of the Forest Products Division, and on the IUFRO Executive Board.

Areas of Expertise:

- International Programs in Forestry and Wood Products
- Scientific Writing
- Scientific Writing in English for Chinese Authors

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Audrey Zink-Sharp

Professor and Interim Department Head

Dr. Zink-Sharp teaches undergraduate, graduate, and continuing education classes in wood anatomy, properties, and processing. Her primary research emphasis is wood cell wall architecture and development of improved wood-based composites. Dr. Zink-Sharp coordinates the department's Wood Magic program and is the Director of the Sustainable Engineered Materials Institute at Virginia Tech (SEMI).

Areas of Expertise:

- Quantitative Wood Anatomy
- Micro-Mechanics
- Video Microscopy for Strain Measurement

Education:

B.S. - Colorado State University, 1983

M.S. - Colorado State University, 1986

Ph.D. - State University of New York, 1992

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