

# Ryohei SETO

## PERSONAL DATA

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NATIONALITY: Japanese  
 BIRTH: 08 August 1976  
 WORK: Wenzhou Institute, University of Chinese Academy of Sciences  
 No.1 Jinlian Road, Longwan District,  
 Wenzhou, Zhejiang, 325000, China  
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 WEBSITE: <https://ryseto.github.io>

## RESEARCH EXPERIENCE

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2019.10–present	<i>PI researcher (Professor)</i> , WENZHOU INSTITUTE, UNIVERSITY OF CHINESE ACADEMY OF SCIENCES, Wenzhou, China
2020.4–present	<i>Visiting Professor</i> , GRADUATE SCHOOL OF SIMULATION STUDIES, UNIVERSITY OF HYOGO, Kobe, Japan
2021.5–2021.6	<i>BCAM Visiting Fellow</i> , BASQUE CENTER FOR APPLIED MATHEMATICS, Bilbao, Spain
2019.7–2019.9	<i>Specially Appointed Researcher</i> , Department of Earth and Space Science, OSAKA UNIVERSITY, Osaka, Japan
2019.5–2019.7	<i>Visiting Researcher</i> , Department of Materials Physics, NAGOYA UNIVERSITY, Nagoya, Japan
2019.2–2019.5	<i>Visiting Researcher</i> , Center of Soft Matter Physics and its Applications, BEIHANG UNIVERSITY, Beijing, China
2018.4–2019.1	<i>Program-Specific Researcher</i> , Transport Phenomena Group, Department of Chemical Engineering, KYOTO UNIVERSITY, Kyoto, Japan Worked on normal stress differences and shear jamming of dense suspensions.
2015.1–2018.3	<i>Group Leader</i> , Mathematical Soft Matter Unit, OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY GRADUATE UNIVERSITY, Onna, Japan
2012.10–2014.12	<i>Research Associate</i> , THE LEVICH INSTITUTE, CITY COLLEGE OF NEW YORK, New York, USA
2012.1–2012.9	<i>Postdoctoral Researcher</i> , MAX PLANK INSTITUTE FOR POLYMER RESEARCH, Physics at Interfaces group, Mainz, Germany.
2009.11–2011.12	<i>Postdoctoral Researcher</i> , TECHNICAL UNIVERSITY OF MUNICH, Chair of process systems engineering, Freising, Germany
2008.10–2009.10	<i>Postdoctoral Researcher</i> , LABORATOIRE DE GENIE CHIMIQUE, UNIVERSITÉ PAUL SABATIER, Toulouse, France Examined compaction processes of colloidal gels under pressure with simulations.
2006.10–2008.9	<i>Postdoctoral Researcher</i> , LABORATOIRE DE PHYSIQUE DES SOLIDES, UNIVERSITÉ PARIS-SUD 11, Orsay, France Developed a quasi-static Discrete Element Method with cohesive contact model to study yielding behaviors of colloidal gels.

## TEACHING EXPERIENCE

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| 2016       | Grant Writing Peer Support Group for OIST researchers  |
| 2015, 2016 | OIST Open Campus and Science Festival<br>Outreach teaching activities  |
| 2006       | <i>Lecturer</i> at RITSUMEIKAN UNIVERSITY, College of Science and Engineering, Kusatsu, Japan<br>Lectures and practical courses on computer programming. |
| 2006       | <i>Lecturer</i> at RYUKOKU UNIVERSITY, Faculty of Science and Technology, Otsu, Japan<br>Lectures on quantum mechanics.                                  |

## EDUCATION

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|---------------|---|
| MAR. 10, 2006 | <i>Doctor of Science</i> in PHYSICS, RITSUMEIKAN UNIVERSITY, Kyoto, Japan<br>Thesis: "Effect of doping disorder on the excess conductivity of high-Tc superconductor thin films" Advisor: Prof. Hiroshi KURATSUJI |
| 2003–2004     | <i>Doctoral exchange program</i> at UNIVERSITÉ PARIS-SUD 11, Orsay, France  |
| MAR. 2002     | <i>Master of Science</i> in PHYSICS, RITSUMEIKAN UNIVERSITY, Kyoto, Japan   |
| MAR. 2000     | <i>Bachelor of Science</i> in PHYSICS, RITSUMEIKAN UNIVERSITY, Kyoto, Japan   |

## AWARDS

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| 2018 | Invited as long-term visitor in KITP Program "PHYSICS OF DENSE SUSPENSIONS" |
| 2015 | THE SOCIETY OF RHEOLOGY PUBLICATION AWARD                                   |

## GRANTS AND SCHOLARSHIPS

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| 2022–2025 | NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA,<br>Project Number: 12174390, 62w RMB   |
| 2022–2023 | NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA (RESEARCH FUND FOR INTERNATIONAL SCIENTISTS),<br>Project Number: 12150610463, 80w RMB |
| 2017–2019 | JSPS KAKENHI GRANTS-IN-AID FOR SCIENTIFIC RESEARCH (C),<br>Project Number: 17K05618, ¥3,900,000                                    |
| FEB. 2015 | Visiting Researcher (invited) in the Department of Chemical and Biomolecular Engineering at THE UNIVERSITY OF MELBOURNE, \$6,400   |
| 2014      | CUNY Travel award (City University of New York), \$1,000   |
| 2012–2013 | DFG SPP 1273 KOLLOIDVERFAHRENSTECHNIK,<br>Contributed to proposal design and writing (PI: Prof. Heiko Briesen)                     |
| 2006–2007 | FRENCH GOVERNMENT SCHOLARSHIP for <i>postdoctoral fellowships</i>  |
| 2003–2004 | Scholarship for French-Japan <i>doctoral exchange</i> program  |

## ORGANIZATION AND SERVICE

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| 2014 | Session organizer, 6th Pacific Rim Conference on Rheology, Melbourne, Australia       |
| 2023 | Session organizer, XIXth International Congress on Rheology (ICR2023), Athens, Greece |

## SCIENTIFIC PUBLICATIONS

## Journal Articles (Peer-Reviewed)

1. Y. Jiang, R. Seto, Competing Lengthscales in Colloidal Gelation with Non-Sticky Particles, *Nat. Commun.* (accepted) [arXiv:2211.12978](#) , 2023
2. A. N. Kato, Y. Jiang, W. Chen, R. Seto, and T. Li. [How surface roughness affects the interparticle interactions at a liquid interface](#). *J. Colloid Interface Sci.*, 641:492–498, 2023.
3. Z. Zhao, S. Komura, M. Yang, R. Seto, [Odd Viscosity in Chiral Passive Suspensions](#), *Front. Phys.*, 2022.
4. C. Ness, R. Seto, and R. Mari, [The physics of dense suspensions](#), *Annu. Rev. Condens. Matter Phys.*, 13(1):97–117, 2022.
5. Z. Zhao, B. Wang, S. Komura, M. Yang, F. Ye, R. Seto, [Emergent Stripes of Active Rotors in Shear Flows](#), *Phys. Rev. Research*, 3:043229, 2021.
6. G. G. Giusteri, R. Seto, [Shear jamming and fragility of suspensions in a continuum model with elastic constraints](#), *Phys. Rev. Lett.*, 127:138001, 2021
7. J. T. Jenkins, R. Seto, and L. La Ragione. [Predictions of microstructure and stress in planar extensional flows of a dense viscous suspension](#). *J. Fluid Mech.*, 912:A27, 2021.
8. A. Singh, C. Ness, R. Seto, J. J. de Pablo, and H. M. Jaeger. [Shear thickening and jamming of dense suspensions: The “roll” of friction](#). *Phys. Rev. Lett.*, 124:248005, 2020.
9. R. Mari and R. Seto, [Force transmission and the order parameter of shear thickening](#), *Soft Matter*, 15:6650–6659, 2019.
10. R. Seto, A. Singh, B. Chakraborty, M. M. Denn, and J. F. Morris, [Shear jamming and fragility in dense suspensions](#), *Granular Matter*, 21(3):82, 2019.
11. K. Nagasawa, T. Suzuki, R. Seto, M. Okada, Y. Yue, [Mixing Sauces: A Viscosity Blending Model for Shear Thinning Fluids](#), *ACM Trans. Graph.*, 38(4):95:1–17, 2019. **SIGGRAPH2019**
12. R. Seto and G. G. Giusteri, [Normal stress differences in dense suspensions](#), *J. Fluid Mech.*, 857:200–215, 2018.
13. G. G. Giusteri and R. Seto. [A theoretical framework for steady-state rheometry in generic flow conditions](#). *J. Rheol.*, 62(3):713–723, 2018.
14. R. Seto, G. G. Giusteri, and A. Martiniello. [Microstructure and thickening of dense suspensions under extensional and shear flows](#). *J. Fluid Mech.*, 825, R3, 2017.  
★ *Featured in Focus on Fluids, ‘Shear thickening’ in non-shear flows: the effect of microstructure*
15. A. T. Pham, R. Seto, J. Schöнке, D. Y. Joh, A. Chilkoti, E. Fried, and B. B. Yellen. [Crystallization kinetics of binary colloidal monolayers](#). *Soft Matter*, 12:7735–7746, 2016.
16. R. Mari, R. Seto, J. F. Morris, and M. M. Denn. [Discontinuous shear thickening in Brownian suspensions by dynamic simulation](#). *Proc. Natl. Acad. Sci. USA*, 112(50):15326–15330, 2015.
17. R. Mari, R. Seto, J. F. Morris, and M. M. Denn. [Nonmonotonic flow curves of shear thickening suspensions](#). *Phys. Rev. E*, 91:052302, 2015.
18. R. Mari, R. Seto, J. F. Morris, and M. M. Denn. [Shear thickening, frictionless and frictional rheologies in non-Brownian suspensions](#). *J. Rheol.*, 58(6):1693–1724, 2014.  
★ *Received the 2015 Society of Rheology Publication Award*
19. R. Seto, R. Mari, J. F. Morris, and M. M. Denn. [Discontinuous shear thickening of frictional hard-sphere suspensions](#). *Phys. Rev. Lett.*, 111:218301, 2013.  
★ *Featured as Editors’ Suggestion and highlighted in Physics Viewpoint, Friction’s Role in Shear Thickening*
20. J. Wenzl, R. Seto, M. Roth, H.-J. Butt, and G. K. Auernhammer. [Measurement of rotation of individual spherical particles in cohesive granulates](#). *Granul. Matter*, 15(4):391–400, 2013.
21. R. Seto, M. Meireles, R. Botet, G. K. Auernhammer, and B. Cabane. [Compressive consolidation of strongly aggregated colloidal gels](#). *J. Rheol.*, 57(5):1347–1366, 2013.

22. E. C. Schlauch, M. Ernst, **R. Seto**, H. Briesen, M. Sommerfeld, and M. Behr. [Comparison of three simulation methods for colloidal aggregates in Stokes flow: Finite Elements, Lattice Boltzmann and Stokesian Dynamics](#). *Comput. Fluids*, 86:199–209, 2013.
23. **R. Seto**, R. Botet, G. K. Auernhammer, and H. Briesen. [Restructuring of colloidal aggregates in shear flow: coupling interparticle contact models with Stokesian Dynamics](#). *Eur. Phys. J. E*, 35, 128, 2012.
24. **R. Seto**, R. Botet, and H. Briesen. [Viscosity of rigid and breakable aggregate suspensions: Stokesian Dynamics for rigid aggregates](#). *Prog. Colloid Polym. Sci.*, 139:85–90, 2012.
25. **R. Seto**, R. Botet, and H. Briesen. [Hydrodynamic stress on small colloidal aggregates in shear flow using Stokesian Dynamics](#). *Phys. Rev. E*, 84, 041405, 2011.
26. T. Hyouguchi, **R. Seto**, and S. Adachi. [Overlooked degree of freedom in steepest descent method: steepest descent method corresponding to divergence-free WKB Method](#). *Prog. Theor. Phys.*, 122, 1347–1376, 2009.
27. T. Hyouguchi, **R. Seto**, and S. Adachi. [Overlooked branch cut in steepest descent method: switching line and atomic domain](#). *Prog. Theor. Phys.*, 122, 1311–1346, 2009.
28. H. Kuratsuji, R. Botet, and **R. Seto**. [Electromagnetic gyration: Hamiltonian dynamics of the Stokes parameters](#). *Prog. Theor. Phys.*, 117(2):195–217, 2007.
29. R. Botet, H. Kuratsuji, and **R. Seto**. [Novel aspects of evolution of the Stokes parameters for an electromagnetic wave in anisotropic media](#). *Prog. Theor. Phys.*, 116, 285–294, 2006.
30. **R. Seto**, R. Botet, and H. Kuratsuji. [Excess conductivity of high-Tc superconductor thin films: role of smooth doping disorder](#). *Phys. Rev. B*, 73, 012508, 2006.
31. **R. Seto**, H. Kuratsuji, and R. Botet. [Resonant oscillations of the Stokes parameters in non-linear twisted birefringent media](#), *Europhys. Letters*, 71, 751–756, 2005.
32. T. Hyouguchi, **R. Seto**, M. Ueda, and S. Adachi. [Divergence-free WKB method](#). *Ann. Phys.*, 312, 177–267, 2004.

#### Journal Articles (Non Peer-Reviewed)

1. **R. Seto**, R. Mari, J. F. Morris, and M. M. Denn. [The essential role of frictional contact in shear thickening](#). *Japanese J. Multiphase Flow*, Vol. 28, No. 3, 296–303, 2014.

#### Conference Proceedings

1. R. Botet, B. Cabane, M. Clifton, M. Meireles, and **R. Seto**. [How a colloidal paste flows—scaling behaviors in dispersions of aggregated particles under mechanical stress](#). 5th Int. Workshop on Complex Systems, *AIP Conf. Proc.*, 982, 320–325, 2008.
2. **R. Seto**, H. Kuratsuji, R. Botet. [Nonlinear oscillation of the Stokes parameters in birefringent media. Topology in ordered phases: Proc. 1st Int. Symposium on Top 2005](#), Sapporo, Japan, 327–331, 2006.

#### Book Chapter

1. V. Bürger, E. Schlauch, V. Becker, **R. Seto**, M. Behr, and H. Briesen. [Simulating the restructuring of colloidal aggregates](#). M. Kind, W. Peukert, H. Rehage, and H. P. Schuchmann, editors, *Colloid Process Engineering*, 145–173. Springer International Publishing, 2015.

## PRESENTATIONS

#### Keynote | Symposium | Invited Presentations

1. *Invited* “Migration in inhomogeneous flow of dense suspensions,” 2023 Symposium on Theoretical Calculation and Simulation of Soft Matter, Chinese Chemical Society, Changchun, April 14–17, 2023.
2. *Invited* “Flow and pressure of dense suspensions in pipes,” 12th soft matter and life matter physics society meeting (China), Wenzhou, October 28–31th, 2022.
3. *Invited* “Dense suspension flows in channels,” 2021 International Workshop on Soft Matter and Biophysics Theories–Youth Forum, Minjiang University, Fuzhou City, March 24, 2021.
4. *Invited*: “The physics and fluid mechanics of dense suspensions,” [2020 INTERNATIONAL WORKSHOP ON “SOFT MATTER AND BIOPHYSICS THEORIES”](#), Beijing, November, 2020

5. *Invited*: “Pressure-driven flow and jamming of dense suspensions in channels,” [VIRTUAL SYMPOSIUM ON “PHYSICS OF DENSE SUSPENSIONS”](#), Boston, July, 2020
6. *Invited*: “Flow and jamming of colloidal suspensions,” ANNUAL MEETING OF THE PHYSICAL SOCIETY OF JAPAN, Division 12, 11, 7 Symposium, “Physics of glass and the extensions,” Gifu, Japan, September, 2019
7. *Invited*: “Emergence of rigidity in suspension fluid mechanics,” [CoMFoS19, Mathematical Aspects of Continuum Mechanics](#), Kanazawa, Japan, July, 2019
8. *Invited*: “Shear jamming and rheology of dense suspensions,” [IUTAM Symposium on Dynamics of Complex Fluids and Interfaces](#), IIT Kanpur, India, December, 2018
9. *Invited*: “Simulation method of dense suspensions—Overdamped discrete element method with hydrodynamic lubrication” and “Shear Thickening suspensions in a wide gap Couette cell,” 2018 International Symposium on Multiple Scale Modelling of Complex Fluids— Fundamental Challenge and Industrial Applications Guangzhou University, Guangzhou, China, September, 2018
10. *Invited*: “Anisotropy of sheared dense suspensions: normal stress differences and microstructure,” [RHEOLOGY OF DISORDERED PARTICLES—SUSPENSIONS, GLASSY AND GRANULAR MATERIALS](#), Kyoto University, Japan, June, 2018
11. *Invited*: “Extensional and shear flow material functions of dense suspensions -microstructure, particle pressure, and  $N_1$ ,” [KITP PROGRAM: PHYSICS OF DENSE SUSPENSIONS](#), University of California, Santa Barbara
12. *Invited*: “Constitutive characterization of concentrated particle suspensions,” [COMPUTATIONAL MECHANICS OF PARTICLE-FUNCTIONALIZED FLUID AND SOLID MATERIALS FOR ADDITIVE MANUFACTURING AND 3D PRINTING PROCESSES](#), University of California, Berkeley, May 2017.
13. *Invited*: “Thickening in extensional flow—Toward non-Newtonian fluid model for dense suspensions,” [NON-GAUSSIAN FLUCTUATION AND RHEOLOGY OF JAMMED MATTER](#), Kyoto, March 2017.
14. *Invited*: “Grain boundary of magnetic colloid monolayers,” [DYNAMICS OF STRUCTURE FORMATION AND HETEROGENEOUS DEFORMATION OF PARTICLE SYSTEMS](#), Kanazawa, January 2017.
15. *Invited*: “Shear thickening and extension thickening of dense suspensions,” [A3 Soft Matter Workshop](#), Tohoku University, Sendai, 2017
16. *Invited*: “Nonuniform flow of shear thickening suspensions in widegap rotary Couette geometry,” [COMFoS16: MATHEMATICAL ANALYSIS OF CONTINUUM MECHANICS AND INDUSTRIAL APPLICATIONS II](#), Fukuoka, October 2016.
17. *Keynote*: “How do discontinuous shear thickening suspensions flow in a wide gap couette cell?” [THE XVIIITH INTERNATIONAL CONGRESS ON RHEOLOGY](#), Kyoto, August 2016.
18. *Invited*: “Shear thickening: SD-DEM model for dense suspensions,” [WCCM-APCOM 2016 CONGRESS](#), Seoul, July 2016.
19. *Invited*: “A simulation study on shear thickening in wide-gap Couette geometry,” [AVALANCHES, PLASTICITY, AND NONLINEAR RESPONSE IN NONEQUILIBRIUM SOLIDS](#), Kyoto, March 2016.
20. *Symposium*: “Flow of shear thickening suspensions,” The Physical Society of Japan, Division 11, 6, 12 Symposium, [DYNAMICS OF PLASTIC SOLIDS: NONLINEAR RESPONSE, AVALANCHE, AND RHEOLOGY](#), Osaka, September 2015.
21. *Invited*: “Shear thickening of colloidal dispersions,” [GLASS TRANSITION AND RELATED SCIENCE](#), Kashiwa, July 2015.
22. *Symposium*: “Granular contacts in colloidal suspensions,” [Engineering Mechanics Institute Conference 2015, DR. MASAO SATAKE MEMORIAL SYMPOSIUM ON GRANULAR MECHANICS](#), Stanford, June 2015.
23. *Keynote*: “Particle-scale modeling of colloidal suspension rheology,” [AUSTRALASIAN COLLOID AND INTERFACE SYMPOSIUM](#), Hobart, Tasmania, February 2015.
24. *Invited*: “S-shaped rheology curves of shear thickening suspension,” [SOFT MATTER WORKSHOP](#), Nagoya, January 2015.

#### Invited Seminars

1. [“A numerical approach to predict incompressible flows of dense non-Brownian suspensions,”](#) KYOTO UNIVERSITY, February 27, 2020



2. [“Jamming with shear-induced microstructure in dense suspensions,” KYOTO UNIVERSITY, July 24, 2019](#)
3. [“On the order parameter of shear thickening,” OSAKA UNIVERSITY, June 21, 2019](#)
4. [“Shear jamming and fragility in dense frictional suspensions,” NAGOYA UNIVERSITY, June 18, 2019](#)
5. [“Shear thickening of dense suspensions,” HONG KONG BAPTIST UNIVERSITY, May 22, 2019](#)
6. [“Streamers in sedimentation of non-Brownian particles,” GUANGZHOU UNIVERSITY, April 15, 2019](#)
7. [“Shear jamming and fragility in dense suspensions,” GUANGZHOU UNIVERSITY, April 11, 2019](#)
8. [“Fragility in jamming of dense suspensions under shear stress,” OSAKA UNIVERSITY, Cybermedia Center, February 4, 2019](#)
9. [“Dilatancy of suspension rheology – coupling of Stokesian Dynamics and DEM,” Numerical granular mechanics workshop, DOSHISHA UNIVERSITY, Japan, July 18, 2018.](#)
10. [“Rheology and fluid mechanics of dense suspensions,” KYOTO UNIVERSITY, Japan, April 25, 2018.](#)
11. [“Microstructure and material functions of dense suspensions under extensional flows,” Department of Mechanical Engineering, University of California at Santa Barbara, February 14, 2018](#)
12. [“Recent study of suspension rheology – On mechanism of shear thickening,” Toyota Central R&D Labs., Inc., January 9, 2018](#)
13. [“How do dense suspensions flow? – Non-equilibrium microstructure and frictional contacts,” Osaka University, Cybermedia Center, December 22, 2017](#)
14. [“How do dense suspensions flow? – Non-equilibrium microstructure and frictional contacts,” Waseda University, Department of Physics, December 19, 2017](#)
15. [“Rheology of particle dispersion,” AGC Asahi Glass R&D Division, Japan, November 16, 2017.](#)
16. [“Jamming transition under extensional flow,” TANAKA GROUP, UNIVERSITY OF TOKYO, Japan, July 3, 2017.](#)
17. [“How do solids flow—Local rheology and continuum models of dense suspensions,” EARTHQUAKE RESEARCH INSTITUTE, UNIVERSITY OF TOKYO, Japan, March 30, 2017.](#)
18. [“Discontinuous Shear Thickening Fluid in a Wide-Gap Couette Cell,” KYOTO UNIVERSITY, Japan, June 29, 2016.](#)
19. [“Particle scale simulations for bulk rheology: Shear thickening suspensions and yield stress suspensions,” LABORATOIRE NAVIER, ECOLE DES PONTS PARISTECH, Champs sur Marne, France, March 27, 2015.](#)
20. [“Inter-particle contact forces: Why they matter in flow of suspensions!” CHEMICAL AND BIOMOLECULAR ENGINEERING, UNIVERSITY OF MELBOURNE, Australia, February 10, 2015.](#)
21. [“The non-monotonic flow curves of shear thickening suspensions,” SOFT MATTER SEMINAR, GEORGETOWN UNIVERSITY, USA, December 1, 2014.](#)
22. [“Shear Thickening of Brownian and non-Brownian suspensions: the Essential Role of Frictional Contact,” OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY, Japan, August 5, 2014.](#)
23. [“Shear Thickening: Introducing Friction to Suspension Rheology,” PRISM/PCCM SEMINAR, PRINCETON UNIVERSITY, USA, April 9, 2014.](#)
24. [“Shear Thickening: Introducing Friction to Suspension Rheology,” NAGOYA UNIVERSITY, Japan, February 27, 2014.](#)
25. [“Shear Thickening: Introducing Friction to Suspension Rheology,” KYOTO UNIVERSITY, Japan, February 24, 2014.](#)
26. [“Shear Thickening: Introducing Friction to Suspension Rheology,” RITSUMEIKAN UNIVERSITY, Japan, February 21, 2014.](#)
27. [“Shear Thickening: Introducing Friction to Suspension Rheology,” TOKYO METROPOLITAN UNIVERSITY, Japan, February 20, 2014.](#)
28. [“Shear Thickening: Introducing Friction to Suspension Rheology,” EARTHQUAKE RESEARCH INSTITUTE, UNIVERSITY OF TOKYO, Japan, February 19, 2014.](#)
29. [“Discontinuous shear thickening as a dynamic jamming transition of frictional particles,” LABORATOIRE RHÉOLOGIE ET PROCÉDÉS, Grenoble, France, October 25, 2013.](#)

30. “Discontinuous shear thickening as a dynamic jamming transition of frictional particles,” LABORATOIRE IUSTI, Marseille, France, October 23, 2013.
31. “Compressive Consolidation of Particulate Gels,” THE LEVICH INSTITUTE, CITY COLLEGE OF NEW YORK, New York, USA, February 5, 2013.
32. “Restructuring of Fractal Gels under Compression,” MAX PLANK INSTITUTE FOR POLYMER RESEARCH, Mainz, Germany, September 20, 2012.
33. “Restructuring of colloidal aggregates—modeling and simulation,” INSTITUTE FOR BUILDING MATERIALS, ETH Zurich, Zurich, Switzerland, January 11, 2012.
34. “Modeling of colloidal gels—rheology and contact forces,” SAINT-GOBAIN RECHERCHE, Paris, France, September 8, 2011.

## Talks

1. “Pressure-driven flows of dense particle-liquid mixtures: a Stokesian DEM-CFD approach”, 2022 JSME-II/ASME-ISPS Joint Confrence on Micromechatronics for Information and Precision Equipment (MIPE2022), Nagoya, August 28-31(31), 2022
2. “Odd viscosity of chiral suspensions,” 2022 Frontier Workshop of Centre for Theoretical Interdisciplinary Sciences, Wenzhou, July 11-13(12), 2022
3. “Jamming and migration in channel flows of dense suspensions,” Complex fluid and rheology workshop (Chinese Society of Chemistry), Songjiang, Shanghai, January 8, 2022
4. “Jamming and migration in channel flows of dense suspensions,” Xiamen Soft Matter Forum 2021, Xiamen, December 13, 2021
5. “Emergent Stripes of Active Rotors in Shear Flows”, Annual meeting of The Physical Society of Japan, September 23, 2021
6. “Jamming in pressure-driven flows,” ISSP workshop: Frontier research on glasses and related complex systems, May 11, 2021
7. “Migration in dense suspension flowsm,” the Annual European Rheology Conference, Norway (Online), April 14, 2021
8. “Toward a fluid mechanics simulation of dense suspensions,” International Workshop on Machine Learning for Soft Matter 2021, February 10, 2021
9. “Migration and jamming in pressure-driven flow of dense non-Brownian suspensions,” International Congress on Rheology, Brazil (online), Dec 17, 2020
10. “Shear jamming and fragility in a continuum model with unilateral constraints,” the International Congress on Rheology, Brazil (online), Dec 17, 2020
11. “Computational Predictions of Magnetorheology and Magnetization Dynamics of Frictional Magnetic Nanoparticle Suspension,” the International Congress on Rheology, Brazil (online), Dec 14, 2020
12. “Flowing and jammed dense suspensions”, Annual meeting of The Physical Society of Japan, Kumamoto University, Kumamoto (Online), Japan, September 2020
13. “Channel flows of colloidal suspensions with a Lubrication DEM-CFD method,” ANNUAL MEETING OF THE PHYSICAL SOCIETY OF JAPAN, Nagoya University, Nagoya, Japan, March 2020. *cancelled to due COVID19*
14. “Migration and jamming in pressure-driven flow of dense non-Brownian suspensions,” Grand Views of Soft and Liquid Matter Physics, Tokyo, Japan, March 2020. *cancelled to due COVID19*
15. “Clogging of dense suspensions in channels,” COLLECTIVE PHENOMENA AND BROWNIAN MOTION, Nagoya, Japan, June 2019
16. “Solids in a fluid— material properties and fluid mechanics,” THE YOUNG SCIENTISTS SYMPOSIUM OF THE SOUTH BAY INTERDISCIPLINARY SCIENCE CENTER, Dongguan, China, May 2019
17. “Normal stress differences in dense suspensions,” ANNUAL MEETING OF THE JAPANESE SOCIETY OF RHEOLOGY, Fukuoka, Japan, October 2018
18. “On normal stress differences of dense suspensions,” ANNUAL MEETING OF THE PHYSICAL SOCIETY OF JAPAN, Doshisha University, Kyotanabe, Japan, September 2018.

19. "Macroscopic flows of dense suspensions in wide-gap Couette cells—Migration and Shear Thickening," The 7th Pacific Rim Conference on Rheology, Jefu, Korea, June 2018
20. "Extensional versus shear rheologies for dense suspensions," Annual European Rheology Conference 2018, Sorrento, Italy, April 2018
21. "Introduction of the General Rheology functions via stress decompositions with orthogonal tensor basis," Tottori Nonlinear Workshop, Tottori, Japan, December 2017
22. "Extensional rheology of colloidal dispersions," Meeting of The Molecular Simulation Society of Japan, Kanajawa, Japan, October 2017
23. "Toward fluid-mechanical approach for shear thickening dense suspensions," Annual Meeting of the Japanese Society of Rheology, Niigata, Japan, October 2017
24. "A theoretical framework for steady-state rheometry in generic flow conditions," The Society of Rheology 89th Annual Meeting, Denver, USA, October 2017
25. "Non-Newtonian fluid behavior of dense suspensions in simple shear and extensional flows," The Society of Rheology 89th Annual Meeting, Denver, USA, October 2017
26. "Shear thickening and jamming transition under extensional flows," ANNUAL MEETING OF THE PHYSICAL SOCIETY OF JAPAN, Iwate University, Morioka, Japan, September 2016.
27. "Simulation model for dense suspension rheology: Stokesian-DEM," MINI-SYMPOSIUM ON RHEOLOGY, Kashiwa, Japan, July 2017.
28. "Particle dynamics of crystallization of magnetic colloids," ANNUAL MEETING OF THE PHYSICAL SOCIETY OF JAPAN, Kanazawa University, Kanazawa, Japan, September 2016.
29. "Grain boundary kinetics during crystallization in magnetic colloid monolayers," NEW ASPECTS OF MICRO- AND MACROSCOPIC FLOWS IN SOFT MATTERS, Onna, Japan, August 2016.
30. "Quasistatic Particle Simulations of Crystallization in Colloidal Monolayer Systems," PHYSICALLY-BASED MODELING OF POLYATOMIC GASES AND PHASE TRANSITIONS, Onna, Japan, July 2016.
31. "Magnetic binary colloidal monolayer subject to a cyclic external magnetic field and oscillatory shear," INTERNATIONAL SYMPOSIUM ON RHEOLOGY, Kobe, Japan, September 2015.
32. "Beyond friction: cohesion and interlocking in shear thickening of suspensions," ARRESTED GELS: DYNAMICS, STRUCTURE AND APPLICATIONS, Cambridge, UK, March 2015.
33. "Particle-scale simulation of shear thickening in dense colloidal suspensions," SOCIETY OF RHEOLOGY MEETING, Philadelphia, Pennsylvania, USA, October 2014.
34. "Dense suspension modeling and discontinuous shear thickening," 6TH PACIFIC RIM CONFERENCE ON RHEOLOGY, Melbourne, Australia, July 2014.
35. "Shear thickening and friction in Brownian suspensions," 2ND NORTHEAST COMPLEX FLUIDS AND SOFT MATTER WORKSHOP, New York, USA, June 2014.
36. "Does shear thickening go with structural transitions?" GEOMETRIC STRUCTURE IN ANISOTROPIC MATERIALS, Ritsumeikan University, Japan, February 2014.
37. "Discontinuous shear thickening as a dynamic jamming transition of frictional particles," GDR CNRS AMC2 APPROCHES MULTIPHYSIQUES POUR LES COLLOÏDES CONCENTRÉS, Sète, France, October 2013.
38. "Discontinuous shear thickening—fluid dynamics or granular physics?" ASME SUMMER MEETING, Brown University, USA, July 2013.
39. "Compressive consolidation of strongly aggregated colloidal gels," SUSPENSION PROCESSING & SUSPENSION ENGINEERING RHEOLOGY, Cambridge, UK, September 2012.
40. "Modeling of colloidal gels: rheology and contact forces," THE 2ND SUSPENSION ENGINEERING RHEOLOGY WORKSHOP, Melbourne, Australia, November 2011.
41. "Modeling of colloidal gels: rheology and contact forces," GDR CNRS AMC2 APPROCHES MULTIPHYSIQUES POUR LES COLLOÏDES CONCENTRÉS, Toulouse, France, October 2011.
42. "Hydrodynamic stresses in colloidal aggregates under shear flow," UK COLLOIDS, London, UK, July 2011.



43. “Restructuring of colloidal aggregates in shear flow: Contact model and Stokesian Dynamics,” GDR CNRS AMC2 APPROCHES MULTIPHYSIQUES POUR LES COLLOÏDES CONCENTRÉS, Annecy, France, December 2010.
44. “Compaction of colloidal aggregates: modeling and simulation,” JOURNÉES SCIENTIFIQUES DU GDR 2980, Sorreze, France, July 2009.
45. “Understanding the plastic deformation under uniform compression in 2D system,” JOURNÉES SCIENTIFIQUES DU GDR 2980, Carry le Rouet, France, June 2008.

#### Poster presentations

1. “Extensional and simple shear flow material functions of dense suspensions,” KITP Conference: Non-linear mechanics and rheology of dense suspensions: nanoscale structure to macroscopic behavior, Santa Barbara, January 2018.
2. “Grain boundary of magnetic colloid monolayer,” University of Tokyo ISSP Workshop, *Glass transition and related science*, Kashiwa, Japan, July 2015.
3. “Discontinuous Shear Thickening and Frictional Contacts of Particles,” *IFPRI Robert Pfeffer Symposium*, Delaware, USA, June 2013.
4. “Discontinuous Shear Thickening simulation: contact dynamics in viscous fluids,” *Frontiers in Applied and Computational Mathematics*, New Jersey Institute of Technology, Newark, USA, May 2013.
5. “Restructuring of colloidal gels under shear and compression,” *Flocculated suspensions: from microstructure to macroscopic behavior*, École des Ponts ParisTech, Paris, France, June 2012.
6. “Hydrodynamic forces on colloidal aggregates: Free-draining approximation vs. Stokesian Dynamics,” *DECHEMA-Jahrestagung der Biotechnologen und ProcessNet-Jahrestagung*, Aachen, Germany, May 2010.
7. “Compaction of colloidal aggregates,” *Colloids, Grains and Dense Suspensions: under Flow and under Arrest*, The Royal Society, London, UK, March 2009.

#### FEATURED IN MEDIA

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- [“Shear thickening” in non-shear flows: the effect of microstructural](#), Prof. Helen J. Wilson, FOCUS ON FLUIDS, Dec. 11, 2017.
  - [Friction Makes Cornstarch and Water into Bizarre Oobleck](#), Nathan Collins, SCIENTIFIC AMERICAN, Volume 310, Issue 2, Feb. 1, 2014.
  - [CCNY team models sudden thickening of complex fluids](#), EUREKALERT, January 16, 2014.
  - [Model explains why liquid suspensions suddenly turn solid](#), Tim Wogan, PHYSICS WORLD, Nov. 25, 2013.
  - [Friction’s Role in Shear Thickening](#), Dr. Eric Brown, PHYSICS 6, 125, Nov. 18, 2013.

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