# Abstract of Presentation

**Note: This paper should be typed in "Times New Roman" of 12pt.**

Presentation Title(Should be no more than 20 words):

NEW PERSPECTIVES FOR BIOMASS-BASED FUNCTIONAL MATERIALS

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Abstract :

The foundation of a new bio-based economy requires the building of a new knowledge-based industry. The constraints derived from the limitation of resources on earth strongly impose a look back to renewable materials. The need for novel sustainable routes for the production of commodity and specialty products with similar or advanced properties as compared to oil-based ones is more and more evidenced. The greener chemical production starting from renewable resources and exploitation of biological systems is nowadays an emergent stream. Large old and new information on the use of natural resources in different economy fields is available. However, among bio-based resources, polysaccharides were rather neglected and they are less present in ñhotò applications such as nanotechnology/multifunctional materials. Polysaccharides comprise 70-80% of all plant biomass, the predominant resource of renewable material on earth. They show various naturally occurring micro- and nanostructures; the most impressive example is the arrangement of cellulose/hemicellulose/lignin in the plant cell wall. In general, fibres and polysaccharides are multifunctional allowing a broad range of strategies for chemical and physical modification. Through these modifications, new and novel advanced functional materials for various applications may be produced. However, to make full advantage of fibres and polysaccharides, new concepts for disassembly, functionalization and re-assembly are needed. In this presentation we will discuss the new and state-of-the-art concepts for creating biomass-based functional materials from a perspective combining chemistry and chemical engineering. Highlights on synergistic cooperation with Japanese partners to advance the creation of biomass based functional materials will be given. Complementary research activities in the areas of cellulose chemistry and technology, fractionation technology, fibre based functional materials and nanoscale characterization is suggested.

*Member of European Polysaccharide Network of Excellence (EPNOE), www.epnoe.eu

*Our webpage: http://web.abo.fi/fak/tkf/tra/index_eng.shtml