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### Industrial applications of functional nanocelluloses



November 16, 2017, Charlene Reverdy defended her doctoral thesis at University Grenoble Alpes prepared under the supervision Julien Bras, Associate Professor, and Naceur Belgacem, Professor (Grenoble INP-Pagora / LGP2). She presented the results of her research work entitled ***Industrial applications of functional nanocelluloses***.

The aim of this work is to implement new properties to a paper based material via the use of functional nanocelluloses.

Nanocelluloses are nanoparticles extracted from wood and distinguished in two categories: Cellulose Nanofibrils (CNF) and Cellulose Nanocrystals (CNC).

This work has only been carried out with CNF. The chemical reactivity of CNF was used to functionalize them with organotrialkoxysilanes. The entangled network and highly viscous suspension of CNFs was also used to synthesize silsesquioxane particles with limited size to impart (super)hydrophobic and antimicrobial properties.

Knowledge obtained through the study of model CNF films was then applied to paper based material coating. The functional CNF were evaluated for its use in an antimicrobial, anti-adherent, greaseproof or superhydrophobic paper surface.

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