

Research Profile

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SUMMARY OF MY RELEVANT RESEARCH AREAS:

Brief summary of your research areas, in English just a short paragraph please

My research focuses on biopolymers, particularly the nanomaterials from renewable resources, such as cellulose nanofibers, chitin whiskers, etc. The extraction of cellulose nanofibers and their applications in green nanocomposites, functional materials and tissue engineering have been the active research topics in my research group.

Brief summary of your research areas, in Chinese we will translate this for non-Chinese speaking UK participants

主要从事天然高分子材料的研究，在纤维素纤维增强聚合物复合材料、纤维素纳米纤维的制备和功能化改性应用、纤维素组织工程材料方面取得重要进展。

Primary Research interests: A fuller description of your main research areas.

1. *Commercialization of cellulose nanofibers production. The main obstacle for the industrialization of cellulose nanofibers from plant fibers is the vast energy consumption. We have developed an efficient pretreatment technology together with a self designed equipment that can significantly reduce the energy consumption.*
2. *Application of cellulose nanofibers. We have surface-modified the nanomaterials targeting the interfacial and dispersion problems in composites and a series of high performance nanocomposites have been prepared. We also use cellulose nanofibers for some advanced applications, such as paper electronics, energy storage materials, water purification materials as well as biomedicines.*
3. *Electrospinning of cellulose. The electrospinning of native cellulose has been extensively studied in our research group. The electrospun cellulose has been successfully applied in tissue engineering, drug delivery and water purifications, etc.*
4. *3D printing. We have self-developed the first equipment in China that can continuously 3D print objects at a very fast speed with photocurable resins (These print speeds allow parts to be produced in minutes instead of hours). The application of this technique for biomedical application is currently under investigation.*

Topics in which you would like to develop collaborative research:

Please indicate here research areas for which you would like to find partners to undertake joint research.

The application of nanocellulose in biomedical research

High-speed continuous 3D printing with photocurable resins and its applications

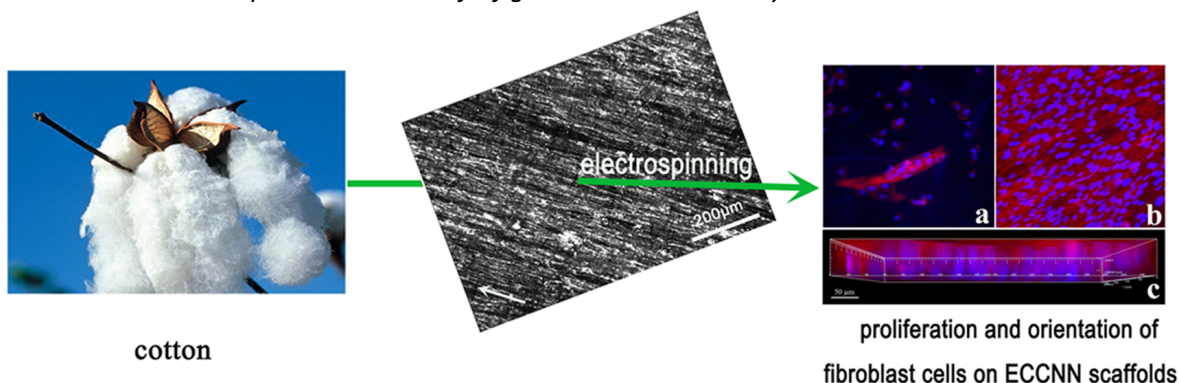
Relevant existing collaborations (academic/clinical/commercial) inside or outside China.

Include here any relevant collaborations you have

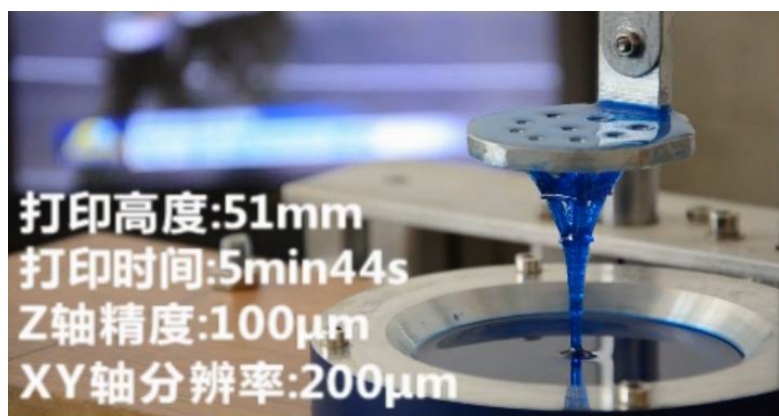
We have established solid collaborations with the West China Hospital of Stomatology, Sichuan University

Relevant graphics, figures, pictures:

Use this area to show pictures or scientific figures which illustrate your research



Electrospun cellulose nanofibers have been proved to be an ideal scaffold for tissue engineering



We have patented the first 3D printer in China that can print an object of 51mm with less than 6 min

Publications and other outputs relevant to your interest in this programme (up to 5)

Please give references to your key recent research publications

Uniaxially Aligned Electrospun All-Cellulose Nanocomposite Nanofibers Reinforced with Cellulose Nanocrystals: Scaffold for Tissue Engineering, Biomacromolecules, 2014, 15 (2) : 618-627.