BRITISH COUNCIL

RESEARCHER LINKS

Newton Fund

Research Profile

Name: Dr. Long Jiang

Position: Associate Professor
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SUMMARY OF MY RELEVANT RESEARCH AREAS:

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

- *Synthesis and modification of water soluble and/or eco-friendly polymers*
- *Conjugated polymers/semiconductor composites for photo-catalysis*
- *Polymer degradation and stability*

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

- 水性及环境友好高分子材料的合成与改性
- 共轭聚合物/半导体复合光催化材料的制备与应用
- 高分子材料老化与防老化研究

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

Our research interest is to design, synthesize and study polymeric and polymer/inorganic hybrid materials for energy and environment applications. The main research themes include:

(1) Synthesis strategies and related mechanisms for preparing polymeric materials with controlled topology and composition
   - Polyvinyl alcohol-based materials with controlled topology and their potential applications in oil recovery
   - Chain structure design and synthesis of poly(L-lactide) with enhanced UV-shielding properties

(2) Photocatalytic applications of polymer/inorganic hybrid materials
   - Design and synthesis of photo-stable conjugated polymers for efficient solar energy conversion.
   - Construction of heterostructured conjugated polymers/inorganic composites with enhanced photocatalysis performance

Topics in which you would like to develop collaborative research:

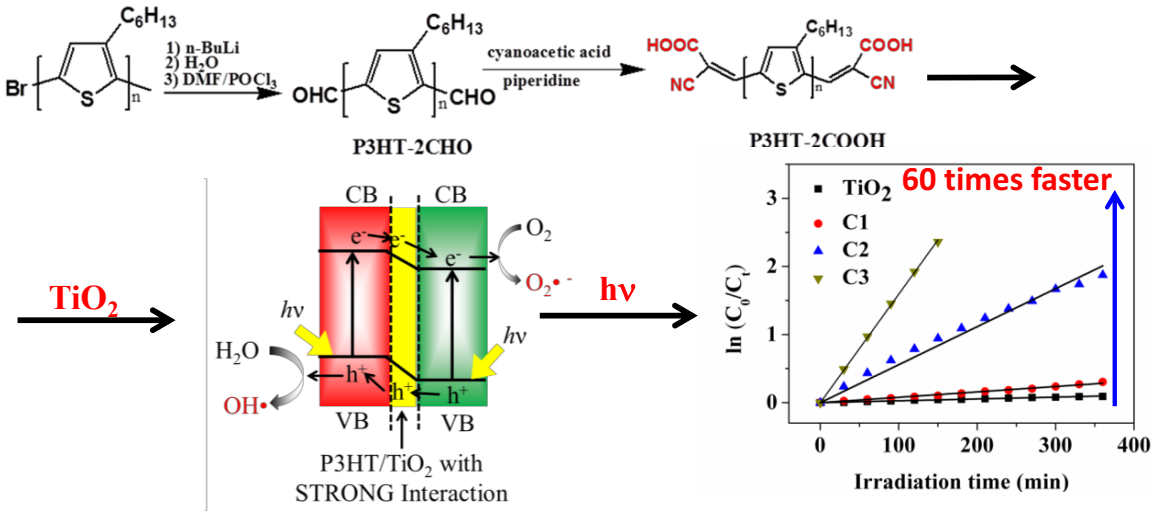
Please indicate here research areas for which you would like to find partners to undertake joint research.

- High performance and multifunctional poly(L-lactide) materials
- Interface engineering of conjugated polymers/inorganic semiconductor heterojunctions toward high-performance photocatalyst

Relevant existing collaborations (academic/clinical/commercial) inside or outside China.
Include here any relevant collaborations you have

- Institut des Matériaux Jean Rouxel, CNRS, University of Nantes, France
- University of Hull, UK
- Sinopec Sichuan Vinylon Works, Chongqing, China

Relevant graphics, figures, pictures:
Use this area to show pictures or scientific figures which illustrate your research



High Performance P3HT/TiO_2 Hybrid Photocatalyst

Publications and other outputs relevant to your interest in this programme (up to 5)
Please give references to your key recent research publications

[1] Zhang, J.; Yang, H.; Xu, S.; Yang, L.; Song, Y.; **Jiang, L.***; Dan, Y.*; Dramatic enhancement of visible light photocatalysis due to strong interaction between TiO_2 and end-group functionalized P3HT, ***Applied Catalysis B: Environmental***, 2015, 174, 193-202

[2] Yang, L.; Yu, Y.; Gong, Y.; Li, J.; Ge, F.; **Jiang, L.***; Gao, F.; Dan, Y.*, Systematic investigation of the synthesis and light-absorption broadening of a novel diketopyrrolopyrrole conjugated polymer of low and high molecular weight with thermo-labile groups, ***Polymer Chemistry***, 2015, 6, 7005-7014

[3] Yang, L.; Yu, Y.; Zhang, J.; Ge, F.; Zhang, J.; **Jiang, L.***, Gao, F.; Dan, Y.*, Time-dependent aggregaton-induced enhanced emission, absorption spectral broadening, and aggregation morphology of a novel perylene derivative with a large D-Π-A structure, ***Chemistry: An Asian Journal***, 2015, 10, 1215-1224

[4] Ge F.; Ding, Y.; Yang, L.; Huang, Y.; **Jiang, L.***; Dan, Y.*, Effect of the content and distribution of ultraviolet absorbing groups on the UV protection and degradation of polylactide films, ***RSC Advance***, 2015, 5, 70473-70481

[5] Peng, L.; Zhou, T.; Huang, Y.; **Jiang, L.***; Dan, Y.*, Microdynamics mechanism of thermal-induced hydrogel network destruction of poly(vinyl alcohol) in D_2O studied by two-dimensional infrared correlation spectroscopy, ***The Jounal of Physical Chemistry. B***, 2014, 118, 9496-9506