

Rong Long

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EDUCATION

Cornell University

Ph.D Theoretical and Applied Mechanics (Advisor: Chung-Yuen Hui) 01/2011
Major: Solid Mechanics, Minor: Materials Science and Engineering

University of Science and Technology of China

B.S. Theoretical and Applied Mechanics 07/2006

EXPERIENCE

Assistant Professor 09/2014 – present

Department of Mechanical Engineering, University of Colorado at Boulder

Research interests:

- Fracture and large deformation of soft materials.
- Mechanics of soft active materials and structures.
- Cell mechanics and mechanics of biological materials.
- Adhesion and contact mechanics.

Assistant Professor 01/2013 – 08/2014

Department of Mechanical Engineering, University of Alberta

Research Associate 01/2012 – 12/2012

Department of Mechanical Engineering, University of Colorado at Boulder

Advisor: Martin L. Dunn

Postdoctoral Associate 01/2011 – 12/2011

Department of Biological and Environmental Engineering, Cornell University

Advisors: Mingming Wu & Chung-Yuen Hui

HONORS & AWARDS

- 2018 Faculty Early Career Development (CAREER) Award, National Science Foundation.
- 2018 ESPCI Paris-Michelin Visiting Professorship, ESPCI Paris and Michelin Company.
- 2017 Outstanding Undergraduate Educator Award, Mechanical Engineering, CU Boulder.
- 2017 3M Non-Tenured Faculty Award, 3M Company.
- 2016 ESPCI Paris-Michelin Visiting Professorship, ESPCI Paris and Michelin Company.
- 2015 Ralph E. Powe Junior Faculty Enhancement Award, Oak Ridge Associated Universities.
- 2014 Outstanding Young Adhesion Scientist Award, Adhesion Society.
- 2009 Liu Memorial Award, Cornell University.
- 2006 McMullen Fellowship, Cornell University.

- 2005 Guo Moruo Presidential Award, University of Science and Technology of China.
- 2004 Samsung Fellowship, University of Science and Technology of China.

PROFESSIONAL ACTIVITIES

Proposal Reviewer:

- Panelist, NSF, CMMI, 2012, 2016, 2017, 2018.
- Reviewer, NSERC, Canada, Discovery Grant, 2013, 2019.
- Reviewer, ACS Petroleum Research Fund.

Conferences:

- Session co-Organizer: Mechanics of Polymers with Dynamic Bonds, Society of Engineering Science 53rd Annual Technical Meeting, College Park, MD, October 2-5, 2016.
- Session co-Organizer: Mechanical Characterization of Soft Materials, 2016 ASME International Mechanical Engineering and Exposition, Phoenix, AZ, November 11-17, 2016.
- Session Chair: Contact Mechanics and Fracture, 2014 Adhesion Society Annual Conference, San Diego, CA, February 23-26, 2014.
- Discussion leader: Gordon Research Conference on Adhesion Science, South Hadley, MA, July 14-19, 2013.
- Chair: Gordon Research Seminar on Adhesion Science, Lewiston, ME, July 23-24, 2009

Journal & Conference Reviewer:

- *Journal Reviewer*:
 ACS Applied Materials & Interfaces;
 ACS Macro Letters;
 Acta Biomaterialia;
 ASME Journal of Applied Mechanics;
 ASME Journal of Engineering Materials and Technology;
 ASME Pressure Vessels & Piping Conference;
 Biomechanics and Modeling in Mechanobiology;
 Biosensors;
 International Journal of Solids and Structures;
 Engineering Fracture Mechanics;
 Experimental Mechanics;
 Extreme Mechanics Letters;
 International Journal of Mechanical Science;
 Journal of Adhesion;
 Journal of Adhesion Science and Technology;
 Journal of Biomechanics;
 Journal of Mechanical Engineering Science;
 Journal of the Mechanics and Physics of Solids;
 Journal of Physics D: Applied Physics;
 Journal of the Royal Society Interface;
 Journal of Mechanics of Materials and Structures;
 Langmuir;

Macromolecules;
Materials Horizons;
Meccanica;
Mechanics Research Communications;
Proceedings of the National Academy of Science;
Polymer;
Proceedings of the Royal Society A;
Reports on Progress in Physics;
RSC Advances;
Soft Matter;
Soft Robotics;
Smart Materials and Structures;
Theoretical and Applied Fracture Mechanics;
ZAMM.

- *Editorial Board*: Scientific Reports, 2016 – present.

Membership:

- American Society of Mechanical Engineers (ASME)
- American Society of Engineering Education (ASEE)
- Society of Experimental Mechanics (SEM)
- Adhesion Society

SERVICE

Department

- Department Graduate Committee, October 2014-present
- Department Search Committee, September 2015-May 2016
- Organizer of Mechanical Engineering Graduate Seminar Series, January-December 2015

Professional Society

- University Liaison Officer, ASME Northern Alberta Section, July 2013-August 2014

GRADUATE STUDENTS SUPERVISED

Current Students

- Yuan Qi, PhD student, CU, 2015-present
- Luxia Yu, PhD student, CU, 2015-present
- Yinan Lu, PhD student, CU, 2017-present

Graduated

- Shawn Lavoie, PhD, University of Alberta, 2013-2018
“Fracture modeling in elastomeric materials: relating the macroscopic response to microscopic processes”, (Co-supervised with Tian Tang).
- Tamran Lengyel, PhD, University of Alberta, 2012-2015
“Investigation of the tearing mechanism of bonded soft elastomers with finite interfacial friction” (Co-supervised with Peter Schiavone starting in July 2013).
- Wanru Liu, MSc, University of Alberta, 2013-2015
“Constructing continuous strain and stress fields from spatially discrete displacement

measurements in soft materials”

TEACHING

Department of Mechanical Engineering, University of Colorado Boulder

Courses taught, average student evaluation, and number of students

- MCEN 2043 – *Dynamics* (**5.4/6.0, 132**) 08-12/2018
- MCEN 4183/5183 – *Mechanics of Composite Materials* (**5.4/6.0, 32**) 01-05/2018
- MCEN 5023/ASEN 5023 – *Solid Mechanics I* (**5.4/6.0, 45**) 08-12/2017
- MCEN 2043 – *Dynamics* (**5.0/6.0, 128**) 08-12/2017
- MCEN 4228/5228 – *Special Topics: Mechanics of Composite Materials* (**5.8/6.0, 29**) 01-05/2017
- MCEN 2043 - *Dynamics* (**5.0/6.0, 128**) 01-05/2017
- MCEN 4228/5228 – *Special Topics: Mechanics of Composite Materials* (**5.5/6.0, 22**) 01-05/2016
- MCEN 2043 - *Dynamics* (**5.4/6.0, 103**) 08-12/2015
- MCEN 2043 - *Dynamics* (**5.1/6.0, 109**) 01-05/2015

Department of Mechanical Engineering, University of Alberta

Courses taught, median student evaluation, and number of students

- MEC E 250 - *Engineering Mechanics II: Rigid Body Dynamics* (**4.8/5.0, 46**) 01-04/2014
- MEC E 380 - *Advanced Strength of Materials I* (**4.4/5.0, 120**) 09-12/2013

JOURNAL PUBLICATIONS

(Underline: Graduate Student Advised or co-Advised)

1. S.R. Lavoie, P. Millereau, C. Creton, **R. Long**, T. Tang, 2019, “A continuum model for progressive damage in tough multi-network elastomers”, *Journal of the Mechanics and Physics of Solids*, **125**, 523-549.
2. Y. Qi, Z. Zou, J. Xiao, **R. Long**, 2019, “Mapping the nonlinear crack tip deformation field in soft elastomer with a particle tracking method”, *Journal of the Mechanics and Physics of Solids*, **125**, 326-346.
3. X. Sun, L. Yu, M.E. Rentschler, H.A. Wu, **R. Long**, 2019, “Delamination of a rigid punch from an elastic substrate under normal and shear forces”, *Journal of the Mechanics and Physics of Solids*, **122**, 141-160.
4. T. Shen, **R. Long**, F.J. Vernerey, 2019, “Computational modeling of the large deformation and flow of viscoelastic polymers”, *Computational Mechanics*, in press.
5. F.J. Vernerey, R. Brighenti, **R. Long**, T. Shen, 2018, “Statistical damage mechanics of polymer networks”, *Macromolecules*, **51**, 6609-6622.
6. Y. Qi, J. Caillard, **R. Long**, 2018, “Fracture toughness of soft materials with rate-independent hysteresis”, *Journal of the Mechanics and Physics of Solids*, **118**, 341-364.
7. M.D. Kern, **R. Long**, M.E. Rentschler, 2018, “A representative volume element model to predict the adhesive response between a micro-patterned surface and a soft synthetic tissue”, *Mechanics of Materials*, **119**, 65-73.
8. D. Lloyd, X. Liu, N. Boddeti, L. Cantley, **R. Long**, M.L. Dunn, J.S. Bunch, 2017, “Adhesion, stiffness and instability in atomically thin MoS₂ bubbles”, *Nano Letters*, **17**, 5329-5334.

9. F.J. Vernerey, **R. Long**, R. Brighenti, 2017, “A statistically-based continuum theory for polymer with transient networks”, *Journal of the Mechanics and Physics of Solids*, **107**, 1-20.
10. L. Cox, X. Sun, C. Wang, N. Sowan, J.P. Killgore, **R. Long**, H.A. Wu, C.N. Bowman, Y. Ding, 2017, “Light-stimulated permanent shape reconfiguration in crosslinked polymer microparticles”, *ACS Applied Materials and Interfaces*, **9**, 14422-14428.
11. K. Wang, Y. Zhao, D. Chen, B. Fan, Y. Lu, L. Chen, **R. Long**, J. Wang, J. Chen, 2017, “Specific membrane capacitance, cytoplasm conductivity and instantaneous Young’s modulus of single tumour cells”, *Scientific Data*, **4**, 170015.
12. M.D. Kern, Y. Qi, **R. Long**, M.E. Rentschler, 2017, “Characterizing adhesion between a micro-patterned surface and a soft synthetic tissue”, *Langmuir*, **33**, 854-864.
13. X. Sun, H.A. Wu, **R. Long**, 2016, “Thermomechanics of a temperature sensitive covalent adaptable polymer with bond exchange reactions”, *Soft Matter*, **12**, 8847-8860.
14. **R. Long**, C.Y. Hui, 2016, “Fracture toughness of hydrogels: measurement and interpretation”, *Soft Matter*, **12**, 8069-8086.
15. N.G. Boddeti, **R. Long**, M.L. Dunn, 2016, “Adhesion mechanics of graphene on textured substrates”, *International Journal of Solids and Structures*, **97-98**, 56-74.
16. **R. Long**, M. Lefranc, E. Bouchaud, C.Y. Hui, 2016, “Large deformation effect in Mode-I crack opening displacement of an Agar gel: a comparison of experiment and theory”, *Extreme Mechanics Letters*, **9**, 66-73.
17. S.R. Lavoie, **R. Long**, T. Tang, 2016, “A rate-dependent damage model for elastomer at large strain”, *Extreme Mechanics Letters*, **8**, 114-124.
18. J. Guo[#], **R. Long**[#], K. Mayumi, C.Y. Hui, 2016, “Mechanics of a dual crosslink gel with dynamic bonds: steady state kinetics and large deformation effects”, *Macromolecules*, **49**, 3497-3507.
19. L. Cox, J. Killgore, Z. Li, **R. Long**, A. Sanders, J. Xiao, Y. Ding, 2016, “Influences of substrate adhesion and particle size on the shape memory effect of polystyrene particles”, *Langmuir*, **32**, 3691-3698.
20. T. Lengyel, Y. Qi, P. Schiavone, **R. Long**, 2016, “Interface crack between a compressible elastomer and a rigid substrate with finite slippage”, *Journal of the Mechanics and Physics of Solids*, **90**, 142-159.
21. S.R. Lavoie, **R. Long**, T. Tang, 2016, “An adhesive zone model for polymeric interface”, *International Journal of Fracture*, **197**, 169-183.
22. W. Liu, **R. Long**, 2016, “Constructing continuous strain and stress fields from spatially discrete displacement data in soft materials”, *Journal of Applied Mechanics*, **83**, 011006 (15 pages).
23. S.R. Lavoie, **R. Long**, T. Tang, 2015, “Rate dependent fracture of a double cantilever beam with combined bulk and interfacial dissipation”, *International Journal of Solid and Structures*, **75-76**, 277-286.
24. **R. Long**, C.Y. Hui, 2015, “Crack tip fields in soft elastic solids subjected to large quasi-static deformation: a review”, *Extreme Mechanics Letters*, **4**, 131-155.
25. **R. Long**, K. Mayumi, C. Creton, T. Narita, C.Y. Hui, 2015, “Rheology of a dual crosslink self-healing

- gel: theory and measurement using parallel-plate torsional rheometry”, *Journal of Rheology*, **59**, 643-665.
26. Y. Zhao, D.Y. Chen, Y.N. Luo, F. Chen, X.T. Zhao, M. Jiang, W.T. Yue, **R. Long**, J.B. Wang, J. Chen, 2015, “Simultaneous characterization of instantaneous Young’s modulus and specific membrane capacitance of single cells using a microfluidic system”, *Sensors*, **15**, 2763-2773.
 27. **R. Long**[#], K. Mayumi[#] (#: equal contribution), C. Creton, T. Narita, C.Y. Hui, 2014, “Time dependent behavior of a dual cross-linked self-healing gel: theory and experiments”, *Macromolecules*, **47**, 7243-7250.
 28. T. Liu, **R. Long**, C.Y. Hui, 2014, “Energy release rate of a pressurized crack in soft elastic materials: effects of surface tension and large deformation”, *Soft Matter*, **10**, 7723-7729.
 29. T. Lengyel, **R. Long**, P. Schiavone, 2014, “Effect of interfacial slippage on the near-tip fields of an interface crack between a soft elastomer and a rigid substrate”, *Proceedings of the Royal Society A*, **470**, 20140497.
 30. **R. Long**, M.L. Dunn, 2014, “Channel cracks in atomic-layer and molecular-layer deposited multilayer thin film coatings”, *Journal of Applied Physics*, **115**, 233514.
 31. Y.N. Luo, D.Y. Chen, Y. Zhao, C. Wei, **R. Long**, J.B. Wang, J. Chen, 2014, “A constriction channel based microfluidic system for single-cell instantaneous Young’s modulus quantification in a continuous manner”, *Sensors and Actuators B: Chemical*, **202**, 1183-1189.
 32. D.L. Romanyk, S.S. Liu, **R. Long**, J.P. Carey, 2014, “Considerations for determining relaxation constants from creep modeling of nonlinear suture tissue”, *International Journal of Mechanical Sciences*, **85**, 179-186.
 33. Y. Zhao, X.T. Zhao, D.Y. Chen, Y.N. Luo, M. Jiang, C. Wei, **R. Long**, W.T. Yue, J.B. Wang, J. Chen, 2014, “Tumor cell characterization and classification based on cellular specific membrane capacitance and cytoplasm conductivity”, *Biosensors and Bioelectronics*, **57**, 245-253.
 34. N.G. Boddeti, X. Liu, **R. Long**, J. Xiao, J.S. Bunch, M.L. Dunn, 2013, “Graphene blister with switchable shapes controlled by pressure and adhesion”, *Nano Letters*, **13**, 6216-6221.
 35. **R. Long**, H.J. Qi, M.L. Dunn, 2013, “Thermodynamics and mechanics of photochemically reacting polymers”, *Journal of the Mechanics and Physics of Solids*, **61**, 2212-2239.
 36. M.S. Hall, **R. Long**, X. Feng, Y.L. Huang, C.Y. Hui, M. Wu, 2013, “Towards single cell traction microscopy within 3D collagen matrices”, *Experimental Cell Research*, **319**, 2396-2408.
 37. X. Liu, N.G. Boddeti, M.R. Szpunar, L. Wang, M.A. Rodriguez, **R. Long**, J. Xiao, M.L. Dunn, J.S. Bunch, 2013, “Observation of pull-in instability in graphene membranes under interfacial forces”, *Nano Letters*, **13**, 2309-2313.
 38. Y. Zhao, D. Chen, Y. Luo, H. Li, B. Deng, S.B. Huang, T.K. Chiu, M.H. Wu, **R. Long**, H. Hao, X. Zhao, W. Yue, J. Wang, J. Chen, 2013, “A microfluidic system for cell type classification based on cellular size-independent electrical properties”, *Lab on a chip*, **13**, 2272-2277.
 39. N.G. Boddeti, S. P. Koenig, **R. Long**, J. Xiao, J.S. Bunch, M.L. Dunn, 2013, “Mechanics of adhered, pressurized graphene blisters”, *Journal of Applied Mechanics*, **80**, 040909.
 40. **R. Long**, H.J. Qi, M.L. Dunn, 2013, “Modeling the mechanics of covalently-adaptable polymer

- networks with temperature-dependent bond exchange reactions”, *Soft Matter*, **9**, 4083-4096.
41. E. Laprade, **R. Long**, J. Pham, J. Lawrence, T. Emrick, A. Crosby, C.Y. Hui, K.R. Shull, 2013, “Large deformation and adhesive contact studies of axisymmetric membranes”, *Langmuir*, **29**, 1407-1419.
 42. C.Y. Hui, **R. Long**, J. Ning, 2013, “Stress relaxation near the tip of a stationary Mode I crack in a poroelastic solid”, *Journal of Applied Mechanics*, **80**, 021014.
 43. Y. Zhao, D. Chen, H. Li, Y. Luo, B. Deng, S.B. Huang, T.K. Chiu, M.H. Wu, **R. Long**, H. Hu, J. Wang, J. Chen, 2013, “A microfluidic system enabling continuous characterization of membrane specific capacitance and cytoplasm conductivity of single cells in suspension”, *Biosensors and Bioelectronics*, **43**, 304-307.
 44. J.B. Lee, S. Peng, Y.H. Roh, H. Funabashi, D. Yang, N. Park, E.J. Rice, L. Chen, **R. Long**, M. Wu, D. Luo, 2012, "A mechanical metamaterial made from DNA hydrogel", *Nature Nanotechnology*, **7**, 816-820.
News and Views: “DNA Nanotechnology: a metamaterial with memory” by J. Li and L. Bai, *Nature Nanotechnology*, **7**, 773-774.
 45. M.S. Hall[#], **R. Long**[#] ([#]: equal contribution), C.Y. Hui, M. Wu, 2012, “Mapping 3D stress and strain fields within a soft hydrogel using a fluorescence microscope”, *Biophysical Journal*, **102**, 2241-2250.
 46. **R. Long**, C.Y. Hui, 2012, "Crack buckling in soft gels under compression", *Acta Mechanica Sinica*, **28**, 1098-1105.
 47. C.Y. Hui, **R. Long**, 2012, “A constitutive model for the large deformation of a self-healing gel”, *Soft Matter*, **8**, 8029-8216.
 48. C.Y. Hui, **R. Long**, 2012, “Direct extraction of work of adhesion from contact experiments: generalization of JKR theory to flexible structures and large deformation”, *Journal of Adhesion*, **88**, 70-85.
 49. **R. Long**, C.Y. Hui, A. Jagota, M. Bykhovskaia, 2012, “Adhesion energy can regulate vesicle fusion and stabilize partially fused states”, *Journal of Royal Society Interface*, **9**, 1555-1567.
 50. **R. Long**, C.Y. Hui, 2012, “Axisymmetric membrane in adhesive contact with rigid substrates: analytical solutions under large deformation”, *International Journal of Solid and Structures*, **49**, 672-683.
 51. **R. Long**, M.S. Hall, M. Wu, C.Y. Hui, 2011, “Effects of gel thickness on microscopic indentation measurement of gel modulus”, *Biophysical Journal*, **101**, 643-650.
 52. **R. Long**, C.Y. Hui, 2011, “Effects of finite chain extensibility on the stress fields near the tip of Mode III crack”, *Proceedings of the Royal Society A*, **467**, 3170-3187.
 53. C.Y. Hui, **R. Long**, K.J. Wahl, R.K. Everett, 2011, “Barnacles resist removal by crack trapping”, *Journal of Royal Society Interface*, **8**, 868-879.
 54. C.Y. Hui, A. Ruina, **R. Long**, A. Jagota, 2011, “Cohesive zone models and fracture”, *Journal of Adhesion*, **87**, 1-52.
 55. **R. Long**, V. R. Krishnan, C.Y. Hui, 2011, “Finite strain analysis of crack tip fields in incompressible hyperelastic solids loaded in plane stress”, *Journal of the Mechanics and Physics of Solids*, **59**,

672-695.

56. **R. Long**, K. R. Shull, C.Y. Hui 2010, “Large deformation adhesive contact mechanics of circular membranes with a flat rigid substrate”, *Journal of the Mechanics and Physics of Solids*, **58**, 1225-1242.
57. **R. Long**, C.Y. Hui, W. Cheng, M. Campolongo, D. Luo, 2010, “Size effect on failure of pre-stretched free standing nanomembranes”, *Nanoscale Research Letters*, **5**, 1236-1239.
58. **R. Long**, C.Y. Hui, 2010, “Effects of triaxiality on the growth of crack-like cavities in soft incompressible elastic solids”, *Soft Matter*, **6**, 1238-1245.
59. A. Cristiano, A. Marcellan, **R. Long**, C.Y. Hui, J. Stolk, C. Creton, 2010, “An experimental investigation of fracture by cavitation of model elastomeric networks”, *Journal of Polymer Science B: Polymer Physics*, **48**, 1409-1422.
60. W. Cheng, M.R. Hartman, D.M. Smilgies, **R. Long**, M.J. Campolongo, R. Li, K. Sekar, C.Y. Hui, D. Luo, 2010, “Probing in Real-Time the Soft Crystallization of DNA-Capped Nanoparticles”, *Angewandte Chemie International Edition*, **49**, 380-384.
61. S. Vajpayee, **R. Long**, L. Shen, A. Jagota, C.Y. Hui, 2009, “Effect of rate on adhesion and static friction of a film-terminated fibrillar interface”, *Langmuir*, **25**, 2765-2771.
62. **R. Long**, C.Y. Hui, 2009, “The effect of preload on the pull-off force in indentation tests of microfibre arrays”, *Proceedings of the Royal Society A*, **465**, 961-981.
63. V. R. Krishnan, C.Y. Hui, **R. Long**, 2008, “Finite strain crack tip fields in soft incompressible elastic solids”, *Langmuir*, **24**, 14245-14253.
64. **R. Long**, C.Y. Hui, S. Kim, M. Sitti, 2008, “Modeling the soft backing layer thickness effect on adhesion of elastic microfiber arrays”, *Journal of Applied Physics*, **104**, 044301.
65. S. Kim, M. Sitti, C.Y. Hui, **R. Long**, A. Jagota, 2007, “Effect of backing layer thickness on adhesion of single-level elastomer fiber arrays”, *Applied Physics Letters*, **91**, 161905.
66. H.A. Wu, **R. Long**, X.X. Wang, F.C. Wang, 2007, “Elastic interaction between a string of cells and an individual cell”, *Chinese Physics Letters*, **24**, No.5, 1047-1049.

CONTRIBUTED CONFERENCE PRESENTATIONS & ABSTRACTS (* Presenter)

1. Y. Qi, Zhanan Zou, Jianliang Xiao, **R. Long***, “Mapping crack tip strain fields in soft polymers with a particle tracking method”, *Gordon Research Conferences on Multifunctional Materials and Structures*, Ventura, CA, Jan. 14-19, 2018 (Poster).
2. Y. Qi*, Zhanan Zou, Jianliang Xiao, **R. Long**, “Mapping crack tip strain fields in soft polymers with a particle tracking method”, *Gordon Research Conferences on Adhesion Science*, South Hadley, MA, Jul. 23-28, 2017 (Poster).
3. Y. Qi*, Zhanan Zou, Jianliang Xiao, **R. Long**, “Mapping crack tip strain fields in soft polymers with a particle tracking method”, *3M Science and Engineering Faculty Day*, St Paul, MN, June 5-6, 2017 (Poster).
4. S.R. Lavoie*, **R. Long**, T. Tang, “A constitutive model for multinetwork elastomer: bridging molecular mechanics and macroscopic fracture”, *Gordon Research Conferences on Adhesion*

Science, South Hadley, MA, Jul. 23-28, 2017 (Poster).

5. **R. Long***, K. Mayumi, C. Creton, T. Narita, C.Y. Hui, "Time dependent mechanics of a dual-crosslink self-healing gel", *Society of Engineering Science Conference*, College Station, TX, Oct. 26-28, 2015.
6. T. H. Lengyel, P. Schiavone, **R. Long***, "Large deformation of an interface crack with finite slippage", *Gordon Research Conference on Adhesion Science*, South Hadley, MA, Jul. 26-31, 2015 (Poster).
7. S. Lavoie*, **R. Long**, T. Tang, "Rate dependent fracture of polymers: beyond cohesive zone modeling", *Gordon Research Conference on Adhesion Science*, South Hadley, MA, Jul.26-31, 2015 (Poster).
8. **R. Long***, H.J. Qi, M.L. Dunn, "Modeling covalently adaptable polymer networks", *International Congress of the Canadian Society for Mechanical Engineering*, Toronto, ON, Canada, Jun. 1-4, 2014.
9. **R. Long***, M.L. Dunn, "Channel cracks in composite thin film coatings with alternating stiff and soft layers", *Adhesion Society Annual Conference*, San Diego, CA, Feb. 23-26, 2014.
10. R.C. Butz*, **R. Long**, T.M. Nelson, G.S.H. Lock, C.R. Dennison, "Towards a numerical tool for helmet impact liner design and simulation: approximating impact energy attenuation in a pore-fluid material using a viscoelastic material model", *14th Annual Alberta Biomedical Engineering Conference*, Oct. 25-27, 2013 (Poster).
11. M.S. Hall*, X. Feng, Y. Huang, **R. Long**, C.Y. Hui, M. Wu, "Single cell traction microscopy within 3D collagen matrices", *5th International Conference on Mechanics of Biomaterials and Tissues*, Sitges, Spain, Dec. 8-12, 2013.
12. M.L. Dunn*, H.J. Qi, **R. Long**, "Chemomechanics of covalently-adaptable polymer networks with temperature-dependent bond exchange reactions", *7th International Conference on Materials for Advanced Technologies*, Suntec, Singapore, Jun. 30 - Jul. 5, 2013.
13. M.L. Dunn*, N. Boddeti, X. Liu, S. Koenig, **R. Long**, J. Xiao, S. Bunch, "Influence of surface forces on graphene nanostructures", *7th International Conference on Materials for Advanced Technologies*, Suntec, Singapore, Jun. 30 - Jul. 5, 2013.
14. M.L. Dunn*, H.J. Qi, K.N. Long, **R. Long**, "Thermodynamics and mechanics of reacting network polymers with dynamic topology", *International Workshop on Computational Mechanics of Materials*, Baltimore, MD, Sep. 24-26, 2012.
15. M.S. Hall*, **R. Long**, B.J. Kim, C. Roh, C.Y. Hui, M. Wu, "Mapping single cell traction field within a three dimensional collagen matrix using a fluorescence microscope", *Spring MRS Meeting*, San Francisco, CA, Apr. 9-13, 2012.
16. E. Laprade*, **R. Long**, C.Y. Hui, K. R. Shull, "Membrane geometries for adhesive contact measurements: estimation of membrane tension", *Adhesion Society Annual Conference*, New Orleans, LA, Feb. 26-29, 2012.
17. **R. Long**, M.S. Hall, M. Wu, C.Y. Hui*, "Measuring gel modulus using a micro-indenter: effect of gel thickness and large deformation", *Adhesion Society Annual Conference*, New Orleans, LA, Feb.

26-29, 2012.

18. M.S. Hall*, **R. Long**, C. Roh, C.Y. Hui, M. Wu, "Mapping 3D cellular traction in real time using a fluorescence microscope", *BMES Annual Meeting*, Hartford, CT, Oct. 12-15, 2011 (Poster).
19. M.S. Hall*, **R. Long***, C. Roh, C.Y. Hui, M. Wu, "Mapping 3D stress and strain fields within a soft hydrogel using a fluorescence microscope", *Gordon Research Conference on Adhesion Science*, Lewiston, ME, Jul. 24-29, 2011 (Poster).
20. **R. Long***, M.S. Hall, M. Wu, C.Y. Hui, "Measuring soft gel modulus using a microscope", *3rd BEE Research Symposium, Cornell University*, Ithaca, NY, Mar. 4, 2011, (Poster).
21. **R. Long***, S. Manohar, A. Jagota, C.Y. Hui, M. Bykhovskaia, "Mechanics of fusion of a vesicle to a plasma membrane", *16th US National Congress of Theoretical and Applied Mechanics*, State College PA, Jun. 27-Jul. 2, 2010.
22. **R. Long***, C.Y. Hui, A. Jagota, K.J. Wahl, R. Everett, "Barnacles stick to surfaces by crack trapping", *Adhesion Society Annual Conference*, Daytona Beach FL, Feb. 21-24, 2010.
23. **R. Long***, C.Y. Hui, K. Shull, "Large deformation adhesive contact mechanics of inflated membranes", *Adhesion Society Annual Conference*, Daytona Beach FL, Feb. 21-24, 2010.
24. **R. Long***, C.Y. Hui, "Effect of triaxiality on crack-like cavity growth in soft materials", *Adhesion Society Annual Conference*, Daytona Beach FL, Feb. 21-24, 2010.
25. **R. Long*** and C.Y. Hui, "Effects of triaxiality on the growth of crack-like cavities in soft incompressible elastic solids", *Gordon Research Conference on Adhesion Science*, New London NH, Jul. 26-31, 2009, (Poster).

INVITED TALKS

1. "Viscoelasticity of gels with dynamic bonds: molecular kinetics and macroscopic mechanics", invited speaker, *APS March Meeting*, Boston, MA, Mar.4-8, 2019.
2. "Hysteresis and fracture in soft dissipative materials", invited speaker, *the 18th U.S. National Congress on Theoretical and Applied Mechanics*, Chicago, IL, Jun. 5-9, 2018.
3. "Hysteresis and fracture in soft materials", *Michelin Research Center*, Ladoux, France, May 31, 2018.
4. "Hysteresis and fracture in soft materials", *ESPCI Paris*, France, May 15, 2018.
5. "Hysteresis and fracture in soft materials", *National Institute of Standards and Technology*, Apr. 11, 2018.
6. "Fracture mechanics of soft materials", Department of Mechanical Engineering, *Colorado School of Mines*, Nov. 30, 2017.
7. "Hysteresis and fracture in soft materials", *Gordon Research Conferences on Adhesion Science*, South Hadley, MA, Jul. 24, 2017.
8. "Fracture mechanics of soft dissipative materials", Department of Modern Mechanics, *University of Science and Technology of China*, May 18, 2017.
9. "Fracture mechanics of soft dissipative materials", Department of Mechanical Engineering, *University of California at Santa Barbara*, May 15, 2017.
10. "Mechanics of adhesion for soft materials under large deformation", *3M Research Center*, Nov. 1, 2016.

11. "Time-dependent mechanics of polymers with dynamic bonds", Department of Mechanical Engineering, *University of Nevada at Reno*, Aug. 26, 2016.
12. "Mapping three-dimensional deformation field in transparent soft materials: applications to fracture", *ESPCI Paris Tech*, France, Jul. 1, 2016.
13. "Mapping three-dimensional deformation field in transparent soft materials: applications to fracture", *Michelin Research Center*, Ladoux, France, Jun. 29, 2016.
14. "Time-dependent mechanics of polymers with dynamic bonds", invited speaker, the 3M award session for Kenneth Shull, *Adhesion Society Annual Conference*, San Antonio, TX, Feb.21-24, 2016
15. "Mechanics of polymeric materials with dynamic bonds", invited speaker, the 16th *International Conference on Deformation, Yield and Fracture of Polymers*, Kerkrade, Netherlands, Mar.29-Apr. 2, 2015.
16. "Time dependent mechanics of soft polymers with dynamic bonds", Department of Mechanical Engineering, MCEN5027 Seminar Series, University of Colorado at Boulder, Oct. 23, 2014.
17. "Mapping strain and stress fields in soft materials", Department of Modern Mechanics, *University of Science and Technology of China*, Jul. 9, 2013.
18. "Measurement of three-dimensional cell tractions". State Key Laboratory of Transducer Technology, *Institute of Electronics, Chinese Academy of Sciences*, Jul. 4, 2013
19. "Thermodynamics and mechanics of polymer networks with adaptable dynamic bonds", Department of Mechanical Engineering, *University of Alberta*, Jan. 24, 2013.
20. "Mapping strain and stress fields in soft gels", Department of Mechanical Engineering, MCEN 5027 Seminar Series, *University of Colorado at Boulder*, Apr. 12, 2012.
21. "Mechanics of fusion of a vesicle to a plasma membrane", Solid Mechanics Seminar, Sibley School of Mechanical and Aerospace Engineering, *Cornell University*, Oct. 6, 2010.

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