



Topic of the Speech:

Highly Porous Poly(L Lactic Acid) Nano Fibres and Applications

Dr. Jiashen Li

The University of Manchester
UK



Dr. Jiashen Li is a Lecturer in Textile Science & Engineering in the Department of Materials. His research interests involve the science and technology underpinning processing-structure-property relationships in functional fibers and textiles; including nano fibres, bio-functional fibres, smart fibres and textiles, e-textile, and structural fibre-composites. With more than ten years' experience on fibre spinning, he has significantly expanded his studies of advanced functional polymer fibres and textiles.

Dr. Jiashen Li obtained his PhD in Polymer Materials (Physics) from Tianjin University (China) in 2001. He then spent thirteen years conducting biomaterials and fibre spinning in The Hong Kong Polytechnic University (Hong Kong), before joining the University of Manchester in 2015.

Highly Porous Poly(L Lactic Acid) Nano Fibres and Applications

Zihan Lu, Jun Song, Jing Zhu, Qasim Zia, Jiashen Li*

Department of Materials, The University of Manchester, Manchester, UK, M13 9HG

*Presenter's email: jiashen.li@manchester.ac.uk

ABSTRACT (NO MORE THAN 500 WORDS:)

Electrospinning is a method for producing submicron or nanofibres by ejecting a polymer solution or melt in a high voltage electric field to form fibres, and the fibres are usually collected as a membrane. The ability to prepare porous fibrous fibres with high specific surface area to volume ratio is the most important advantage of the electrospinning technology. In order to further increase the surface area of polymer nanofibres, a two-step strategy has been developed to produce a hierarchical porous structure in this study. After PLLA nano/micro fibres were electrospun and collected, they were treated by acetone to recrystallize polymer chains and generate a blossoming porous structure. The porous PLLA films could filter out the aerosol particles (<100 nm) while the pressure drop was kept at a reasonable level. While nano SiO₂, hydroxyapatite, chitosan were introduced into porous PLLA fibrous membrane, they could be used for water treatment, bone tissue engineering, and so on.