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PRESS RELEASE
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Use of nanocellulose for security paper

September 14th, 2018, Johanna Desmaisons defended her doctoral thesis at University Grenoble Alpes prepared under the supervision of Julien Bras, Associate Professor, and of Professor Alain Dufresne (Grenoble INP-Pagora / LGP2). She presented the results of her research work entitled ***Use of nanocellulose for security paper*.**

The original feature of this thesis is the use of nanocellulose for limiting two security paper defects: corner folds, also called “dog-ears”, and crumpling. These defects, principally caused by daily handling of these high added value documents, are responsible for a decrease of paper visual and mechanical quality and constitute an economic loss.

Nanocellulose can be divided into two different families: cellulose nanofibrils and cellulose nanocrystals. Cellulose nanofibrils are long and flexible materials with the ability to entangle and form a network strongly maintained by hydrogen bonds. Cellulose nanocrystals are short and rigid materials whose outstanding mechanical properties make them good candidates for reinforcement in a polymer matrix.

In this study, two strategies are proposed to incorporate these two kinds of nanocellulose in the security paper process. Finally, these approaches have been performed at pilot and industrial scales with positive results, which allowed deposition of patents.

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