

# Yixuan Chen



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## Personal Strengths

I graduated from the University of Sheffield with a Master's degree in Materials Science and Engineering, and my undergraduate degree in Non-Woven Materials and Engineering, with one year of overseas study experience and good English language skills. My main courses include carbon capture and storage, sustainable materials manufacturing, nanomaterials, and I have had a number of research experiences during my time at university and have won some awards. Good academic performance, won the first-class scholarship and third-class scholarship. Optimistic and cheerful, with strong leadership and sense of collective honour, honest and trustworthy, has never violated the law and discipline, hoping to accumulate experience and rapid growth.

## Educational Experience

**University of Sheffield**      Master      Materials Science & Engineering      2023-2024

**Wuhan Textile University**      Undergraduate      Nonwoven Materials & Engineering      2018-2022

1. Served as a member of the Sports and Culture Committee during the school year, actively organising and participating in campus cultural and sports activities to enhance teamwork and organisational skills.
2. As the captain of the football team, I have developed leadership and competitive spirit through leadership and participation in competitions.
3. Won the first-class and third-class scholarships of the university, reflecting the excellent academic achievements and learning ability.
4. Won the Excellence Award of China Higher Education Institutions Mathematical Ability Competition, demonstrating solid mathematical foundation and problem-solving ability.
5. Won the Excellence Award in China University Students' Organisation and Management Competition, demonstrating excellent organisational management and planning and implementation abilities.
6. Won the Third Prize in the National Mathematics Competition for Chinese University Students, further confirming the talent and passion in the field of mathematics.

## Project Experience

**Waste textile plant fibre concrete composite acoustic absorber**      Member      2021.10-2021.12

**Content:**  
1. Introduction: plants are made into fibres of different lengths, gypsum powder is used to simulate concrete, the fibres and gypsum powder are mixed evenly with water, and after solidification, the fibres are combined with recycled textiles that have been washed and sterilised to become a decorative acoustic body suitable for indoor soft furnishings.

After solidification, it is combined with recycled, washed and sterilised waste textiles to become a decorative acoustic body suitable for indoor soft furnishings.

2. Duties: Production of plant fibre concrete and compounding with used textiles, as well as experiments and data analysis for acoustic tests.

**Result:**

Award the Third Prize of Wuhan Textile University School Level Final of the 9th *Yida* National Creative Competition 2021

**An efficient and low resistance nano-combined negative ion degradable cigarette filter**      Leader      2021.04-2021.07

**Content:**  
1. Introduction: This project uses vertical mesh technology and electrostatic spinning technology, vertical mesh is a single layer of fibre mesh folded up and down, so that the fibres in the fibre mesh are arranged in a nearly vertical way, the thickness is also significantly increased, the material produced is micron-sized material, and has high filtration, not easy to deform, low density and high air permeability, good permeability, easy to form the processing of good performance, which can be used as a substrate for the filter nozzle.

The material produced by the electrostatic spinning method is a nano-grade material, and at the same time, the electret masterbatch is added to the material, so that the electrostatic spinning film is electrostatically charged, which is compounded with the micron-grade vertical mesh-laying substrate, and the filtration performance of the filter nozzle is further improved.

This project also adopts tourmaline as the raw material, which can release negative ions eternally. Negative ions mean that air molecules will lose a portion of the outermost electrons that rotate around the nucleus, ionising the air. The electrons that escape from the atomic nucleus are called free electrons and are negatively charged. When the free electrons combine with other neutral gas molecules, negatively charged negative ions are formed.

2. Responsibilities: As the leader of the project team, I am mainly responsible for the project conception, raw material procurement and sample production.

## Development of green protective masks based on catechin, PVA/PAA

### blends and electrostatic spinning technology

Leader

2021.04-2021.06

#### Content:

1. Introduction: In this project, nanofibre membrane was prepared by electrostatic spinning method using polyvinyl alcohol (PVA) and polyacrylic acid (PAA) as raw materials, deionized water as solvent and catechin as additive. The concentration of catechin was adjusted, and the fibre morphology and antimicrobial properties were observed by electron microscopy to derive the optimum process parameters, and finally the masks were prepared by ultrasonic bonding technology. The masks were tested for air permeability and air filtration. The results showed that the PVA/PAA electrospun film with catechin has high filtration efficiency and good antibacterial property.

2. Responsibilities: As the leader of the project team, I was responsible for the project conception, raw material procurement, sample preparation, sample testing and data analysis, as well as the writing of the thesis under the guidance of the teacher.

#### Result:

Award of Excellence in the Ninth *JinSanFa-Lenzing-Andrei Cup* National Competition for the Development and Application of Non-Woven Materials for University Students.

## Study on gradient structural design and acoustic

Leader

2020.10-2021.04

### performance of plant fibre concrete

#### Content:

1. Introduction: The implementation path of this project mainly includes two parts: material preparation and performance testing, i.e. firstly to prepare plant fibre concrete with gradient structure, then to characterize the basic mechanical properties and acoustic properties, and to analyse the relationship between the structure and performance of plant fibre concrete.

Innovations: (1) This project is more suitable for indoor soft furnishings than conventional concrete, and the gradient structure design can save the material of plant fibre, which is more environmentally friendly.

(2) Through the gradient design, the surface characteristic impedance of plant fiber concrete can be significantly reduced, which is conducive to the attenuation and absorption of sound waves in the material, optimising the acoustic performance and expanding the application range of plant fiber concrete.

2. Responsibilities: I am the team leader of this project, responsible for raw material procurement, sample preparation, sample testing and data recording, and thesis writing under the guidance of the teacher.

#### Result:

As first author output paper Fabrication of Sound Absorption Gypsum/ Hemcrete Composite with Robust Antistatic Electricity by Taguchi Optimization Method one paper in 2022 by Journal of Natural Fibers.

## Study on the antimicrobial properties of spunlace

Member

2019.10-2019.12

### fabrics finished with essential oil of mugwort leaf

#### Content:

1. Introduction: the hydroentangled fabrics were immersed in different concentrations of essential oil of mugwort leaves for 8h, and the antibacterial properties of the collated hydroentangled fabrics were investigated after taking out and drying them

2. Responsibilities: The collection of relevant literature was carried out, and the finishing of spunlace fabrics with different concentrations of essential oil of mugwort leaves and the statistics of the results were carried out.

#### Result:

2019 College Student Innovation and Entrepreneurship Competition Wins Provincial Project in Hubei Province

## Environmentally Friendly Cleaning Balls

Member

2018.10-2018.12

#### Content:

1. Introduction: An environmentally friendly material cleaning ball, using pure natural materials to make, while keeping the air fresh without emitting harmful aromatic hydrocarbon substances Project

2. Responsibilities: Searching and collecting relevant literature, and making cleaning balls.

#### Result:

Award of Excellence Prize of Wuhan Textile University School Level Finals of the 7th *Yida* National Creative Competition 2019