Qi (Kevin) Ge

Assistant Professor, Singapore University of Technology and Design
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REARCH INTERESTS

- Advanced Manufacturing
- Multifunctional Additive Manufacturing
- Functional Materials
- Continuum Mechanics and Multiphysics

EDUCATION

University of Colorado at Boulder **Boulder, CO, USA**
Ph. D. in Applied Mechanics (08/2009~12/2012)
Advisors: Professor H. Jerry Qi and Professor Martin L. Dunn

Zhejiang University **Hangzhou, China**
M. Sc. in Solid Mechanics (09/2006-06/2008)
Advisors: Professor Weiming Tao and Professor Shaoxing Qu

Tongji University **Shanghai, China**
B. Sc. in Engineering Mechanics (09/2002-06/2006)
Advisor: Professor Zheng Zhong

EMPOLYMENT

Singapore University of Technology and Design **Singapore**
Assistant Professor (4/2016~Present)

Singapore University of Technology and Design **Singapore**
Postdoctoral Fellow (12/2014~3/2016)
Advisors: Professor Martin L. Dunn

Massachusetts Institute of Technology **Cambridge, MA, USA**
Postdoctoral Fellow (09/2013~11/2014)
Advisors: Professor Nicholas X. Fang

University of Colorado at Boulder **Boulder, CO, USA**
Postdoctoral Research Associate (01/2013~08/2013)
Advisors: Professor H. Jerry Qi and Professor Martin L. Dunn

City University of Hong Kong **Hong Kong, China**
Research Assistant (12/2007-03/2008)
Advisor: Professor K. M. Liew

Shanghai Sany Technology Ltd. **Shanghai, China**
Mechanical Analysis Engineer (07/2008~05/2009)

AWARDS

Finalist National Research Foundation Fellowship, Singapore (2015)
SUTD-MIT Postdoctoral Fellowship (2013)
Outstanding Ph. D. Dissertation Award (2013)
Haythornthwaite Foundation Travel Award of ASME Applied Mechanics Division (2012)

Haythornthwaite Foundation Travel Award of ASME Applied Mechanics Division (2011)
Outstanding graduate of Zhejiang University (2008)

PREFESSION ACTIVITIES

- Reviewer of Journal of the Mechanics and Physics in Solids, Smart Materials and Structures, RSC Advances, Composite Part B, Macromolecular Rapid Communications, Journal of Intelligent Material systems and structures, Biofabrication, Micro and Nano-Manufacturing, Applied Science, International Journal of Precision Engineering and Manufacturing, Polymers, MRS Proceedings.
- Member of American Society of Mechanical Engineers, Society of Experimental Mechanics.

PUBLICATIONS

1. Patel D. K., Sakhaei A. H., Layani M., Zhang B., **Ge Q.***, and Magdassi S., "Highly Stretchable and UV Curable Elastomers for Digital Light Processing Based 3D Printing", ***Advanced Materials***, 2017, 1606000. This paper was reported by various scientific websites such as EurekAlert.org, Phys.org, Science Daily, 3DPrint.com, and many others.
2. **Ge Q.***, Qi H. J., and Dunn M. L., "Thermomechanics of Printed Anisotropic Shape Memory Elastomeric Composites", ***International Journal of Solids and Structures***, 102–103, 2016 186–199.
3. Wang Q., Jackson J. A., **Ge Q.**, Hopkins J. B., Spadaccini C. M., and Fang N. X., "Lightweight Mechanical Metamaterials with Tunable Negative Thermal Expansion", ***Physics Review Letters***, 2016, 117, 175901. This paper has been selected as PRL Editor's suggestion, highlighted on APS Physics Focus, Science, MIT news, USC news, and many others.
4. Wang Y., Kong D., Shi W., Liu B., Sim G. J., **Ge Q.**, and Yang H. Y., "Ice Templated Free-Standing Hierarchically WS_2/CNT-rGO Aerogel for High-Performance Rechargeable Lithium and Sodium Ion Batteries", ***Advanced Energy Materials***, 2016, 1601057.
5. **Ge Q.*,** Sakhaei A., Lee H., Dunn C. K., Fang N. X., Dunn M. L., "Multimaterial 4D Printing with Tailorable Shape Memory Polymers", ***Scientific Reports***, 2016, 6:31110. This paper has generated tweets in about 20 countries and more than 40 news articles (e.g. MIT news, Yahoo News, Science News, Tech Times and many others).
6. Yu K., **Ge Q.**, Qi H. J., "Effects of stretch induced softening to the free recovery behavior of shape memory polymer composites", ***Polymer***, 2014, 23, 5938-5947.
7. Zheng X., Lee H., Weisgraber T. H., Shusteff M., Deotte J. R., Duoss E., Kuntz J. D, Biener M. M., Kucheyev S. O., **Ge Q.**, Jackson J., Fang N. X., Spadaccini C. M., "Ultra-light, Ultra-stiff Mechanical Metamaterials", ***Science***, 2014, 20, 1373-1377. This paper was highlighted on Science Front Cover, and this week in Science and reported by Phys.org, Science Daily, MRS Bulletin, 3Ders. org, MIT Technology Review, R&D Magazine, San Jose Mercury News, Materials Today.
8. **Ge Q.**, Dunn C. K., Qi H. J., and Dunn M. L., "Active Origami by 4D Printing", ***Smart Materials and Structures***, 2014, 23, 094007-15. Highlights of 2014. Most Cited Articles of 2014.
9. **Ge Q.**, Luo X., Iversen C. B., Mather P. T., Dunn M. L., and Qi H. J., "A Finite Deformation Thermomechanical Constitutive Model for Triple Shape Polymeric Composites Based on Dual Thermal Transitions", ***International Journal of Solid and Structures***, 2014, 51, 2777-2790.
10. Yu K., **Ge Q.**, and Qi H. J., "Reduced Time as a Unified Parameter Determining Fixity and Free Recovery of Shape Memory Polymers", ***Nature Communication***, 2014, 5:3066.
11. **Ge Q.**, Qi H. J., and Dunn M. L., "Active Materials by Four-Dimension Printing", ***Applied Physics Letters***, 2013, 103: 131901. This paper has generated significant press (nearly 100 reports), including technology press (e.g., *Design News*, *Physics News*, *Composites Today*, and *GizMag*) and popular press (*Denver Post*, *Seattle Times*, and *NPR*), and it is the ***Top 10*** most accessed articles in 2014.

12. **Ge Q.**, Yu K., Dunn M. L., and Qi H. J., "Shape Memory Polymers: Mechanisms and Constitutive Models", ***International Journal of Aerospace and Lightweight Structures***, 2013, 3: 1.
13. **Ge Q.**, Westbrook K. K., Mather P. T., Dunn M. L. and Qi H. J., "Thermomechanical behavior of a two-way shape memory composite actuator", ***Smart Materials and Structures***, 2013, 22: 055009.
14. **Ge Q.**, Luo, X., Iversen, C. B., Mather P., Dunn M. L. and Qi H. J., "Mechanisms of Triple-Shape Polymeric Composites Featuring Dual Thermal Transitions", ***Soft Matter***, 2013, 9, 2212–2223.
15. **Ge Q.**, Yu, K., Ding, Y. and Qi, H. J., "Prediction of Temperature Dependent Free Recovery Behaviors of Amorphous Shape Memory Polymers", ***Soft Matter***, 2012, 8: 11098–11105.
16. **Ge Q.**, Luo X., Rodriguez E. D., Zhang X., Mather P. T., Dunn M. L. and Qi H. J., "Thermo-mechanical Behaviors of Shape Memory Elastomer Composites", ***Journal of the Mechanics and Physics of Solids***, 2012, 60(1): 67-83. One of the ***Top 25*** papers published in 2012.
17. Wang Z., Hansen C., **Ge Q.**, Maruf S. H., Ahn D. U., Qi H. J. and Ding Y., "Programmable, Pattern-Memorizing Polymer Surface", ***Advanced Materials***, 2011, 23: 3669-3673. Highlighted in ***Lab on A Chip,*** 2011, 11, 3937-3940.
18. Westbrook K. K., Mather P. T., Parakh V., Dunn M. L., **Ge Q.**, Lee B. M. and Qi H. J., "Two-way reversible shape memory effects in a free-standing polymer composite", ***Smart Materials and Structures***, 2011, 20: 065010.
19. Chen L.Y., **Ge Q.**, Qu S., and Jiang J. Z., "Stress-induced softening and hardening in a bulk metallic glass", ***Scripta Materialia***, 2008, 59: 1210-1213.
20. Chen L. Y., **Ge Q.**, Qu S., Jiang Q. K., Nie X. P. and J. Z. Jiang, "Achieving large macroscopic compressive plastic deformation and work-hardening-like behavior in a monolithic bulk metallic glass by tailoring stress distribution", ***Applied Physics Letter*** 2008, 92: 211905.

INVITED TALKS

1. **Ge Q.**, "Projection Micro Stereolithography for Multifunctional Microscale 3D Printing", 2016 Merlion Workshop: Nanoscale 3D Printing, Singapore, December, 2016.
2. **Ge. Q.**, "Functional Additive Manufacturing with Active Materials", National University of Singapore, October, 2016.
3. **Ge Q.**, "Four Dimensional Printing with Soft Active Materials", Shanghai Jiaotong University at Shanghai, January, 2016.
4. **Ge Q.**, "Four Dimensional Printing with Soft Active Materials", Singapore University of Technology and Design at Singapore, August, 2015.
5. **Ge Q.**, Qi H. J., Fang N. X., and Dunn M. L., "Four Dimensional Printing and its realization", Tongji University at Shanghai, June, 2015.
6. **Ge Q.**, Qi H. J., Fang N. X., and Dunn M. L., "Four Dimensional Printing and its realization", Institute of Mechanics, Chinese Academy of Science at Beijing, November, 2014.
7. **Ge Q.**, Qi H. J., Fang N. X., and Dunn M. L., "Four Dimensional Printing and its realization", Zhejiang University at Hangzhou, November, 2014.
8. **Ge Q.**, Qi H. J., Fang N. X., and Dunn M. L., "Four Dimensional Printing and its realization", Soochow University at Suzhou, November, 2014.
9. **Ge Q.**, Fang N. X., and Dunn M. L., "Multi-Material Micro 3D Printing of Soft Active Materials and Its Applications", Georgia Institute of Technology at Atlanta, GA, USA, September, 2014.

CONFERENCE PRESENTATIONS

1. **Ge Q.**, "Functional Additive Manufacturing with Smart Materials", **Invited Speaker** at World Congress of Smart Materials at Bangkok, Thailand, March 2017.

2. **Ge Q.**, Lee H., Fang N. X., Dunn M. L., "Three Dimension Printing of Shape Memory Structures on Projection Micro-Stereolithography", American Society of Mechanical Engineers Annual Congress in Houston TX, USA, November, 2015.
3. **Ge Q.**, Qi H. J., Fang N. X., and Dunn M. L., "3D Printing of Active Structures and Devices with Multiple Soft Materials", **Invited Speaker** at Workshop on Soft Machines and Mechanics at Xi'an Jiaotong University, China, June 2015.
4. **Ge Q.**, Qi H. J., Fang N. X., and Dunn M. L., "Three Dimensional Printing of Active Structures and Devices", Smart Materials, Adaptive Structures and Intelligent Systems at Newport, IR, USA, September, 2014.
5. **Ge Q.**, Qi H. J., Fang N. X., and Dunn M. L., "Printed Active Composites", New England Workshop on the Mechanics of Materials and Structures in Boston, MA, USA, October, 2013.
6. **Ge Q.**, Luo X., Mather P. T., Dunn M. L. and Qi H. J., A finite deformation thermomechanical constitutive model for triple shape polymeric composites based on dual thermal transitions, NIST/NSF workshop in Monterey, CA, USA, March, 2013.
7. **Ge Q.**, Luo X., Mather P. T., Dunn M. L. and Qi H. J., "Mechanisms of Triple-Shape Polymeric Composites Featuring Dual Thermal Transitions", American Society of Mechanical Engineers Annual Congress in Houston TX, USA, November, 2012.
8. **Ge Q.**, Luo X., Mather P. T., Dunn M. L. and Qi H. J., "Thermomechanical Behaviors of Shape Memory Elastomeric Composites", American Society of Mechanical Engineers Annual Congress in Denver CO, USA, November, 2011.
9. **Ge Q.**, Luo X., Mather P. T., Dunn M. L. and Qi H. J., "Thermomechanical Constitutive Modeling of Shape Memory Elastomeric Composites", Society for Experimental Mechanics Annual Conference in Uncasville CT, USA, June 2011.