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**ACADEMIC POSITIONS**

<b>Professor</b> Micro/Bio/Nanofluidics Unit, Okinawa Institute of Science and Technology (OIST)	July 2014 – present
<b>Adjunct Professor</b> Mechanical Engineering, University of Washington	July 2014 – present
<b>Full Affiliate Member</b> Department of Nanomedicine, Houston Methodist Research Institute (HMRI)	March 2018 – present
<b>Tenured Associate Professor</b> Mechanical Engineering, University of Washington	September 2008 – June 2014
<b>Affiliate Associate Professor</b> Diabetes and Endocrinology Research Center (DERC), University of Washington	June 2011 – June 2014
<b>Assistant Professor</b> Mechanical and Aerospace Engineering, Washington University in St. Louis	September 2002 – August 2008

**EDUCATION**

<b>Postdoctoral Fellow</b> , Division of Engineering and Applied Science Harvard University (with Professors Howard Stone and Gareth Mckinley)	9/00–8/02
<b>Ph. D.</b> , Theoretical and Applied Mechanics University of Illinois at Urbana-Champaign (with Professor Sigurdur Thoroddsen)	7/96–7/00
<b>GFD Summer Fellow</b> , Geophysical Fluid Dynamics Woods Hole Oceanographic Institution	5/98–8/98
<b>M. S.</b> , Civil and Environmental Engineering University of Illinois at Urbana-Champaign	9/94–5/96
<b>M. S.</b> , with Highest Honors, Engineering Mechanics Tongji University	8/92–8/94
<b>B. S.</b> , Special class for the Gifted Young, Engineering Mechanics Hunan University	8/89–8/92

**HONORS AND AWARDS**

- [Fellow of the Society of Rheology, 2022](#)
- [Fellow of the American Physical Society, Division of Fluid Dynamics, 2021](#)
- Fellow of the Royal Society of Chemistry, 2021
- Excellence in Mentoring Award, OIST, 2020
- Annual Bergveld Lecturer, University of Twente, The Netherlands, 2019
- Fulbright Scholar Award, 2013-2014
- National Science Foundation CAREER Award, 2007-2012
- Best paper award, *Particle Technology Forum*, AIChE meeting, 2008
- Ralph E. Powe Junior Faculty Enhancement Award, 2003

- Elected member of Honor Society of *Pi Tau Sigma*, 2004
- Video and Poster awards, *Gallery of Fluid Motion*, American Physical Society, Division of Fluid Dynamics, 2001 & 2003
- Dissertation Completion Fellowship, University of Illinois at Urbana-Champaign, 1999

## EDITORIAL BOARDS

- Associate Editor: *Soft Matter*, April 2020–present
- Editorial Board: *Journal of Rheology*, 2022–2025
- Editorial Advisory Board: *ACS Biosensors*, 2020–present
- Editorial Board: *VIEW*, 2019–present
- Editorial Advisory Board: *Biomicrofluidics*, 2019–present
- Editorial Advisory Board: *Physics of Fluids*, 2017–present
- Editorial Board: *Micromachines*, 2017–2021
- Editorial Board: *Biomedical Microdevices*, 2017–2021
- Editorial Board: *Scientific Reports*, 2016–2019

## PROFESSIONAL MEMBERSHIPS

- The American Society of Rheology
- The European Society of Rheology
- The Japanese Society of Rheology
- The Canadian Society of Rheology
- The American Physical Society (Division of Fluid Dynamics)
- The American Institute of Chemical Engineers
- The American Chemical Society
- The Royal Society of Chemistry
- The American Society of Mechanical Engineers

## PUBLICATIONS ([GOOGLE SCHOLAR LINK](#))

### • Peer-Reviewed Journal Articles

171. Vincenzo Calabrese, Stylianos Varchanis, Simon J. Haward, Amy Q. Shen, [Alignment of colloidal rods in crowded environments](#), *Macromolecules*, **2022**, 55, 5610–5620.
170. Stylianos Varchanis, Simon J. Haward, Cameron C. Hopkins, John Tsamopoulos, Amy Q. Shen, [Evaluation of constitutive models for shear-banding wormlike micellar solutions in simple and complex flows](#), *Journal of Non-Newtonian Fluid Mechanics*, **2022**, 307, 104855.
169. Cameron C. Hopkins, Simon J. Haward, Amy Q. Shen, [Upstream Wall Vortices in Viscoelastic Flow Past a Cylinder](#), *Soft Matter*, **2022**, 18, 4868–4880. Cover Image.
168. Rameez Iqbal, Atsushi Matsumoto, Daniel Carlson, Kazumi Toda Peters, Riccardo Funari, Ashis K. Sen, Amy Q. Shen, [Evaporation driven smart patterning of microparticles on a rigid-soft composite substrate](#), *Journal of Colloid and Interface Science*, **2022**, 623, 927–937.
167. Riccardo Funari, Hidehiro Fukuyama, Amy Q. Shen, [Nanoplasmonic multiplex biosensing for COVID-19 vaccines](#), *Biosensors and Bioelectronics*, **2022**, 208, 114193.
166. Atsushi Matsumoto, Amy Q. Shen, [Rheological Scaling of Ionic-Liquid-Based Polyelectrolytes in Ionic Liquid Solutions: The Effect of the Ion Diameter of Ionic Liquids](#), *Soft Matter*, **2022**, 18, 4197–4204.

165. Hsieh-Fu Tsai, Daniel W. Carlson, Anzhelika Koldaeva, Simone Pigolotti, Amy Q. Shen, [Optimization and fabrication of multi-level microchannels for long-term imaging of bacterial growth and expansion](#), *Micromachines*, **2022**, 13(4), 576.
164. Anzhelika Koldaeva, Hsieh-Fu Tsai, Amy Q. Shen, Simone Pigolotti, [Population genetics in microchannels](#), *PNAS*, **2022**, 119, e2120821119.
163. San To Chan, Stylianos Varchanis, Simon J. Haward, Amy Q. Shen, [Torsional instability of constant viscosity elastic liquid bridges](#), *Soft Matter*, **2022**, 18, 1965–1977. Cover Image.
162. Riccardo Funari, Amy Q. Shen, [Detection and characterization of bacterial biofilms and biofilm-based sensors](#), *ACS Sensors*, **2022**, 7, 347–357.
161. Atsushi Matsumoto, Chi Zhang, Frank Scheffold, Amy Q. Shen, [Microrheological approach for probing the entanglement properties of polyelectrolyte solutions](#), *ACS Macro Letters*, **2022**, 11, 84–90.
160. Stylianos Varchanis, John Tsamopoulos, Amy Q. Shen, Simon J. Haward, [Reduced and increased flow resistance in shear-dominated flows of Oldroyd-B fluids](#), *Journal of Non-Newtonian Fluid Mechanics*, **2022**, 300, 104698.
159. Simon J. Haward, Cameron C. Hopkins, Stylianos Varchanis, Amy Q. Shen, [Bifurcations in flows of complex fluids around microfluidic cylinders](#), *Lab on a Chip*, **2021**, 21, 4041–4059.
158. Simon J. Haward, Cameron C. Hopkins, Amy Q. Shen, [Stagnation points control chaotic fluctuations in viscoelastic porous media flow](#), *PNAS*, **2021** 118 (38), e211165118.
157. Shivani Sathish and Amy Q. Shen, [Toward the development of rapid, specific, and sensitive microfluidic sensors: a comprehensive device blueprint](#), *JACS Au*, **2021**, 1, 1815–1833.
156. Ainash Garifullina, Amy Q. Shen, [High-throughput fabrication of high aspect ratio Ag/Al nanopillars for optical detection of biomarkers](#), *Journal of Materials Chemistry B*, **2021**, 9, 8851–8861.
155. San To Chan, Frank P. A. van Berlo, Hammad A. Faizi, Atsushi Matsumoto, Simon J. Haward, Patrick D. Anderson, Amy Q. Shen, [Torsional fracture of viscoelastic liquid bridges](#), *PNAS*, **2021**, 118 (24), e2104790118.
154. Daniel W. Carlson, Amy Q. Shen, Simon J. Haward, [Microtomographic PIV measurements of viscoelastic instabilities in a 3D micro-contraction](#), *Journal of Fluid Mechanics*, **2021**, 923, R6.
153. Vikram Rathee, Alessandro Monti, Marco E. Rosti, Amy Q. Shen, [Shear thickening behavior in dense repulsive and attractive suspensions of hard spheres](#), *Soft Matter*, **2021**, 17, 8047–8058. Cover Image.
152. Alessandro Monti, Vikram Rathee, Amy Q. Shen, Marco E. Rosti, [A fast and efficient tool to study the rheology of dense suspensions](#), *Physics of Fluids*, **2021**, 33, 103314.
151. Razie K. Moghaddam, Nikhil Bhalla, Amy Q. Shen, Giovanniantonio Natale, [Deterministic particle assembly on nanophotonic chips](#), *Journal of Colloid and Interface Science*, **2021**, 603, 259–269. Cover Image.
150. Vincenzo Calabrese, Stylianos Varchanis, Simon J. Haward, John Tsamopoulos, Amy Q. Shen, [Structure-property relationship of a soft colloidal glass in simple and mixed flows](#), *Journal of Colloid and Interface Science*, **2021**, 601, 454–466.
149. Atsushi Matsumoto, Ryota Yoshizawa, Osamu Urakawa, Tadashi Inoue, Amy Q. Shen, [Rheological scaling of ionic liquid-based polyelectrolytes in the semidilute unentangled regime from low to high salt concentrations](#), *Macromolecules*, **2021**, 54, 5648–5661.
148. Cameron C. Hopkins, Simon J. Haward, Amy Q. Shen, [Tristability in viscoelastic flow past side-by-side microcylinders](#), *Physical Review Letters*, **2021**, 126, 054501.
147. Vincenzo Calabrese, Simon J. Haward, Amy Q. Shen, [Effects of shearing and extensional flows on the alignment of colloidal rods](#), *Macromolecules*, **2021**, 54 (9), 4176–4185. Cover Image.
146. Doojin Lee, Amy Q. Shen, [Interfacial tension measurements in microfluidic quasi-static extensional flows](#), *Micromachines*, **2021**, 12(3), 272.
145. Noa Burshtein, Konstantinos Zografos, Amy Q. Shen, Robert J. Poole, Simon J. Haward, [Periodic fluctuations of streamwise vortices in inertia-dominated intersecting flows](#), *Physics of Fluids*, **2021**, 33, 014106.

144. S. Varchanis, S. J. Haward, C. C. Hopkins, A. Syrakos, Amy Q. Shen, Y. Dimakopoulos, J. Tsamopoulos, [Transition between solid and liquid state of yield-stress fluids under purely extensional deformations](#), *PNAS*, **2020**, 117 (23), 12611–12617.
143. Sangwoo Shin, Jesse T. Ault, Kazumi Toda-Peters, Amy Q. Shen, [Particle trapping in merging flow junctions by fluid–solute–colloid–boundary interactions](#), *Physical Review Fluids*, **2020**, 5, 024304.
142. Simon J. Haward, Amy Q. Shen, Ed. Special Issue "Fluid-structure interactions: From engineering to biomimetic systems", *Physics of Fluids*, **2020**, 32 (12), 120401.
141. Riccardo Funari, Kang-Yu Chu, Amy Q. Shen, [Detection of antibodies against SARS-CoV-2 spike protein by gold nanopikes in an opto-microfluidic chip](#), *Biosensors and Bioelectronics*, **2020**, 169, 112578.
140. Francisco Pimenta, Kazumi Toda-Peters, Amy Q. Shen, Manuel A. Alves, Simon J. Haward, [Viscous flow through microfabricated axisymmetric contraction/expansion geometries](#), *Experiments in Fluids*, **2020**, 61, 1–16.
139. Hsieh-Fu Tsai, Camilo IJspeert, and Amy Q. Shen, [Voltage-gated ion channels mediate the electrotaxis of glioblastoma cells in a hybrid PMMA/PDMS microdevice](#), *APL Bioengineering*, **2020**, 4, 036102.
138. Rameez Iqbal, Amy Q. Shen, and Ashis Sen, [Understanding of the role of dilution on evaporative deposition patterns of blood droplets over hydrophilic and hydrophobic substrates](#), *Journal of Colloid & Interface Science*, **2020**, 579, 541–550.
137. Riccardo Funari, Atsushi Matsumoto, John de Bruyn, Amy Q. Shen, [Rheology of the electric double layer in electrolyte solutions](#), *Analytical Chemistry*, **2020**, 92, 8244–8253.
136. S. Varchanis, C. C. Hopkins, Amy Q. Shen, J. Tsamopoulos, and S. J. Haward, [Asymmetric flows of complex fluids past confined cylinders: A comprehensive numerical study with experimental validation](#), *Physics of Fluids*, **2020**, 32, 053103.
135. GeoumYoung Kang, Daniel W. Carlson, Tae Ho Kang, Seungki Lee, Simon J. Haward, Inhee Choi, Amy Q. Shen, and Aram J. Chung, [Intracellular nanomaterial delivery via spiral hydroporation](#), *ACS Nano*, **2020**, 14, 3048–3058.
134. Simon J. Haward, Cameron C. Hopkins, Amy Q. Shen, [Asymmetric flow of polymer solutions around microfluidic cylinders: Interaction between shear-thinning and viscoelasticity](#), *Journal of Non-Newtonian Fluid Mechanics*, **2020**, 278, 104250.
133. Shivani Sathish, Kazumi Toda-Peters, and Amy Q. Shen, [Proof-of-Concept modular fluid handling prototype integrated with microfluidic biochemical assay modules for point-of-care testing](#), *VIEW*, **2020**, 1, e1.
132. Bruno Miranda, Kang-Yu Chu, Pier Luca Maffettone, Amy Q. Shen, Riccardo Funari, [Metal-enhanced fluorescence immunosensor based on plasmonic arrays of gold nanoislands on an etched glass substrate](#), *ACS Applied Nano Materials*, **2020**, 3, 10470–10478.
131. Rosa Ripa, Amy Q. Shen, and Riccardo Funari, [Detecting E. coli biofilm development stages on gold and titanium by a quartz crystal microbalance](#), *ACS Omega*, **2020**, 5, 2295–2302.
130. Cameron Hopkins, Simon J. Haward, and Amy Q. Shen, [Purely elastic fluid-structure interactions in microfluidics: implications for mucociliary flows](#), *Small*, **2020**, 16, 1903872. Cover Image.
129. Shivani Sathish, Noriko Ishizu, and Amy Q. Shen, [Air plasma-enhanced covalent functionalization of poly\(methyl methacrylate\): high-throughput protein immobilization for miniaturized bioassays](#), *ACS Applied Materials & Interfaces*, **2019**, 11, 46350–46360.
128. Ainash Garifullina and Amy Q. Shen, [Optimized immobilization of biomolecules on non-spherical Au nanostructures for efficient LSPR biosensing](#), *Analytical Chemistry*, **2019**, 91, 15090–15098.
127. Riccardo Funari, Rosa Ripa, Bill Söderström, Ulf Skoglund, and Amy Q. Shen, [Detecting gold biomineralization by \*Delftia acidovorans\* biofilms on a quartz crystal microbalance](#), *ACS Sensors*, **2019**, 4, 3023–3033.
126. Nikhil Bhalla, Aditya Jain, Yoonjoo Lee, Amy Q. Shen, and Doojin Lee, [Dewetting metal nanofilms—effect of substrate on refractive index sensitivity of nanoplasmonic gold](#), *Nanomaterials*, **2019**, 9(11), 1530.
125. San To Chan, Jesse T. Ault, Simon J. Haward, E. Meiburg, and Amy Q. Shen, [Coupling of vortex breakdown and stability in a swirling flow](#), *Physical Review Fluids*, **2019**, 4, 084701.

124. Johanna Roether, Kang-Yu Chu, Norbert Willenbacher, Amy Q. Shen, and Nikhil Bhalla, [Real-time monitoring of DNA immobilization and detection of DNA polymerase activity by a microfluidic nanoplasmonic platform](#), *Biosensors and Bioelectronics*, **2019**, 142, 111528.
123. R. Iqbal, Atsushi Matsumoto, A. Sudeepthi, Amy Q. Shen, and A. K. Sen, [Substrate stiffness affects particle distribution pattern in a drying suspension droplet](#), *Applied Physics Letters*, **2019**, 114, 253701.
122. Simon J. Haward, Cameron C. Hopkins, Kazumi Toda-Peters, and Amy Q. Shen, [Microfluidic analog of an opposed-jets device](#), *Applied Physics Letters*, **2019**, 114, 223701.
121. Steffen M. Recktenwald, Simon J. Haward, Amy Q. Shen, and Norbert Willenbacher, [Heterogeneous flow inside threads of low viscosity fluids leads to anomalous long filament lifetimes](#), *Scientific Reports*, **2019**, 9, 1–11.
120. Atsushi Matsumoto, Francesco Del Giudice, Rachapun Rotrattanadumrong, Amy Q. Shen, [Rheological scaling of ionic liquid-based polyelectrolytes in ionic liquid solutions](#), *Macromolecules*, **2019**, 52, 7, 2759–2771.
119. Nikhil Bhalla, Afshan Jamshaid, Mandy Hei Man Leung, Noriko Ishizu, Amy Q. Shen, [Electrical contact of metals at the nanoscale overcomes the oxidative susceptibility of silver-based nanobiosensors](#), *ACS Applied Nano Materials*, **2019**, 2, 2064–2075.
118. Hsieh-Fu Tsai, Kazumi Toda-Peters, Amy Q. Shen, [Glioblastoma adhesion in a quick-fit hybrid microdevice](#), *Biomedical Microdevices*, **2019**, 21, 1–14..
117. Hsieh-Fu Tsai, Joanna Gajdac, Tyler Sloan, Andrei Rarese, Amy Q. Shen, [Usiigaci: Label-free instance-aware cell tracking under phase contrast microscopy using machine learning](#), *SoftwareX*, **2019**, 9, 230–237.
116. Noa Burshtein, Amy Q. Shen, Simon J. Haward, [Controlled symmetry breaking and vortex dynamics in intersecting flows](#), *Physics of Fluids*, **2019**, 31, 034104.
115. Noa Burshtein, San To Chan, Kazumi Toda-Peters, Amy Q. Shen, Simon J. Haward, [3D-printed glass microfluidics for fluid dynamics and rheology](#), *Current Opinion in Colloid & Interface Science*, **2019**, 43, 1–14.
114. S. J. Haward, N. Kitajima, K. Toda-Peters, T. Takahashi, A. Q. Shen, [Flow of wormlike micellar solutions around microfluidic cylinders with high-aspect-ratio and low blockage ratio](#), *Soft Matter*, **2019**, 15, 1927–1941. Cover Image.
113. L. Ducloue, L. Casanellas, S. J. Haward, R. J. Poole, M. A. Alves, S. Lerouge, Amy Q. Shen, A. Lindner, [Secondary flows of viscoelastic fluids in serpentine microchannels](#), *Microfluidics and Nanofluidics*, **2019**, 23, 33.
112. Francesco Del Giudice, Gaetano D'Avino, Francesco Greco, Pier Luca Maffettone, and Amy Q. Shen, [Fluid viscoelasticity drives self-assembly of particle trains in a straight microfluidic channel](#), *Physical Review Applied*, **2018**, 10, 064058.
111. Rameez Iqbal, Butunath Majhy, Amy Q. Shen and Ashis Sen, [Evaporation and morphological patterns of bi-dispersed colloidal droplets on hydrophilic and hydrophobic surfaces](#), *Soft Matter*, **2018**, 14, 9901-9909.
110. Nikhil Bhalla, Hung-Ju Chiang, Amy Q. Shen, Book Chapter, [Cell biology at the interface of nanobiosensors and microfluidics](#), Book Chapter in "Microfluidics in Cell Biology Part C–Microfluidics on a Molecular Scale", Elsevier, **2018**, 148, 203–227.
109. Simon J. Haward, Jacob Page, Tamer A. Zaki, Amy Q. Shen, ["Phase Diagram" for viscoelastic poiseuille flow over a wavy surface](#), *Physics of Fluids*, **2018**, 30, 113101.
108. Simon J. Haward, Jacob Page, Tamer A. Zaki, Amy Q. Shen, [Inertioelastic Poiseuille flow over a wavy surface](#), *Physical Review Fluids*, **2018**, 3, 091302(R).
107. Riccardo Funari, Nikhil Bhalla, Kang-Yu Chu, Bill Söderström, Amy Q. Shen, [Nanoplasmonics for real-time and label-free monitoring of microbial biofilm formation](#), *ACS Sensors*, **2018**, 3, 1499–1509.
106. San To Chan, Simon J. Haward, Amy Q. Shen, [Microscopic investigation of vortex breakdown in a dividing T-Junction flow](#), *Physical Review Fluids*, **2018**, 3, 072201(R).
105. Simon J. Haward, Kazumi Toda-Peters, Amy Q. Shen, [Steady viscoelastic flow around high-aspect-ratio, low-blockage-ratio microfluidic cylinders](#), *Journal of Non-Newtonian Fluid Mechanics*, **2018**, 254, 23–35.



104. Konstantinos Zografos, Noa Burshtein, Amy Q. Shen, Simon J. Haward, Robert J. Poole, [Elastic modifications of an inertial instability in a 3D cross-slot](#), *Journal of Non-Newtonian Fluid Mechanics*, **2018**, 262, 12–24.

**Published before June 2018**

103. M. H. M. Leung, Amy Q. Shen, Microfluidic assisted nanoprecipitation of PLGA nanoparticles for curcumin delivery, *Langmuir*, **2018**, 34, 3961–3970.
102. C. Galvin, K. Shirai, A. Rahmani, K. Masaya, Amy Q. Shen, Total Capture, Convection limited nanofluidic immunoassays exhibiting nanoconfinement effects, *Analytical Chemistry*, **2018**, 90, 3211–3219.
101. N. Bhalla, S. Sathish, A. Sinha, Amy Q. Shen, Large-scale nanophotonic structures for long-term monitoring of cell proliferation, *Advanced Biosystems*, **2018**, 2, 1700258.
100. F. Del Giudice, Francesco, B. Cunning, R. S. Ruoff, Amy Q. Shen, Filling the gap between transient and steady shear rheology of aqueous graphene oxide dispersions, *Rheologica Acta*, **2018**, 57, 293–306.
99. N. Bhalla, S. Sathish, C. Galvin, R. Campbell, A. Sinha, Amy Q. Shen, Plasma assisted large-scale nanoassembly of metal-insulator bioplasmonic mushrooms, *ACS Applied Materials & Interfaces*, **2018**, 10 (1), 219–226.
98. A. Garifullina, N. Bhalla, Amy Q. Shen, Probing specific gravity in real-time with graphene oxide plasmonics, *Analytical Methods*, **2018**, 10, 290–297.
97. Simon J. Haward, Amy Q. Shen, Jacob Page, Tamer A. Zaki, Poiseuille flow over a wavy surface, *Physical Review Fluids*, **2017**, 2, 124102.
96. Noa Burshtein, Konstantinos Zografos, Amy Q. Shen, Robert J. Poole, and Simon J. Haward, Inertioelastic flow instability at a stagnation point, *Physical Review X*, **2017**, 7, 041039.
95. Francesco Del Giudice, Shivani Sathish, Gaetano D'Avino, Amy Q. Shen, From the edge to the center: viscoelastic migration of particles and cells in a strongly shear-thinning liquid flowing in a microchannel, *Analytical Chemistry*, **2017**, 89, 24, 13146–13159.
94. James Baye, Casey Galvin, Amy Q. Shen, Microfluidic device flow field characterization around tumor spheroids with tunable necrosis produced in an optimized off-chip process, *Biomedical Microdevices*, **2017**, 19, 1–13.
93. H-F Tsai, A. Trubelja, Amy Q. Shen, G. Bao, Tumour-on-a-chip: microfluidic models of tumour morphology, growth and microenvironment, *Journal of The Royal Society Interface*, **2017**, 14, 20170137.
92. Viviane Lutz-Bueno, Rossana Pasquino, Simon J. Haward, Amy Q. Shen, Peter Fischer, In-situ shear-banding quantification of surfactant solutions in straight microfluidic channels, *Journal of Rheology*, **2017**, 61, 769–783.
91. Simon J. Haward and Amy Q. Shen, Microfluidic Flows and Confinement of Wormlike Micelles, Book Chapter in "Wormlike Micelles: Advances in Systems, Characterisation and Applications", Edited by Cecile A. Dreiss and Yujun Feng, Soft Matter Series No. 6, The Royal Society of Chemistry, **2017**, 236–278.
90. Rameez Iqbal, Suresh Dhiman, Ashis K. Sen, Amy Q. Shen, Dynamics of a water droplet over a sessile oil droplet: compound droplets satisfying a Neumann condition, *Langmuir*, **2017**, 33, 5713–5723.
89. Francesco Del Giudice and Amy Q. Shen, Shear rheology of graphene oxide dispersions, *Current Opinion in Chemical Engineering*, **2017**, 16, 23–30.
88. Shivani Sathish, Sebastien G. Ricoult, Kazumi Toda-Peters, Amy Q. Shen, Microcontact printing with aminosilanes: creating biomolecule micro- and nanoarrays for multiplexed microfluidic bioassays, *Analyst*, **2017**, 142, 1772–1781.
87. Francesco Del Giudice, Manlio Tassieri, Claude Oelschlaeger, Amy Q. Shen, When micro-, bulk- and microfluidics-rheology meet: broadband rheology of hydroxyethyl cellulose water solutions, *Macromolecules*, **2017**, 50 (7), 2951–2963.
86. Francesco Del Giudice, Simon J. Haward, Amy Q. Shen, Relaxation time of dilute polymer solutions: a microfluidic approach, *Journal of Rheology*, **2017**, 61, 327–337.
85. Doojin Lee, Cifeng Fang, Aniket S. Ravan, G.G. Fuller, Amy Q. Shen, Temperature controlled tensiometry using droplet microfluidics, *Lab on a Chip*, **2017**, 17, 717–726.

84. Nikhil Bhalla, Doojin Lee, Shivani Sathish, Amy Q. Shen, Dual-mode mass and charge sensing to investigate complex surface chemistry on nanostructures, *Nanoscale*, **2017**, 9, 547–554.
83. Y. Zhao, Amy Q. Shen, Simon J. Haward, Flow of wormlike micellar solutions around confined microfluidic cylinders, *Soft Matter*, **2016**, 12, 8666–8681.
82. S.J. Haward, G. H. McKinley, Amy Q. Shen, Elastic instabilities in planar elongational flow of monodisperse polymer solutions, *Scientific Reports*, **2016**, 6, 1–18.
81. J. J. Cardiel, D. Takagi, H. Tsai, Amy Q. Shen, Formation and flow behavior of micellar membranes in a T-shaped microchannel, *Soft Matter*, **2016**, 12, 8226–8234.
80. H. Tsai, J. Cheng, H. Chang, T. Yamamoto, Amy Q. Shen, Uniform electric field stimulation in multi-well plates using 3D CAD polymeric inserts, *Scientific Reports*, **2016**, 6, 1–11.
79. D.J. Walls, S.J. Haward, Amy Q. Shen, G.G. Fuller, Spreading of miscible liquids, *Physical Review Fluids*, **2016**, 1, 013904.
78. G. Fotouhi, C. Ogier, J.H. Kim, S. Kim, G. Cao, Amy Q. Shen, J. Kramlich, J. Chung, Low cost, disposable cable-shaped Al-air battery for portable biosensors, *Journal of Micromechanics and Microengineering*, **2016**, 26(5), 055011.
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74. D. Lee, S. N. Beesabathunia, Amy Q. Shen, Shape-tunable wax microparticle synthesis via microfluidics and droplet impact, *Biomicrofluidics*, **2015**, 9, 064114.
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72. C. Fang, D. Lee, B. Stober, G. G. Fuller, Amy Q. Shen, Integrated microfluidic platform for instantaneous flow and localized temperature control, *RSC Advances*, **2015**, 5, 85620–85629.
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70. Y. Zhao, S. J. Haward, Amy Q. Shen, Rheological characterizations of wormlike micellar solutions containing cationic surfactant and anionic hydrotropic salt, *Journal of Rheology*, **2015**, 59, 1229–1259.
69. Q. Wang, K. Qian, S. Liu, Y. Yang, B. Liang, C. Zheng, X. Yang, H. Xu, Amy Q. Shen, X-ray Visible and Uniform Alginate Microspheres Loaded with in Situ Synthesized BaSO<sub>4</sub> Nanoparticles for in Vivo Transcatheter Arterial Embolization, *Biomacromolecules*, **2015**, 16(4), 1240–1246.
68. S. N. Beesabathunia, S. E. Lindberg, M. Caggionib, C. Wesnerb, Amy Q. Shen, Getting in shape: Molten wax drop deformation and solidification at an immiscible liquid interface, *Journal of Colloid and Interface Science*, **2015**, 445, 231–242.
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66. Z. Shu, W. Chen, Amy Q. Shen, D. Gao, Thermoresponsive self-assembled NiPAM-zwitterion copolymers, *Cryobiology*, **2014**, 69, 506.
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#### Before OIST

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3. E. Fried, Amy Q. Shen, Generalization of the Stefan model to allow for both velocity and temperature jumps, *Continuum Mechanics and Thermodynamics*, **1999**, 11, 277–296.
2. E. Fried, Amy Q. Shen, S. T. Thoroddsen, Wave patterns in a thin layer of sand within a rotating horizontal cylinder, *Physics of Fluids*, **1998**, 10, 10–12.
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• **Patents/Invention Disclosures (June 2018–present)**

7. Hsieh-Fu Tsai, Amy Shen Fried, System and methods for object imaging, real-time analysis, and phenotypic prediction in a modular microscope embodiment with internet interactivity, **2021**, US Patent App. 63/287,005.

6. Nikhil Bhalla, Kang-Yu Chu, and Amy Shen Fried, Nanoplasmonic Instrumentation: materials, methods and system integration, **2021**, US Patent App. 16/606,037.
5. Doojin Lee and Amy Shen Fried, Microheater integrated temperature controllable microfluidic tensiometer for measuring dynamic interfacial tension, **2021**, US Patent 11,009,440.
4. Sebastien Ricoult and Amy Shen Fried, Micro-and nanocontact printing with aminosilanes: patterning surfaces of microfluidic devices for multi-plexed bioassays, **2021**, US Patent App. 17/010,180.
3. Hsieh-Fu Tsai, Ji-Yen Cheng, Amy Shen Fried, 3D polymeric insert to apply uniform electric field in circular cultureware, **2020**, US Patent 10,851,337.
2. Hsieh-Fu Tsai and Amy Shen Fried, A detachable microfluidic system and method for robust sparse cell seeding without bubbles, **2020**, US62/968,768, Provisional.
1. Kazumi Toda-Peters, Amy Shen Fried, S. Sathish, D. Lee, C.J. Galvin, K. Funakoshi, Integrated system for sampling and processing a liquid suspension, **2018**, WO 2018/216607.

## INVITED SEMINARS AND TALKS (JUNE 2018–present)

### Conferences

- Viscoelastic instabilities in microfluidic flows (Keynote), Korean Physical Society (KPS) Spring Meeting (Virtual), April 2022.
- Fluid viscoelasticity drives assembling particle trains in a straight microfluidic channel (Keynote), Next-Generation Cytometry: Technologies & Applications, Pacifichem 2021 (Virtual), December 2021.
- Microrheological approach for probing the entanglement properties of polyelectrolyte solutions (Keynote), 13th International IUPAC Conference on Polymer-Solvent Complexes & Intercalates (POLYSOLVAT-13, Virtual), November 2021.
- Viscoelastic instabilities in microfluidic flows (Keynote), International Symposium on Mixing in Industrial Processes (Virtual), November 2021.
- Microfluidic shearing and extensional flows on the alignment of cellulose nanocrystals (Keynote), 19th Optics of Liquid Crystals Conference (OLC2021, Virtual), September 2021.
- Development of rapid and sensitive biochemical sensors: enhanced local analyte replenishment in microfluidic receptor-analyte reaction systems (Keynote), the 48th World Chemistry Congress (IUPAC, Virtual), July 2021.
- Plasmonic microfluidic platforms for diagnostic applications (Keynote), Next Generation of Sensors (NGS-2021, Virtual), Nano Springer Nature, March 2021.
- Antibody detection of SARS-CoV-2 spike protein by an integrated plasmonic microfluidic chip (Keynote), Biosensors for Pandemics 2021 (Virtual), February 2021.
- Using microfluidics to probe complex flows in biomimetic systems (Keynote), The Australian Colloid and Interface Symposium (Virtual), February 2021.
- Novel glass microfluidic devices for probing flow instabilities of complex fluids (Plenary), Virtual International Congress on Rheology, Brazil, December 2020.
- New Nano/Microfluidic Platforms for Diagnostic Applications (Keynote), 10th International Colloids Conference (Virtual), December 2020.
- Detection of antibodies against SARS-CoV-2 Spike protein by gold nanopikes in a microfluidic chip (Keynote), Point-of-Care, Biosensors & Mobile Diagnostics Europe 2020, SELECTBIO Virtual, September 2020.
- Non-Newtonian flows and instabilities in 3D glass microfluidic devices, JNNFM Complex Fluids Seminar Series, August 2020.
- Microfluidic assisted particle synthesis for drug delivery and imaging applications (Keynote), The 2019 Asian Chemical Congress, Biomaterials Symposium (RSC), Taipei, December 2019.
- New observations of transport phenomena around junctions in microfluidic flows (Keynote), Okinawa Colloids 2019, Okinawa, November 2019.

- New opportunities to probe complex flows and nanoconfinement achieved by new fabrication techniques, The Bergveld Lecture, University of Twente, The Netherlands, September 2019.
- Novel glass microfluidic fabrication: new opportunities to probe flow instabilities of complex fluids (Keynote), 9th International Colloids Conference, Spain, June 2019.
- Flow of polymer and wormlike micellar solutions around microfluidic cylinders with low and high aspect ratio (Keynote), Advances in Computational Fluid-Structure Interaction and Flow Simulation (AFSI), Okinawa, June 2019.
- Microfluidic flows and instabilities of non-Newtonian fluids (Keynote), The 30th Anniversary Symposium of the Korean Society of Rheology, May 2019.
- Rheological scaling of ionic liquid-based polyelectrolytes in ionic liquid solutions (Keynote), European Society of Rheology (AERC), Slovenia, April 2019.
- Flow instabilities in Microfluidics (Keynote), 19th RIES-Hokudai International Symposium, Hokkaido, Japan, December 2018.
- Nanoplasmonic platforms for multiple biosensing platforms, The 22nd International Conference on Miniaturized Systems for Chemistry and Life Sciences (micro-TAS), Kaohsiung, Taiwan, November 2018.
- Hydrodynamics of micro/Nanofluidics for microbial applications (Keynote), Symposium for Microbial Control 3.0, Tsukuba Global Science Week, Tokyo, Japan, September 2018.
- Nanoplasmonic biosensors: from innovative materials to multimode sensing with integrated microdevices (Keynote), Lab-on-a-Chip & Microfluidics EUROPE 2018, Rotterdam, Netherlands, June 2018.
- Microstructure, Rheology, and Flow Instability of Wormlike Micellar Solutions under Spatial Confinement and Flow Conditions (Keynote), Pacific Rim Conference on Rheology, Jeju Island, South Korea, June 2018.

### Universities and Workshops

- Population genetics in microchannels, Workshop of Cells, Energetics, and Information: New Perspectives on Nonequilibrium Systems (Virtual), June 2022.
- Future Technologies: Fluidics, Physics, and AI Research at OIST and their Business Applications (Virtual), JCCI and OIST joint event, April 2022.
- Nano- and micro-fabrication enabled lab-on-a-chip platforms for biotechnology applications and beyond, The University of Tokyo and OIST joint talk series for future science (Virtual), Japan, July 2021.
- New opportunities to probe complex flows around microfluidic cylinders, Fluid Mechanics Seminar Series (Virtual), Department of Mechanical Engineering, UCSB, USA, February 2021.
- New opportunities to probe complex flows and detect diseases by employing novel micro and nanofabrication techniques (Virtual), Institute of Environmental Engineering, ETH-EMPA, Switzerland, September 2020.
- New nano/microfluidic platforms for biotechnology applications, Dalian Maritime University, Dalian, China, December 2019.
- Using microfluidics to probe complex flows in biomimetic systems, Max Planck Croucher Symposium: Matter to Life, Okinawa, Japan, November 2019.
- New opportunities to probe flow instabilities of complex fluids with novel glass microfluidic devices, Eindhoven University of Technology, The Netherlands, September 2019.
- New nano/microfluidic platforms for biosensing applications, Catalan Institute of Nanoscience and Nanotechnology, Autonomous University of Barcelona, Spain, June 2019.
- Glass microfluidic fabrication: new opportunities to probe flow instabilities and fluid-structure interactions, Department of Physics, University of Barcelona, Spain, June 2019.
- New observations of hydrodynamic instabilities around junctions by using microfluidics, Department of Biomedical Engineering, Korea University, Korea, May 2019.
- New observations of hydrodynamic instabilities around junctions by using microfluidics, Department of structural and geotechnical engineering, Sapienza Universita di Roma, Italy, April 2019.

- New observations of hydrodynamic instabilities around junctions by using microfluidics, Department of Chemical Engineering, University of Naples Federico II, Italy, April 2019.
- New nano/microfluidic platforms for biosensing applications, Institute of Biological Information Processing Bioelectronics (IBI-3), Forschungszentrum Juelich, Germany, April 2019.
- Flow instabilities in microfluidics, Theoretical Physics of Living Matter (IBI-5/IAS-2), Forschungszentrum Juelich, Germany, April 2019.
- Rheological scaling of ionic liquid-based polyelectrolytes, State Key Laboratory of Chemical Engineering, East China University of Science and Technology, Shanghai, China, April 2019.
- New observations of hydrodynamic instabilities around junctions by using microfluidics, Department of Mathematics, City University of Hong Kong, February 2019.
- New nano/microfluidic platforms for biotechnology applications, 5th core-to-core international symposium: 3D Lab-Exchange Program, Okinawa, February 2019.

### CURRENTLY ACTIVE RESEARCH SUPPORT FUNDING

- Flow induced gelation of protein solutions, Motif Foodworks, USA. Amy Shen (PI); Oct 2021–Sep 2023 (¥25,300,000)
- JSPS Grants for Early Career Scientists #22K14184: Interaction of non-Newtonian fluids with deformable structures in microscale biological processes. Stylianos Varchanis (PI); Apr 2022–Mar 2024 (¥2,005,000)
- JSPS Grants for Early Career Scientists #22K14738: Colloidal-rods for examining polymer dynamics in complex flows. Vincenzo Calabrese (PI); Apr 2022–Mar 2024 (¥3,380,000)
- JSPS Grants in Aid for Scientific Research (C) #21K03884: 3D Microfluidics for Extensional Rheometry. Simon Haward (PI); Apr 2021–Mar 2024 (¥3,900,000)
- JSPS Grants for Early Career Scientists #21K14080: Micro-tomographic measurements of elastic turbulence. Daniel Carlson (PI); Apr 2021–Mar 2023 (¥4,550,000)
- JSPS Research Fellowship (DC2), Japan #21J10403: Novel Microfluidic Platform for Ultrasensitive Measurement of Intermolecular Interactions. Ainash Garifullina; Apr 2021–Mar 2023 (¥2,400,000)
- JSPS Research Fellowship (DC2), Japan: A novel method for high-speed high-precision printing of yield stress viscoelastic liquids, San To Chan; Apr 2021–Mar 2023 (¥2,400,000)

### COMPLETED RESEARCH SUPPORT FUNDING

- JSPS Grants for Early Career Scientists #20K14656: Purely Elastic Flow-induced Vibrations of Microcylinders: Viscoelastic Fluid-Structure Interactions in Microfluidics. Postdoc: Cameron Hopkins (PI); Apr 2020–Mar 2022 (¥3,510,000)
- JSPS-SNSF Joint Research Project: Scale-dependent active microrheology of soft materials by studying driven motion of microbeads. Amy Shen (PI); Apr 2019–Mar 2022 (¥30,000,000)
- JSPS Grant-in-Aid for Research Activity Start-up #20K22403: Hydrodynamic couplings inside a biomimetic array of passive cilia-like structures; Postdoc: Charlotte de Blois (PI); Oct 2020–Jan 2022 (¥2,200,000)
- JSPS Grants-in-Aid for Early-Career Scientists #20K20237: Development of a dual-mode optical/microgravimetric biosensor for the detection of three prostate cancer biomarkers; Postdoc: Riccardo Funari (PI); Apr 2020–Mar 2022 (¥4,030,000)
- JSPS Grant-in-Aid for Early-Career Scientists #21K13895: Pressure driven Flow of dense suspensions in confinement; Postdoc: Vikram Rathee (PI); Apr 2021–Mar 2023 (¥3,640,000)
- JSPS Grants in Aid for Scientific Research (C) #18K03958: Wagging the tail: Elasticity and flexible filaments in microscopic flows. Simon Haward (PI); Apr 2018–Mar 2021 (¥3,300,000)



- JSPS Grants-in-Aid for Scientific Research (B) #18H01135: Mathematical modeling of vortices formed in viscoelastic fluids; Hirofumi Notsu from Kanazawa University (PI), Amy Shen (co-PI); Apr 2018–Mar 2022 (¥13,000,000)
- JSPS Research Fellowship (DC2) #19J11009: Development of Rapid Immunosensors by Controlling Flow and Space in Microfluidic Devices. Ph.D student: Shivani Sathish; Apr 2019–Mar 2021 (¥2,000,000)
- JASSO's Monbukagakusho Honor's Scholarship Award; Ph.D student: Shivani Sathish; Apr 2018–Mar 2019 (¥500,000)
- JSPS Grants in Aid for Scientific Research (C) #17K06173: Development of temperature-sensitive microfluidic tensiometer for precise interfacial tension measurements; Amy Shen (PI); Apr 2017–Mar 2020 (¥4,680,000)
- Title: Wagging the tail: Elasticity and flexible filaments in microscopic flows; Group leader: Simon Haward (PI); Apr 2018–Mar 2021; ¥3,300,000; Grants-in-Aid for Scientific Research (C), #18K03958, Japan.
- Title: Micro- and nano-fluidics for biomedical applications; Amy Shen (PI); Aug 2015–Aug 2017; ¥55,326,40; Sysmex Corporation Techno Park, Japan.
- Title: High throughput portable LSPR system for bio/chemical analysis; Amy Shen (PI) and Nikhil Bhalla (co-PI); August 2017–July 2018; ¥99,100,000; Proof-of-Concept Program, OIST, Japan.
- Title: Rapid, discrete, and portable device for point-of-care sexually transmitted infection (STI) diagnostics; Amy Shen (PI) and Kazumi Toda-Peters (co-PI); Oct 2017–Sept 2018; ¥97,500,000; Proof-of-Concept Program, OIST, Japan.
- Title: Synthesis of Polyester Nanoparticles for Effective Curcumin Delivery Using Microfluidic Process (II); Amy Shen (Host PI); Mandy Leung (Postdoc); Apr 2017–Mar 2018; ¥1,100,000; Grant-in-Aid for JSPS Fellows, #17F16720, Japan.
- Title: Synthesis of Polyester Nanoparticles for Effective Curcumin Delivery Using Microfluidic Process; Amy Shen (Host PI); Mandy Leung (Postdoc); July 2016–Apr 2017; ¥1,200,000; Grant-in-Aid for JSPS Fellows, #16F16720, Japan.
- JSPS Research Fellowship (DC1): Flow instabilities in intersecting geometries. Ph.D student: Noa Burshtein; Apr 2017–Mar 2020 (¥3,600,000)
- JSPS Research Fellowship (DC1): Glioma cells in a complex microenvironment on an automated microfluidic chip. Ph.D student: Hsieh-Fu Tsai; Apr 2017–Mar 2020 (¥3,600,000)

## OIST TEACHING AND MENTORING

- Course: Introduction to Microfluidics (A212)
  - Term 3, 2015/2016 (5)
  - Term 2 2016/2017 (2)
  - Term 2 2017/2018 (5)
  - Term 1 2019/2020 (2)
  - Term 3 2020/2021 (1)
  - Term 3 2021/2022 (8)
- Course: Independent Study
  - 2017/2018 (1): Introduction to Rheology
  - 2018/2019 (1): Introduction to Microfluidics
- Ph.D Thesis Advisor (9)
  - Hsieh-Fu Tsai (2015–2020)
  - Noa Burshtein (2015–2020)
  - Shivani Sathish (2015–2021)

- Ainash Garifullina (2016–2022)
- San To Chan (2016–2022)
- Fabian Hillebrand (August 2022–present)
- Jonas Schneider (August 2022–present)
- Mohamed Abdelgawad (co-supervisor: 2019–present)
- Maria Emily (co-supervisor: 2020–present)
- Mentorship and Committee Members of Graduate Students at OIST (10)
  - Po-Shun Cui (3rd Committee Member: 2017–2022)
  - Anzhelika Koldaeva (3rd Committee Member, 2019–present)
  - Akyl Shakir (3rd Committee Member, 2020–present)
  - Alessandro Bevilacqua (3rd Committee Member, 2021–present)
  - Yuna Hattori (Mentor: 2015–present)
  - Soshi Mizutani (Mentor: 2017–present)
  - Ali Rahmani (Mentor: 2018–present)
  - Leilee Chojnacki (Mentor: 2018–present)
  - Natalya Weber (Mentor: 2020–present)
  - Jean-Paul van Woensel (Mentor: 2022–present)
- Examination Panel (1)
  - Lin Li (2017–2022)
- Rotation students at OIST (14)
- Research interns at OIST (29)
- Screening of application to the Ph.D program (481 applicants)
- Admission interviews (73 interviews)

## **OIST GRADUATE UNIVERSITY SERVICE**

- Appointment and Promotion Committee, 2018–2022
- Appointment and Promotion Committee (Chair), 2021–2022
- Faculty Research Tag Committee, 2020–2021
- Faculty Liaison Committee with the Graduate School, 2020–2022
- Faculty Search Committee (Engineering), 2018/2019
- Tenure Review Evaluation Committee (13 total, chaired 4), 2015–2022
- Promotion Review Evaluation Committee (1, chaired), 2018
- Perspective Council, 2017
- Dean for Faculty Affairs Search Committee, 2017
- Space Allocation sub-Committee, 2016–2019
- Targeted Faculty Search Committee (Marine Science), 2016/2017
- Dean for Research Search Committee, 2016
- Presidential Search Committee, 2016
- Graduate School Admission Committee, 2015–2018

- Conference and Workshop Committee, 2015–2018
- Faculty Search Committee (Marine Science), 2014/2015
- Faculty Candidate Interviews, 2014–present
- Student Candidate Interviews, 2014–present

### **WORKSHOPS AND MINI-SYMPOSIUMS ORGANIZED**

- Mini-Symposium: Fluid-Structure Interactions: From Engineering to Biomimetic Systems, January 14–16, 2020, 17 speakers, OIST.
- Mini-Symposium: Flow and Instability of Self-Assembled Systems, September 12–14, 2018, 15 speakers, OIST.

### **OTHER (NON-OIST) ACADEMIC PROFESSIONAL SERVICE**

- International Advisory Board Member, XIXth International Congress on Rheology (ICR2023)
- APS-DFD Acrivos Award Committee, 2022–2024
- Society of Rheology Metzner Award Committee, 2020–2022
- Technical Committee, The 8th Pacific Rim Conference on Rheology, Canada, 2022
- Members-at-Large, The Society of Rheology, 2018–2019
- Journal Publication Award Committee, The Society of Rheology, 2018–2019
- Delegates of the Individual Members, European Society of Rheology Committee, 2018–2021
- Thematic session chair in "Micro- and Nano-fluidics", 25th International Congress of Theoretical and Applied Mechanics, 2021
- Rheology course co-lecturer of "Particles, Active Matter, Confinement and Viscoelasticity: The Microfluidic Playground", Annual European Rheology Conference, 2018
- Technical program co-chair for 86th Society of Rheology meeting, 2014
- Symposia organizer, XVIIth International Congress on Rheology (ICR2016)
- Session chair for Society of Rheology meetings (2009, 2011, 2022)
- Symposium organizer, The 5th Pacific Rim Conference on Rheology, Japan, 2010
- Review panelist for HORIZON 2020, European Commission Research (2015 & 2016), National Science Foundation (2008–2014), the Research Grants Council (RGC) of Hong Kong (2005–present)
- Organizer and lecturer for the annual rheology short course, Annual European rheology conference, Italy, 2018
- Lecturer for the rheology short course, TA Instruments, Shanghai, China, 2018
- Technical Program Committee for IEEE NANOMED, 2018
- H2020 panelist, EUROPEAN COMMISSION Research Executive Agency, 2016, 2017.
- Technical program chair for 2014 Society of Rheology meeting, 2013-2014.
- Nature Reader Panel, 2009-2010.
- Symposium organizer of (PRCR-5) Pacific Rheology Meeting in Sapporo, Japan, 2010.
- Computer services coordinator for The XVth International Congress on Rheology, 2007–2008.
- National Science Foundation panelist (CBET, 2004, 2005, 2008, 2011; NER, 2005).

- USDA panelist, Nanoscience and Engineering in Agriculture program, 2006.
- Reviewer for American Chemical Society Petroleum Research Fund, 2005–2007.
- Referee review for International Science and Technology Center (ISTC), 2006–2007.
- Referee review for The Research Grants Council (RGC) of Hong Kong, 2005–2007.
- Session chair at professional meetings: Student paper awards, ASME Fluids Engineering, 2003; Society of Rheology meetings (American and European), 2003, 2006, 2010, 2012, 2014, 2015, 2016, 2018; APS/DFD 2004 & 2006, ACS Colloids Meeting, 2006.
- Scientific Reviews: Science, Science Advances, Nature, Nature Communications, Physics of Fluids, Journal of Fluid Mechanics, Journal of Non-Newtonian Fluid Mechanics, PNAS, Langmuir, Journal of Colloid and Interface Science, Physical Review E, Physical Review Letters, Soft Matter, Biosensors, Biosensors and Bioelectronics, Geophysical Research Letters, Optics Communications, Physical Review Fluids, ACS Nano, Advanced Materials, Biomaterials, Various ACS and RSC journals, etc

### **OTHER (NON-OIST) UNIVERSITY TEACHING**

- Mechanical Engineering Analysis (ME564, UW): graduate-level course of applied math. Autumn 2011, 70 students; Autumn 2012, 70 students
- Mechanical Engineering Analysis (ME565, UW): graduate-level course of applied math. Winter 2011, 60 students; Winter 2013, 70 students
- Introduction to fluid mechanics (ME333, UW): undergraduate-level course on fluid mechanics. Spring 2009 & Winter 2010, ~ 60 students; Winter 2012, ~ 60 students.
- Rheology of Complex Fluids (ME599C, UW): graduate-level course on Rheology. Fall 2010, 10 students.
- Introduction to Microfluidics (ME599G, UW): graduate-level course on Microfluidics. Fall 2008, 12 students; Spring 2010.
- Engineering Thermodynamics (MAE 320A): Junior-level course on engineering thermodynamics, first and second laws. Falls of 2002–2007, ~ 50 students each time.
- Rheology of Complex Fluids (MAE652, WUSTL): Senior-level elective and graduate level course, newly-developed course on complex fluids, microfluidics, and rheology. Springs of 2004–2007, ~ 10 students.
- Introduction to Nanotechnology (MAE 106, WUSTL): Freshman-level course on nanotechnology. Guest-lectured with R. Agarwal in Fall 2005. ~ 20 students.
- Special topics: Experimental Methods in Biomechanics (BME 556, WUSTL): Senior-level course on experimental techniques for biomechanics. Guest-lectured on microfluidics and bio-MEMs and developed bio-MEMs teaching module with R. Okamoto in Spring 2005. ~ 15 students.
- Mechanical Engineering Design (MAE 404P, WUSTL): Senior-level design course. Coordinator/mentor on design project related to fluid mechanics (with R. Okamoto), Falls of 2002–2005, ~ 5 students each time.
- Departmental seminar (MAE 501, WUSTL), weekly research seminar from 2003–2005. ~ 30 students.
- Independent research for Undergraduates (MAE 599, WUSTL), Mentoring independent undergraduate research projects, 2003–2007. ~ 11 students to date.

### **OTHER (NON-OIST) UNIVERSITY SERVICE**

- Ph.D. in MoES - Graduate School Interdisciplinary Committee (2011-2014, UW)
- Faculty search committee (2010 & 2011, UW)
- Mechanical Engineering department chair search committee (2010, UW)
- Undergraduate curriculum committee (Fall 2008–present, UW)



- Faculty SWE advisor (Fall 2009–2011, UW)
- Ad-Hoc committee for ME research strategic planning (Fall 2009–present, UW)
- Committee for mechanical engineering department chair search (Winter 2010, UW)
- Ph.D. qualifying external exam committee for University of Toronto and UW
- Freshman advisor for Mechanical and Aerospace Engineering, 2005–2007. (WUSTL)
- Department representative for Missouri NanoAlliance.
- Olin fellowship (for women graduate students) selection committee, 2005. (WUSTL)
- Search committee for Physics condense matter faculty position, 2007; Search committee for Mechanical and Aerospace Engineering faculty position, 2007. (WUSTL)
- Ph.D qualifying exam committee (WUSTL)