

## Research Profile

Name: Meng Yang

Position: Director of Research & Development Department

Institute/division: Wuxi BioLife Medical Equipment Ltd.

Email: mengyang1987@aliyun.com

Tel: +86 13861841863



### SUMMARY OF MY RELEVANT RESEARCH AREAS:

*Synthesis and modification of polymers (Polysiloxane, Polyurethan); Preparation of elastomer composites; Computer Modelling and Finite Element Analysis of products; Research and development of artificial cervical disc product; Spinal biomechanics.*

聚合物（聚硅氧烷、聚氨酯类）的分子设计、合成与改性；弹性体纳米复合材料的制备；产品的计算机建模及有限元分析；人工颈椎间盘产品的研发；脊柱生物力学的研究。

### Primary Research interests:

Dr. Meng Yang graduated from Beijing University of Chemical Technology (BUCT), with PhD research on synthesis, modification and preparation of polymers (elastomers). Now Meng is director of Research & Development Department of Wuxi BioLife Medical Equipment Ltd., which was recently started for the Research & Development of new biomedical products.

Main research projects include:

1. With the aging process, the incidence of spinal disease gradually increased. One major research focuses on the design and development of a new artificial cervical disc for cervical disease treatment, the computer modelling of spine and products, the finite element analysis of products, and the effects of the designed cervical disc on spinal motion and biomechanics.
2. Design and synthesis of elastomers for medical applications. One research focuses on the design and synthesis of chemical crosslinked polycarbonate polyurethanes with high mechanical properties, good biocompatibility, high hydrolysis resistance, high fatigue resistance, and very low permanent deformation in compression. The prepared polyurethane can be used in some implants, e.g. artificial cervical disc. Another early research is on the synthesis of polysiloxane with some reactive groups, the grafting some functional substance on the chains of polysiloxane and the preparation of polysiloxane composites through in-situ reaction. These polysiloxanes and their composites include epoxy polysiloxane, polyhedral oligomeric silsesquioxanes/ polysiloxane composites, 2-Hydroxyethyl methacrylate/polysiloxane composites, etc.

### Topics in which you would like to develop collaborative research:

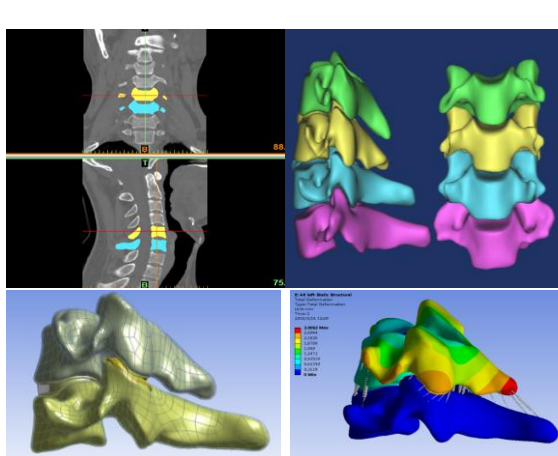
1. Design and development of artificial device for medical applications
2. Research in spine field
3. Design and synthesis of polymers for medical applications

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

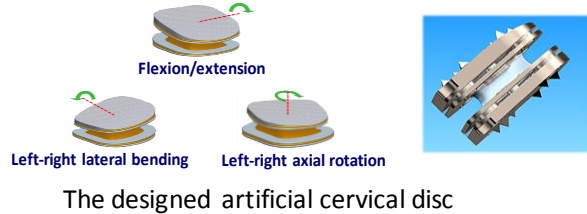
Center of Advanced Elastomer Materials, Beijing University of Chemical Technology; Beijing Institute of Traumatic Orthopedics; Jishuitan Hospital.

**Relevant graphics, figures, pictures:**

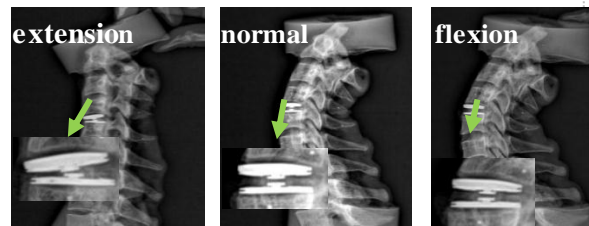
Use this area to show pictures or scientific figures which illustrate your research



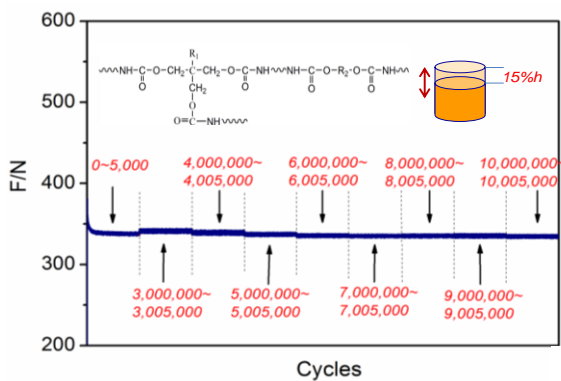
Computer modelling and finite element analysis of cervical vertebra



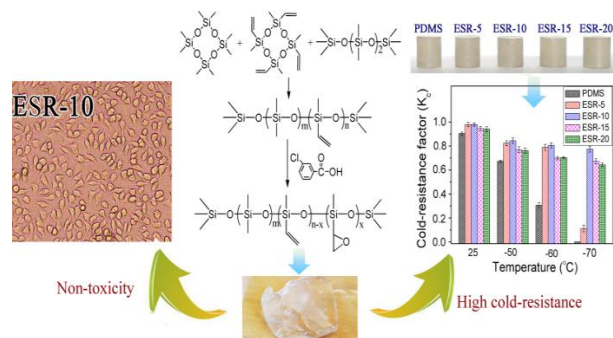
The designed artificial cervical disc



Cadaver vertebral experiment



Synthesized CPU with high fatigue resistance



Synthesis of epoxy polysiloxane

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

1. Meng Y, Wei Z, Liu L, et al. Significantly improving the thermal stability and dispersion morphology of polyhedral oligomeric silsesquioxane/polysiloxane composites by in-situ grafting reaction[J]. Polymer, 2013, 54(12):3055-3064.
2. Meng Y, Chu J, Xue J, et al. Design and synthesis of non-crystallizable, low-Tg polysiloxane elastomers with functional epoxy groups through anionic copolymerization and subsequent epoxidation[J]. Rsc Advances, 2014, 4(59):431-433.
3. Meng Y, Chu J, Liu C, et al. Oil resistance and mechanical properties of polysiloxane nanocomposites prepared by in situ, reaction of reactive polar monomers[J]. Journal of Applied Polymer Science, 2014, 131(21):8558-8572.
4. Meng Y, Lu Y L, Wei Z, et al. Structure, morphology, and mechanical properties of polysiloxane elastomer composites prepared by in situ polymerization of zinc dimethacrylate[J]. Express Polymer Letters, 2012, 6(11):882-894.
5. Zheng W, Lu Y, Yang M, et al. Improved understanding of in-situ polymerization of zinc dimethacrylate: The solid bulk polymerization[J]. Polymer, 2012, 53(6):1409-1417.