

DONGSHENG LI

School of Materials Science and Engineering
Georgia Institute of Technology
771 Ferst Drive, N.W.
Atlanta, GA 30332-0245

Phone: (404) 385-2851
Fax: (413) 702-0351
d1138@mail.gatech.edu
www.lmm.gatech.edu/dli

EDUCATION

Ph.D. Florida State University, Mechanical Engineering, Dec. 2002.
Dissertation: Crystal Orientation Distribution Evolution of Polyethylenes during Uniaxial Tension.

M.S. Florida State University, Computer Science, April 2002.
Project: Pole Figure Viewer, an application of scientific visualization in crystal orientation studies.

M.S. University of Science and Technology of China, Polymer Physics, July 1998.
Thesis: Synthesization and Characterization of ethylene oxide-butylene terephthalate copolymer.

B.E. Hefei University of Technology, Chemical Engineering, June 1995.
Project: Influence of Disentanglement on Glass Transition in Polystyrene.

RESEARCH EXPERIENCE:

School of Materials Sci&Engr, Georgia Institute of Technology, Atlanta, GA

Research Associate

Jan 03-present

Working on materials by design, modeling the crystal orientation distribution evolution of engineering materials during mechanical deformation, analysis and forecast the microstructure evolution. Establishing processing path during thermomechanical processing. Studying how magnetic annealing improves the microstructure and magnetic anisotropic properties of media storage materials, such as FePd. Funded by Army project DAAD17-02-P0398, DAAD 19-01-1-0742, Air Force Grant #F49620-03-1-0011 etc.

Dept. of Mech. Engr, Florida Agriculture and Mechanical Engineering, Tallahassee, FL

Adjunct Professor

Aug 02-Dec 02

Taught *Continuum Mechanics*, supervised research assistants, studied the deformation mechanisms of polycrystalline materials during mechanical deformation

Center for Materials Science and Technology, FSU, Tallahassee, FL

Research Assistant

Aug 98-July 02

Worked on evolution of crystal orientation distribution of polyethylene film and polypropylene film in mechanical processing using WAXS and ESEM. Studied Stress relaxation of semicrystalline polymer using Instron, MTS. Observed Morphology evolution of polymer film

during mechanical deformation using AFM and SEM. Correlated the texture evolution with microstructure. Found out the deformation mechanisms applied.

Argonne National Laboratory, Argonne, IL

Trainee

Aug 99

One of two students chosen to participate, from the students in Florida. Attended lectures, discussion and project about the application of X-ray and Neutron scattering in scientific research.

Dept. of Polymer Sci&Engr., U of Sci and Tech of China, Hefei, China

Research Assistant

Sep 95-Jul 98

Synthesized ethylene oxide-ethylene/butylene terephthalate copolymer. Studied its crystallization behavior using DSC and polarized light microscope. Characterized polymer using NMR and FTIR.

Institute of Solid Physics, Chinese Academy of Science, Hefei, China

Research Assistant

Jan 95-Jun 95

Studied the influence of disentanglement on glass transition of polystyrene

TEACHING EXPERIENCE:

Dept of Mechanical Engr, Florida Agricultural and Mechanical University, Tallahassee, FL

Adjunct Faculty

Aug 02-Dec 02

Taught *Continuum Mechanics*. Responsible for organizing lesson plans, presenting course material in classroom and during office hours, writing and grading tests, and departmental administrative requirements

Dept of Mechanical Engr, Florida State University, Tallahassee, FL

Research Advisor

Aug 99-Aug 02

Assisted undergraduate students to begin research projects, conducted appointments, taught them how to use the research facility.

Dept. of Polymer Sci&Engr., U of Sci and Tech of China, Hefei, China

Co-instructor

Aug 97-Jun 98

Assisted in team teaching *Infrared Analysis*. Delivered large lectures, facilitated small group discussion, graded assignments and conducted individual appointments.

Teaching Assistant

Aug 96-Jun 97

Assisted professor to prepare lectures. Developed and conducted workshops in special research topics.

PROFESSIONAL AFFILIATIONS

American Physics Society

American Chemical Society

American Society of Materials

The Minerals, Metals & Materials Society

CERTIFICATION

Certification for completing National School on Neutron and X-ray Scattering	Aug 1999
Microsoft Certified Professional (Windows 2000)	Oct. 2001
Sun Certified Programmer for Java 2 Platform	Nov. 2001

ACTIVITIES

Reviewer for *International Journal of Plasticity*

Reviewer for *Journal of Materials Engineering and Performance*

PROJECTS INVOLVED

<u>Agency</u>	<u>Title of Grant</u>	<u>Date(s)</u>	<u>Total Amount</u>
NIH	Improvement of Mechanical Properties of Matrix Assisted Pulsed Laser Evaporated Tissue Engineered Materials	submitting	
Navy	Application of Microstructure Sensitive Design in materials design for fuel tank	submitting	
NSF	Collaborative to Integrate Material Science and Engineering Research and Education, NSF Grant # DMR-9982872	1999-2002	\$1,551,000
DOD-Army	High Field Thermo-magnetic Texturing of magnetic Materials	2001-2004	\$870,826
Army Lab	Processing Path for Optimum Texture for Titanium-1100	2002-2003	\$50,000
FSU	Texturing and Mechanism of Deformation in Semi-Crystalline Polyethylene Materials, Center for Materials Research and Technology,	2002-2003	\$25,500
FSU	Center for Application of Nanotechnology in Micro Total Analysis Systems	2002-2003	\$125,000
AFOSR	Statistical Mechanics Analysis of Microstructure Evolution and Texture in Ti-6Al-4V	2003-2005	\$300,000

PUBLICATIONS

BOOKS

1. **D.S. Li.** *Texture Evolution of Polyethylenes During Uniaxial Tension.* ISBN 0-493-84290-X, published by UMI, 2003
2. **D.S. Li,** H. Garmestani. Streamline of Microstructure Evolution During Plastic Deformation. *Materials Processing Fundamentals Symposium 2004* (accepted).
3. **D.S. Li,** H. Garmestani. Modeling of Processing Path in Processing of Titanium. *Proceedings of International Light Metals Conference 2003* (accepted).

4. **D.S. Li**, H. Garmestani. Processing Path of Crystal Orientation Coefficient during Plastic Deformation. *Dislocations, Plasticity and Metal Forming*, ISBN 0-9659463-4-7, Published by NEAT Press, 2003, 487-489
5. **D.S. Li**, H. Garmestani. A Linear Model of Processing Path in Cubic-Orthotropic System. *Multiscale modeling and characterization of elastic inelastic behavior of engineering materials*, Published by Kluwer, Eds: S. Ahzi et al., 2003, pp. 307-314
6. **D.S. Li**, H. Garmestani. Prediction of Texture Coefficients Evolution During Bulk Deformation. *Twelfth Symposium on Processing and Fabrication of Advanced Materials*, 2003

ARCHIVED PAPERS

7. **D.S. Li**, H. Garmestani, S.S. Yan etc. Effect of High Magnetic Field Annealing on Texture and Magnetic Properties of FePd. *Applied Physics Letter*, (in review)
8. **D.S. Li**, H. Garmestani, B.L. Adams. A Processing Path Model for Texture Evolution in Cubic-Orthotropic Polycrystalline System. *International Journal of Plasticity* (in review)
9. **D.S. Li**, H. Garmestani, S. Ahzi. Processing Path Model for Texture Evolution of Hexagonal Materials. *International Journal of Plasticity* (in review)
10. **D.S. Li**, H. Garmestani, S.S. Yan. Effects of high magnetic field annealing on texture in FePd. *Annual report of National High Magnetic Field Laboratory 2003* (accepted).
11. M.S. Al-Haik, H. Garmestani, **D. Li**, M.Y. Hussaini, S.S. Sablin, R., K. Dahmen. Mechanical Properties of Magnetically Oriented Epoxy. *Journal of Polymer Science Part B: Polymer Physics* (accepted).
12. **D.S. Li**, H. Garmestani. Evolution of Crystal Orientation Distribution Coefficients During Plastic Deformation. *Scripta Materialia*, 2003, 49, 867
13. **D.S. Li**, H. Garmestani, RG Alamo and SR Kalidindi. The Role of Crystallinity of the Crystallographic Texture Evolution of Polyethylenes during Tensile Deformation. *Polymer*, 2003, 44, 5355
14. SS Yan, M. Elkawni, **D. S. Li**, JP Liu, H. Garmestani, JL Weston and G. Zangari. Soft/hard Exchange-Coupled Layered Structures with Modulated Exchange Coupling. *Journal of Applied Physics*, 2003, 94, 4535
15. H. Garmestani, M.S Al-Haik, R. Taninbaum, K. Dahmen, **D. Li**, S.S. Sablin, M.Y. Hussaini. Polymer Mediated Alignment of Single Wall Carbon Nanotubes Under High Magnetic Fields. *Advanced Materials*, 2003, 15, 22, 1918-1921
16. E.S. Choi, J.S. Brooks, D.L. Eaton, M.S. Al-Haik, M.Y. Hussaini, H. Garmestani, **D. Li**, K. Dahmen. Enhancement of Thermal and Electrical Properties of Carbon Nanotube Polymer Composites by Magnetic Field Processing. *Journal of Applied Physics*, 2003, 94, 6034
17. **D. Li**; H. Garmestani. Texture Evolution and Stress Relaxation of Linear Low Density Polyethylene During Uniaxial Extension. *Polymeric Materials: Science and Engineering*, 2002, 86, 398
18. **D. Li**, H Garmestani, S.R Kalidindi, R. Alamo. Crystallographic Texture Evolution in High Density Polyethylene during Uniaxial Tension. *Polymer*, 2001, 42, 4903-4913
19. M. Z. Wang, **D. S. Li**, X. L. Luo, D. Z. Ma. Crystallization and Melting Behavior of the Soft and Hard Segments in Poly(ester-ether)s. II. Ethylene Oxide-Butylene Terephthalate Segmented Copolymers. *Journal of Polymer Science Part B: Polymer Physics*, 1999, 37(21), 2928-2940
20. Ma, D.Z; **Li, D. S.**, Zhao, M.C., M.Z. Wang, R. Ye and X.L. Luo. Compositional Heterogeneity of Ethylene Oxide-Butylene Terephthalate Segmented Copolymers. *Chinese Journal of Polymer Science* 1999, 17(3), 271

CONFERENCE ABSTRACTS

21. **D. Li**; H. Garmestani. Influence of Branch Length on the Texture Evolution of Linear Low Density Polyethylene. *Bulletin of America Physics Society*, March meeting, 2002, 309
22. S.S. Yan; M. Elkawni; **D. Li**; H. Garmestani etc. Experimental and Theoretical study on Soft/Hard Exchange-coupled NiFe/SmFe Bilayers. *DARPA MetaMaterials PI Review*, 2002, p22
23. **D. Li**; H. Garmestani. Texture Evolution in Ethylene-Octene Copolymer during Uniaxial Tension. *50th Annual Denver X-ray Conference*, Steamboat Springs, Colorado, July 2001
24. **D. Li**, H Garmestani, S.R Kalidini, R. Alamo. Texture Evolution and Morphology Evolution in High Density Polyethylene during Uniaxial Tension. *Bulletin of America Physics Society*, March meeting, 2001, 203