Curriculum Vitae

Personal Information

DATE OF BIRTH: Wiesbaden, Germany | April 1st, 1992
EMAIL: jung.gerhard@umontpellier.fr
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Main Areas of Research

Computer simulations in soft matter physics, non-Markovian dynamics, dynamic coarse-graining, glass transition, confinement, rheology, nonequilibrium dynamics

Academic Experience

10/2021 - Present	CNRS, MONTPELLIER (FRANCE) *Postdoctoral researcher* Advisor: Prof. Ludovic Berthier, Prof. Giulio Biroli Area of study: Glass transition, machine learning, amorphous defects
06/2021 - 10/2021	UNIVERSITY OF KYOTO (JAPAN) *JSPS Fellow* Advisor: Prof. Ryoichi Yamamoto Area of study: Active particles in viscoelastic media
03/2019 - 05/2021	UNIVERSITY OF INNSBRUCK (AUSTRIA) *Postdoctoral researcher* Advisor: Prof. Thomas Franosch Area of study: Glass transition, crystallization, confined geometry
05/2018 - 10/2018	DURHAM UNIVERSITY (UK) *Visiting researcher* Advisor: Prof. Suzanne Fielding Area of study: Soft glassy materials, yielding transition, rheology
10/2014 - 02/2019	UNIVERSITY OF MAINZ (GERMANY) *Doctoral and postdoctoral researcher* Advisor: Prof. Friederike Schmid Area of study: Non-Markovian dynamics, systematic coarse-graining, rheology, nonequilibrium dynamics

Education

01/10/2014 - 13/12/2018	UNIVERSITY OF MAINZ *Doctor rerum naturalium* (fast-track program) Advisor: Prof. Friederike Schmid Thesis title: *'Frequency-dependent phenomena and memory in soft matter systems.'* Grade: 0.7 (*summa cum laude*)
21/12/2017	UNIVERSITY OF MAINZ *Master of Science* Advisor: Prof. Friederike Schmid Thesis title: *'Frequency-dependent hydrodynamic interaction between two solid spheres.'* Grade: 1.0
24/10/2011 - 15/08/2014	UNIVERSITY OF MAINZ *Bachelor of Science* Advisor: Prof. Friederike Schmid Thesis title: *'Phase diagrams of model lipid bilayers.'* Grade: 1.0 (*with distinction*)
12/08/2002 - 07/06/2011	GYMNASIUM ELTVILLE *High School*

Awards

2021: JSPS 'short-term postdoctoral fellowship'
2019: *Dr. rer. nat.* with 'summa cum laude'
2016 - 2019: Member of the 'Graduate School of Excellence Materials Science in Mainz'
2013 - 2015: Admission to the 'Studienstiftung des deutschen Volkes' (scholarship)
2013 - 2014: Recipient of the 'Deutschlandstipendium' (scholarship)

Teaching and Mentoring

LECTURER	Advanced statistical physics
TUTORIALS	Mathematical methods of physics, modelling (computer science), statistical physics, electrodynamics, computer simulations in statistical physics
SUPERVISOR	Co-supervision of one PhD student Co-supervision of one Master student Supervision of two Bachelor students and one Master student

Organization of Academic Events

2018: CECAM workshop on 'Dynamic coarse-graining and memory effects in soft matter systems" (2 days)
2017: SFB TRR146 students retreat (5 days)

Languages

ENGLISH: fluent
GERMAN: mother tongue
FRENCH: intermediate

Publications

Publications in peer-reviewed journals

1. Fluctuation-dissipation relations far from equilibrium: A case study (Open Access)
   G. Jung, F. Schmid, Soft Matter **17**, 6413 (2021)

2. Introducing memory in coarse-grained molecular simulations (Review Article,Open Access)
   V. Klippenstein, M. Tripathy, **G. Jung**, F. Schmid, N. van der Vegt, JCPB **125**, 4931 (2021)

3. Tagged-particle motion in quasi-confined colloidal hard-sphere liquids
   L. Schrack, C. F. Petersen, **G. Jung**, M. Caraglio, T. Franosch, J. Stat. Mech **043301** (2021)

4. Model reduction techniques for the computation of extended Markov parameterizations for generalized Langevin equations (Open Access)
   N. Bockius, J. Shea, **G. Jung**, F. Schmid, M. Hanke, JCMP **33**, 214003 (2021)

5. Wall slip and bulk yielding in soft particle suspensions
   G. Jung, S. Fielding, Journal of Rheology **65**, 199 (2021)

6. An improved integration scheme for mode-coupling-theory equations
   M. Caraglio, L. Schrack, **G. Jung**, T. Franosch, *Comm. Comp. Phys.* **29**, 628 (2021)

7. Tagged-particle dynamics in confined colloidal liquids
   G. Jung, L. Schrack, T. Franosch, *Phys. Rev. E* **102**, 032611 (2020)

8. Confinement-induced demixing and crystallization
   G. Jung, C. F. Petersen, *Phys. Rev. Res.* **2**, 033207 (2020)

9. Dynamic properties of quasi-confined colloidal hard-sphere liquids near the glass transition
   L. Schrack, C. F. Petersen, **G. Jung**, M. Caraglio, T. Franosch, *J. Stat. Mech.* 093301 (2020)

10. Dynamical properties of densely packed confined hard-sphere fluids
    G. Jung, M. Caraglio, L. Schrack, T. Franosch, *Phys. Rev. E* **102**, 012612 (2020)

11. Scaling equations for mode-coupling theories with multiple decay channels
    G. Jung, T. Voigtmann, T. Franosch, *J. Stat. Mech.* **7**, 073301 (2020)

12. Frequency-dependent dielectric polarizability of flexible polyelectrolytes in electrolyte solution: A Dissipative Particle Dynamics simulation
    G. Jung, S. Kasper, F. Schmid, *J. of the Electrochemical Soc.* **166**, B3194 (2019)

13. Generalized Langevin dynamics: Construction and numerical integration of non-Markovian particle-based models
    G. Jung, M. Hanke, F. Schmid, *Soft Matter* **14**, 9368 (2018).

14. Frequency-dependent hydrodynamic interactions between two solid spheres
    G. Jung, F. Schmid, *Phys. of Fluids* **29**, 126101 (2017)

15. Iterative reconstruction of memory kernels
    G. Jung, M. Hanke, F. Schmid, *J. Chem. Theory and Comp.* **13**, 2481 (2017).

16. Computing bulk and shear viscosities from simulations of fluids with dissipative and stochastic interactions
    G. Jung, F. Schmid, *J. Chem. Phys.* **144**, 204104 (2016)

Preprints

1. Non-Markovian systems out of equilibrium: Exact results for two routes of coarse graining
   G. Jung, submitted. https://arxiv.org/abs/2111.13153

Review activities

Reviewer for international journals: Physical Review Letters, Journal of Chemical Physics, Europhysics Letters, Physical Review E, Molecular Simulation, Macromolecular Theory and Simulations