



## **PROJECT DESCRIPTION**

Title: New multifunctional textile materials

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Textile materials having fibres with conventional properties but with surfaces coated with stimuli-sensitive polymers are of great interest today. These materials change character or regulate performance in a desirable manner when the surrounding environment changes, by responding in a fast and predictable way to an external stimulus. The basic idea of the project is to coat existing textile fibres with stimuli-sensitive polymer system based on biopolymer chitosan and other polysaccharides (carrageenan, dextrane sulfate, etc.). Chitosan is important biopolymer because it offers unique physico-chemical and biological properties, it is non-toxic and biodegradable. Among different forms in which chitosan-based stimuli sensitive system can be applied as surface coating for functionalized textile material, the most appropriate is hydrogel. Incorporation of stimuli-sensitive system on the surface of conventional textile fibres would give excellent strength and greatly reduced response times due to high active surface areas of the fibres. This will enable the combining of the advantages of the nature of the bulk of the fibre and the biopolymer stimuli sensitive system. Thus, the main project objective is to control the properties of biopolymer chitosan coating and implement the multifunctionality based on nanotechnology to textile fibres in order to create the stimuli responsive or intelligent textile materials.

## **UPC RESEARCHER CONTACT**

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## **OTHER INFORMATION**

Duration: 2 years