

Ryohei SETO

PERSONAL DATA

NATIONALITY: Japanese
 BIRTH: 08 August 1976
 WORK: Wenzhou Institute, University of Chinese Academy of Sciences
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 Wenzhou, Zhejiang, 325000, China
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RESEARCH EXPERIENCE

2019.10–present | *PI researcher (Professor)*, WENZHOU INSTITUTE, UNIVERSITY OF CHINESE ACADEMY OF SCIENCES, Wenzhou, China

2020.4–present | *Visiting Professor*, GRADUATE SCHOOL OF SIMULATION STUDIES, UNIVERSITY OF HYOGO, Kobe, Japan

2021.5–2021.6 | *BCAM Visiting Fellow*, BASQUE CENTER FOR APPLIED MATHEMATICS, Bilbao, Spain

2019.7–2019.9 | *Specially Appointed Researcher*, Department of Earth and Space Science, OSAKA UNIVERSITY, Osaka, Japan

2019.5–2019.7 | *Visiting Researcher*, Department of Materials Physics, NAGOYA UNIVERSITY, Nagoya, Japan

2019.2–2019.5 | *Visiting Researcher*, Center of Soft Matter Physics and its Applications, BEIHANG UNIVERSITY, Beijing, China

2018.4–2019.1 | *Program-Specific Researcher*, 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 | *Group Leader*, Mathematical Soft Matter Unit, OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY GRADUATE UNIVERSITY, Onna, Japan

2012.10–2014.12 | *Research Associate*, THE LEVICH INSTITUTE, CITY COLLEGE OF NEW YORK, New York, USA

2012.1–2012.9 | *Postdoctoral Researcher*, MAX PLANCK INSTITUTE FOR POLYMER RESEARCH, Physics at Interfaces group, Mainz, Germany.

2009.11–2011.12 | *Postdoctoral Researcher*, TECHNICAL UNIVERSITY OF MUNICH, Chair of process systems engineering, Freising, Germany

2008.10–2009.10 | *Postdoctoral Researcher*, LABORATOIRE DE GENIE CHIMIQUE, UNIVERSITÉ PAUL SABATIER, Toulouse, France
 Examined compaction processes of colloidal gels under pressure with simulations.

2006.10–2008.9 | *Postdoctoral Researcher*, 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

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

EDUCATION

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

AWARDS

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

GRANTS AND SCHOLARSHIPS

- 2022–2025 | NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA,
Project Number: 12174390, 62w RMB
- 2022–2023 | NATIONAL NATURAL SCIENCE FOUNDATION OF CHINA (RESEARCH FUND FOR INTERNATIONAL SCIENTISTS),
Project Number: 12150610463, 80w RMB
- 2017–2019 | JSPS KAKENHI GRANTS-IN-AID FOR SCIENTIFIC RESEARCH (C),
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,
Contributed to proposal design and writing (PI: Prof. Heiko Briesen)
- 2006–2007 | FRENCH GOVERNMENT SCHOLARSHIP for *postdoctoral fellowships*
- 2003–2004 | Scholarship for French-Japan *doctoral exchange program*

ORGANIZATION AND SERVICE

- 2014 | Stream organizer: 6th Pacific Rim Conference on Rheology, Melbourne, Australia

SCIENTIFIC PUBLICATIONS

Journal Articles (Peer-Reviewed)

1. Z. Zhao, S. Komura, M. Yang, **R. Seto**, [Odd Viscosity in Chiral Passive Suspensions](#), *Front. Phys.*, 2022.
2. C. Ness, **R. Seto**, and R. Mari, [The physics of dense suspensions](#), *Annu. Rev. Condens. Matter Phys.*, 13(1):97–117, 2022.
3. 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.
4. G. G. Giusteri, **R. Seto**, [Shear jamming and fragility of suspensions in a continuum model with elastic constraints](#), *Phys. Rev. Lett.*, 127:138001, 2021
5. 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.
6. 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.
7. R. Mari and **R. Seto**, [Force transmission and the order parameter of shear thickening](#), *Soft Matter*, 15:6650–6659, 2019.
8. **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.
9. 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**
10. **R. Seto** and G. G. Giusteri, [Normal stress differences in dense suspensions](#), *J. Fluid Mech.*, 857:200–215, 2018.
11. G. G. Giusteri and **R. Seto**. [A theoretical framework for steady-state rheometry in generic flow conditions](#). *J. Rheol.*, 62(3):713–723, 2018.
12. **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*
13. A. T. Pham, **R. Seto**, J. Schönke, D. Y. Joh, A. Chilkoti, E. Fried, and B. B. Yellen. [Crystallization kinetics of binary colloidal monolayers](#). *Soft Matter*, 12:7735–7746, 2016.
14. 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.
15. R. Mari, **R. Seto**, J. F. Morris, and M. M. Denn. [Nonmonotonic flow curves of shear thickening suspensions](#). *Phys. Rev. E*, 91:052302, 2015.
16. 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*
17. **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*
18. 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.
19. **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.
20. 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.
21. **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.

22. 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.
23. 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.
24. 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.
25. 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.
26. H. Kuratsuji, R. Botet, and R. Seto. [Electromagnetic gyration: Hamiltonian dynamics of the Stokes parameters](#). *Prog. Theor. Phys.*, 117(2):195–217, 2007.
27. 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.
28. 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.
29. 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.
30. 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.

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