Emerging Renewable Nanomaterials

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Abstract: Forest industries are traditionally related to wood products for housing and pulp and papers manufacturing. This picture is being moving toward nanotechnology since the discovery of nanocellulose substrates. Nanocelluloses, including nanofibrillated and nanocrystalline cellulose, are the fundamental constitutive polymeric motifs of macroscopic cellulosic-based fibers. They are the frontrunner for the emergence of the nanotechnology application in the forest products field as they have garnered in the materials community a tremendous level of attention that does not appear to be waning. These biopolymeric assemblies warrant such attention not only because of their unsurpassed quintessential physical and chemical properties but also because of their inherent renewability and sustainability in addition to their abundance. They have been the subject of a wide array of research efforts as nanomaterial precursors due to their low cost, availability, renewability, light-weight, nanoscale dimension, and unique morphology. Functional advanced materials based on these building blocks, such as foams, hydrogels, films, nanopapers, and scaffolds for medical applications are emerging. This seminar will summarize on the use of nanocelluloses as building blocks for advanced nanomaterials.

Biography:

Dr Youssef Habibi received his PhD in organic chemistry from Joseph Fourier University (Grenoble, France) jointly with CERMAV (Centre de Recherche sur les Macromolecules Végétales). He recently joined the Luxembourg Institute of Science and Technology (LIST) as Senior Scientist. Before joining LIST, he worked at 'Service des Matériaux Polymères et Composites' at the University of Mons (Belgium) and as research assistant professor at North Carolina State University (NCSU, Raleigh, USA).

His research interests include the design of new bio-derived polymers, development of high performance nanocomposites from lignocellulosic materials including natural nano-sized fillers, biomass conversion technologies, and the application of novel analytical tools to biomass. He published over 100 research articles or invited reviews in high standard peer review journals, (co)edited and/or (co)authored several books and book chapters.