



For Immediate Release  
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## DNFI Award for Innovation in Natural Fibre Research 2022

**Researchers with the German Institute of Textile and Fiber Research Denkendorf win the coveted DNFI Award for natural fibre research and innovation.**

Dr. Frank Hermanutz and Dr. Tanja Schneck, German Institutes of Textile and Fiber Research Denkendorf, have won the DNFI Innovation in Natural Fibres Award 2022. The award-winning project is “PureCell – Natural fiber-reinforced composites based on pure cellulose.”

The researchers have developed a patented technology to dissolve cellulose in an ionic liquid to facilitate the production of cellulosic matrix precursors, which are then used to manufacture composite materials. The core concept of PureCell is to use cellulosic fibers as reinforcement with a bio-based cellulose matrix, to create an economical, recyclable, and biodegradable substitute for petrochemical raw materials.

By applying the PureCell process, cellulosic fibres or fabrics can be impregnated with a cellulose-ionic liquid solution. After a short heat treatment, the ionic liquid is washed out with water and recovered to be used again, and the resulting wet composite can be formed into the desired shapes under low temperatures.

Thanks to the flexible use of both cellulose fabrics and filament fibers, the final shape of these all-cellulose composites (ACCs) is highly adaptable. To close the raw material cycle, the end-of-life waste can be recycled as raw material for the production of new ACCs.

The use of renewable biopolymers is an essential component of a strategy to reduce or eliminate the use of petroleum-based materials in industrial applications. Biopolymer composites made from natural fibres such as flax, hemp or sisal are in many cases a competitive alternative to glass-fiber-reinforced plastic composites (GFRP) or aluminum.

In conventional fiber-reinforced biocomposites, differences in surface chemistry result in low adhesion between the thermoplastic matrices and the reinforcing fibres. However, the composites manufactured with the PureCell process exhibit good adhesion between the reinforcing fibers and the matrix due to their chemical similarity, since cellulose is also used as the matrix. Thanks to the fibre/matrix adhesion, these composites achieve very good mechanical properties.

The technology is an environmentally friendly process because the ionic liquid can be recycled quickly, with low energy consumption and with a high degree of purity, and can be reused for further ionic liquid spinning processes.

The formal award ceremony to honor Drs Hermanutz and Schneck will be held on Thursday 12 January 2023 during Heimtextil in Frankfurt.

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### About DNFI

The Discover Natural Fibres Initiative (DNFI) is a platform for those who appreciate and acknowledge the importance of natural fibres and support their production and use.

DNFI facilitates the exchange of information and experiences and works to advance the common interests of all natural fibres in the face of competition with oil-based and wood-based manmade fibres. Representatives of natural fibre industries as diverse as abaca, alpaca, angora, cashmere, coir, natural fibres, flax, industrial hemp, jute, mohair, ramie, silk, sisal and wool participate in DNFI.

DNFI was created in January 2010 as an outgrowth of the International Year of Natural Fibres 2009, declared by the United Nations General Assembly. DNFI is entirely volunteer supported. There are no membership dues, the initiative has no budget or paid Secretariat and does not conduct projects. Instead, DNFI facilitates communication and collaboration through the exchange of information, including statistics on fibre production, value and employment, and updates on developments in fibre markets. DNFI raises awareness through reports, press releases and seminars, and encourages innovation through an annual award.

Membership in DNFI is open to anyone with an interest in the growth of natural fibre industries. To become a member, simply register on-line at [www.DNFI.org](http://www.DNFI.org).

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