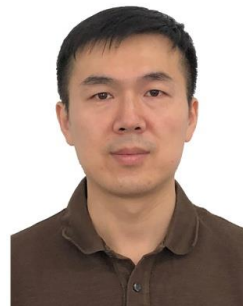


## 刘焱龙

### 报告人简介:

刘焱龙，2009年毕业于中国科学院长春应用化学研究所高分子化学与物理专业，获博士学位，现任中国科学院长春应用化学研究所，中科院生态环境高分子材料重点实验室，副研究员。近年主要从事聚乳酸高性能化的改性研究工作，参与设计并制备了耐热改性聚乳酸树脂的研究，优化成核剂、无机填充、聚乳酸等组分的组成，以及共混工艺，成型工艺，热处理工艺等，将聚乳酸的耐热使用温度由不足 60℃提高至 180℃以上。开发了系列聚乳酸共混吹膜改性树脂，制备了高效反应型增容剂，有效增加共混组分间的相容性，使薄膜的综合力学性能得到明显提升。近期的主要研究方向为长寿命可降解地膜的制备与产业化，通过合成大分子相容剂、扩链剂等助剂，并优化吹膜成型工艺，制备使用寿命 4 个月以上，保水性能优良的新型可降解地膜材料。



作为负责人主持国家自然科学基金，吉林省科技发展计划重点项目，企业合作项目等，总经费 300 余万元，获中科院科技促进发展一等奖。在以上领域共发表论文 14 篇，授权专利 12 项。

## YanLong Liu

### Profile of the Author:

Dr. Liu Yanlong received his Ph. D from the Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, majoring in polymer chemistry and physics in 2009. He is currently an associate researcher in the Key Laboratory of ecological environment polymer materials at the Chinese Academy of Sciences, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences. In recent years, he is working on the high performance of poly lactic acid, designing and preparing heat-resistant modified poly lactic acid resin by optimizing the components such as nucleating agent, inorganic filling and polylactic acid, as well as the blending process, molding process, heat treatment process and so on. The heat treatment temperature of poly (lactic acid) is raised from less than 60℃ up to 180 °C. He also developed a series of modified poly (lactic acid) blending film resin by adding a highly reactive compatibilizer, which effectively increased the compatibility between the blend components, and improved the comprehensive mechanical properties of the film. His

recent research direction is the preparation and industrialization of long life degradable plastic film. With the help of synthesis of macromolecular compatibilizer, chain extender and other agents, as well as optimizing the blowing molding process, he hopes the new degradable film materials with more than 4 months of life and good water retention performance could be prepared.

As the project leader, he has undertaken a series of projects including the National Natural Science Fund, the key project of the Jilin science and technology development program and the enterprise cooperation project, and the total outlay is more than 3 million yuan. He has won the first prize for the science and technology promotion and development of the Chinese Academy of Sciences. A total of 14 papers were published and 12 patents were authorized.

## 超薄生物降解地膜研究与进展

**摘要:** 采用共聚法制备了薄膜助剂, 通过添加多种无机物, 利用双螺杆挤出机进行共混造粒, 使用吹塑法制备出超薄生物降解地膜。获得的生物降解地膜厚度为 4 微米, 强度 35MPa, 断裂伸长率 614%, 水蒸气透过率 180g/m<sup>2</sup>·day。制备的地膜在蔬菜、马铃薯、烟草上得到了成功的应用。

## Research and Progress of Ultra-thin Biodegradable Mulch Film

**Abstract:** Ultra-thin biodegradable mulch film was prepared by the mixing of organic agents which are made by copolymerization and several kinds of inorganic additives followed by the using of double screw extruder and film blowing machine. The film obtained has 4 micron thickness, 35MPa in strength and 614% in elongation, meanwhile, the water vapor transmission is low to 180g/m<sup>2</sup>·day. This ultra-thin biodegradable mulch film has been used in vegetables, potatoes and tobaccos successfully.