

Curriculum vitae: Stefan Luding

Personal details

Title(s), initial(s), name: Prof. Dr. rer.-nat. **Stefan Luding**
 Male/female: male
 Date and place of birth: 16.08.1964 born in Selbitz, Germany
 Nationality, family: german, married

Master's ('Diplom/Doctoraal')

University: University of Bayreuth, Germany
 Date: 24.06.1990
 Main subject: Statistical Physics & Reaction Kinetics in Disordered Media

Doctorate ('Doktorarbeit/Promotie')

University: University of Freiburg, Germany
 Date: 27.10.1994
 Supervisor ('Promotor'): Prof. Dr. Alexander Blumen (Theoretical Polymerphysics)
 Title of thesis: Models and Simulations of Granular Materials

Work experience since graduating

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|---|---|
| Nov. 1994 – Dec. 1995 stipend in Paris, France (granted by the EU) | Post Doc |
| Dec. 1995 – Sep. 2000 Assistent, BAT IIa, in Stuttgart, Germany <i>Habilitation: January 1998</i> | Assistant Professor (PD) (limited to max. 5 years) |
| Oct. 2000 – Sep. 2001 C2-professor in Stuttgart, Germany | Associate Prof. (HD) (limited to max. 5 years) |
| Sep. 2001 – Sep. 2007 DelftChemTech, TU Delft, NL | Assoc. Prof. (UHD) permanent position |
| Oct. 2007 – now Engineering Technology, MESA+, UTwente, NL | Full Professor (Chairholder) permanent position |

Tasks:

Teaching/Organisation of Programming in Engineering, Solid Mechanics, Project Based Learning, Granular Matter, Particle Technology, Multiphase Flows and other courses. Science and research, projects acquisition, and group-management.

Group 2019: 14 PhD-students, 3 PostDocs, 1 Assistant and 3 Assoc. Prof., 2 support

PhD-Promotions: 22

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|---|------------------|
| 1) Marc Lätzel | 2003 (Stuttgart) |
| <i>From microscopic simulations towards a macroscopic description of granular media</i> | |
| 2) Stefan Miller | 2004 (Stuttgart) |
| <i>Clusterbildung in granularen Gasen</i> | |
| 3) Micha-Klaus Müller | 2008 (UTwente) |
| <i>Long-range interactions in dilute granular systems</i> | |
| 4) Orion Mouraille | 2009 (UTwente) |
| <i>Sound propagation in dry granular materials: DEM simulations, theory & experiments</i> | |
| 5) Fatih Göncü | 2012 (TUDelft) |
| <i>Mechanics of Granular Materials: Constitutive Behavior and Pattern Transformation</i> | |

- 6) Kazem Yazdchi Nov. 2012 (UTwente)
Micro-macro relations for flow through fibrous media
- 7) Sebastian Gonzalez Briones April 2013 (UTwente)
An Investigation into Clustering and Segregation in Granular Materials
- 8) Remco Hartkamp May 2013 (UTwente)
MD study of non-Newtonian flow of simple fluids in confined & unconfined geometries
- 9) N. Kumar March 2014 (UTwente)
Micro-Macro and Jamming Transition in Granular Materials
- 10) O. I. Imole March 2014 (UTwente)
Discrete Element Simulations & Experiments: To Applications for Cohesive Powders
- 11) Vitaliy Ogarko May 2014 (UTwente)
Microstructure and Macroscopic Properties of Polydisperse Systems of Hard Spheres
- 12) A. Singh May 2014 (UTwente)
Micro-Macro and Rheology in Sheared Granular Matter
- 13) Nicolas Rivas Feb. 2015 (UTwente)
From Discrete to Continuum Models of Shaken Granular Matter
- 14) Deepak Tunuguntla Oct. 2015 (UTwente)
Polydisperse Granular Flows over Inclined Channels
- 15) Ibrahim Guven June 2016 (UTwente)
Hydraulical & Acoustical Properties of Porous Sintered Glass Bead Systems: Experiments, Theory, & Simulations
- 16) Matteo Giani July 2017 (UTwente)
Modeling the self-assembly of clathrin coats
- 17) Sudeshna Roy Jan. 2018 (UTwente)
Hydrodynamic Theory of Wet Particle Systems
- 18) Rohit Shrivastava Sep. 2018 (UTwente)
Towards stochastic & deterministic modeling of mechanical waves in disordered media
- 19) Hao Shi Apr. 2019 (UTwente)
Deformation of Cohesive Granular Materials: Micro influences Macro
- 20) Marnix Schroyen Lantman Apr. 2019 (UTwente)
A study on fundamental segregation mechanisms in dense granular flows
- 21) Duraivelan Palanisamy May 2019 (UTwente)
Micro-hydrodynamics of non-spherical colloids: a Brownian Dynamics Study
- 22) Kianoosh Taghizadeh Sep. 2019 (UTwente)
Elasticity and wave propagation in granular materials

Links to these PhD theses and 25 MSc student theses can be found on the website:
<https://www2.msm.ctw.utwente.nl/sluding/THESIS/thesis.html>

International activities

Dr. Luding is invited member of the:

DECHEMA/GVC-VDI Fachausschuss: Agglomerations- und Schüttguttechnik (since 2001), the European Federation of Chemical Engineering (EFCE) Working Party on Mechanics of Particulate Solids (invited Dutch delegate since 2005), the "Association pour L'Etude de la Micromécanique des Milieux Granulaires" (AEMMG), since 2001, and elected President of the AEMMG, 2005 (1st term), 2009 (2nd term), 2013 (3rd term), 2017 (4th term), as well as Dutch representative of the International Federation Measurement & Control of Granular Materials (IFMCGM, since 2006).

Dr. Luding is the managing editor-in-chief of the interdisciplinary Springer journal *Granular Matter* since 1998 [J1]; he edited seven books [B1-B7], in relation to some of the

conferences he has organized. He was invited as Advisory or Scientific Board member for many more conferences and workshops worldwide. Furthermore, he is in the Editorial Advisory Board of the journal *Particuology* (since 2009) [J2], since 2013 is Editorial Board Member of the new journal *Computational Particle Mechanics* (Springer) [J3] and the AGEM² Springer book series [J4].

He has presented well above 220 invited lectures/talks/presentations at various conferences and at research-institutes/groups/laboratories worldwide.

Dr. Luding was guest-Prof. in Sydney (Australia), Berlin, WIAS (Germany), Marseille (France), Duke Univ. (North Carolina, USA), and Tel-Aviv (Israel).

Since 1998, he was invited external referee in more than 50 PhD commissions (Netherlands, Belgium, France, Germany, Spain, Switzerland, Ireland, UK) as listed below.

Other academic activities

Prof. Dr. Luding has actively, with major responsibility, organized the following international conferences, workshops, sessions, schools (*session organisations, advisory boards or scientific committee memberships are not mentioned*):

1. Powders & Grains 2021 (President AEMMG), Buenos Aires, Argentina, July 2021
2. DEM8, University of Twente, Enschede, NL, July 2019
3. Lorentz Centre Workshop, Granular Matter Across Scales, Leiden, NL, 2019
4. Powders & Grains 2017 (President AEMMG), Montpellier, France, July 2017
5. Granular Matter Days 2014, DLR Cologne, Germany & UTwente, NL, Mar. 2014
6. Powders & Grains 2013 (President AEMMG), Sydney, Australia, July 2013
7. YITP Workshop: Physics of glassy & granular materials, Kyoto, Japan, July 2013
8. KITPC Complex Dynamics in Granular Systems, Workshop, China, June 2013
9. DLR/UT German-Dutch Granular Workshop, DLR-Cologne, Germany, April 2013
10. Lorentz workshop on Scale Bridging, Oct., 2009
11. Powders & Grains, 2009, Colorado, USA, July, 2009
12. Lorentz workshop on granulates and colloids, Feb. 2008
13. DEM-5 (Discrete Element Methods), Brisbane, Australia, Aug. 2007
14. Powders and Grains 2005, Stuttgart, Germany
15. Numerical Simulation Methods, within the Granular Matter trimestre at the IHP (Institute Henri Poincare), Paris, France, 2005
16. Traffic and Granular Flow 2003, Delft, NL, 2003
17. Cooperative Grains: From Granular Matter to Nanomaterials, LC Leiden, 2003
18. Winter school on Granular Matter, Korea, 2003
19. Continuous and Discontinuous Modelling of Cohesive Frictional Materials, 2000
20. CECAM Workshop: Statistical physics for dynamic granular media, 2000
21. WEH Workshop: Granular Gases, Bad Honnef, 1999
22. NATO ASI - Physics of dry Granular Media, Cargese, Corsica, 1997

National activities

Dr. Luding is member of the Dutch research groups:

TCSC – Twente Centre for scientific computing (www.tcsc.eu)

MESA+ Nanotechnology Institute (www.utwente.nl/mesaplus)

EM – Engineering Mechanics Research School (www.em.tue.nl)

JMBC – JMBurgersCentrum for Fluid Mechanics (www.jmburgerscentrum.org)

4TU Research Centre Fluid and Solid Mechanics (<https://www.4tu.nl/fsm/en/>)

NMC – Netherlands Mechanics Committee

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and formerly:

NSPT – Dutch Research School for Process Technology
 IMPACT (Institute of Mechanics, Processes and Control-Twente)
 Delft Centre for Materials (DCMat), and
 Delft Centre for Computational Science and Engineering (DCSE).

Dr. Luding was (until 2007) chairman of the Young Wild Idea (YWI) committee (for sponsoring young/wild materials research ideas of students) and member of the policy-committee in DCMat, as well as member of the "dagelijks bestuur" in DCSE.

Prof. Luding is the president of TCSC (from 2015), elected board-member of the research-school EM (from 2014), i.e. one of the two UT members of this unit; he is the UTwente representative of the 4TU Research Centre Fluid and Solid Mechanics (since Oct. 2013), and board-member of the Netherlands Mechanics Committee (NMC) since Dec. 2013.

Prof. Luding was member of the board of the NWO Graduate School Fluid and Solid Mechanics 2012-2017, as well as the Twente Graduate School (TGS) Computational Science and Engineering teaching-professor ("onderwijs-hoogleraar") since Nov. 2013.

Funding ID

Stefan Luding has collected various projects, in total valued about 8.5MEuros since 2007 (and 9.3MEuros since 1996), leading to 34 PhD projects, 5 PDEng projects, 16 PostDoc projects, mostly from public funding, but also various industrial projects. Important to mention are the prestigious personal VICI award (1.5MEuros, 2010-2016) that involved 3 PhD students & 6 PostDocs, as well as two big interdisciplinary EU FP7 ITN projects PARDEM.eu (2009-2013) & T-MAPPP.eu (2014-2018/20).

| Funding | Project theme: | Begin | End | k€ |
|----------------|--|--------------|------------|-----------|
| Apollo | Tires on snow | 2019 | 2021 | 80 |
| TNO | 3D-Printing of SOEC fuel cells | 2019 | 2021 | 80 |
| M-LAB | Paralellization of MercuryDPM | 2019 | 2021 | 80 |
| M-LAB | Design of user interface for MercuryDPM | 2019 | 2021 | 80 |
| NWO-IPP | Multi-phase process engineering | 2019 | 2023 | 250 |
| DFG-SPP | Dynamic damped waves | 2019 | 2022 | 320 |
| Trioliet | Characterization & mixing of cattle food | 2017 | 2019 | 80 |
| STW | Tabletting and additive manufacturing | 2017 | 2021 | 750 |
| FOM/Oce | Printing technology multiscale modeling | 2016 | 2021 | 500 |
| STW | Fluid-solid interact. & liquid-penetration | 2016 | 2020 | 220 |
| FOM-SHELL | Energy storage in solid flow batteries | 2014 | 2018 | 240 |
| FOM-SHELL | Comput. Science for Energy/Resources | 2014 | 2018 | 240 |
| EU-FP7 ITN | T-MAPPP – Multiscale Particle Modeling | 2014 | 2018 | 550 |
| DFG-STW | Discrete-cont. models for wet particles | 2012 | 2018 | 272 |
| DFG-SPP | PIKO: Particles in contact | 2009 | 2017 | 274 |
| NWO-STW | Bridging from. particles & continuum | 2010 | 2016 | 1500 |
| FOM-SHELL | Nano-particles flow for oil recovery | 2009 | Jul. 2016 | 203 |
| EU-FP7 ITN | PARDEM: Particles & discrete elements | 2009 | Oct. 2013 | 775 |
| STW-MUST | Hierarchical multiscale modeling | 2008 | Aug. 2013 | 508 |
| FOM-Jam | Jamming rheology | 2008 | Aug. 2013 | 220 |
| TUD-PCSE | Computational Modeling | 2008 | July 2012 | 200 |

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|-----------|--|------|-----------|-----|
| FOM-GM2 | Clustering phase diagram | 2007 | Dec. 2012 | 248 |
| FOM-GM1 | Shearband rheology | 2005 | Dec. 2009 | 272 |
| FOM-SHELL | Sound propagations | 2005 | Feb. 2010 | 251 |
| BSIK-mic | Fluids flow in nanochannels | 2005 | Dec. 2011 | 215 |
| TUD-DCMat | Self Healing with particle methods | 2004 | Dec. 2007 | 160 |
| TUD-DCSE | Long range force modeling | 2003 | July 2008 | 210 |
| DFG | Various projects in Stuttgart, Germany | 1996 | Dec. 2004 | 600 |

Table 1: Projects overview – ended projects are in grey, running ones in black.

Member of PhD commissions

- 08.12.98 *Modelisation Physique et Mecanique d'une Couche de Grains Vibres, Specialite: Mecanique*, Mr. Laurent Labous, Jussieu, Paris, France.
- 12.07.02 *Experimental and Numerical Investigation of Shear Localization in Sheared Granular Media*, Konrad Nuebel, Inst. Boden- und Felsmechanik, Karlsruhe, Germany.
- 14.03.03 *Hydrodynamics and spontaneous symmetry breaking in granular fluids*, Ramon Garcia Rojo, Theoretical Physics, Sevilla, Spain.
- 19.05.03 *Breakage Characteristics of Particles and Granules*, Ramanan Pitchumani, Particle Technology, Delft, Netherlands.
- 20.05.03 *From people to plants: Application of Electrospray*, Kees B. Geerse, Particle Technology, Delft, Netherlands.
- 07.11.03 *Sur le probleme de la segregation des milieux granulaires vibres. Etude theorique et phenomenologique*, Mr. L. Trujillo, ESPCI, Paris, France.
- 31.01.05 *Simulation of Crushing Dynamics of an Aggregate Matrix Composite by Compression and Impact Stress*, Manoj Khanal, Magdeburg, Germany.
- 02.12.05 *Numerical Simulations of granular media with polyhedral grains*, Lionel Pournin, Lausanne, Switzerland.
- 04.05.06 *Intruder Granular Dynamics in vibrated granular beds*, Duncan Sanders, Nottingham, UK.
- 05.05.06 *Developing a virtual test environment for granular materials using discrete element modeling*, Liang Cui, Dublin, Ireland.
- 21.11.06 *Vector Stefan Model for 3D*, Etelvina Javierre, Delft, NL.
- 18.12.06 *Contact Models for Apples*, Edward Dintwa, Leuven, Belgium.
- 19.10.07 *Ecoulement de particules dans un milieux poreux*, Franck Lomine, Université de Rennes 1, France.
- 11.01.08 *Annular shear flows: Experiments and Simulations*, Georg Koval, LCPC, Paris, France.
- 30.01.08 *Distributed secondary gas injection via a fractal injector*, Dana Christensen, TUDelft, NL.
- 14.02.08 *Collective Phenomena in vertically shaken Granular Matter*, PhDthesis, Peter Eshuis, UTwente, NL.
- 18.02.08 *Random Packing of Colloid and Granular Matter*, Alan Wouterse, Univ. Utrecht, NL.
- 03.07.08 *Rheology of Aging Suspensions*, Eko Hari Purnomo, UTwente, NL.
- 28.08.08 *Modelling Dune Evolution and Dynamic Roughness in Rivers*, PhDthesis, Andries Parlberg, UTwente, NL.
- 09.09.08 *Microstructure in Powders*, Robert Andersson, R3, TUDelft, NL.
- 18.11.08 *Mean Particle Diameters: From Statistical Definition to Physical Understanding*, Maarten Alderliesten, TUDelft, NL.
- 19.11.08 *Materiaux granulaires cimentes : modelisation et application a l'albumen de ble*, Vincent Topin, Montpellier, France.
- 20.11.08 *Study of the thermal diffusion behavior of simple binary mixtures*, Pavel Polyakov, UTwente, NL.
- 17.12.08 *Constitutive Modeling of Metastable Austenitic Stainless Steel*, E. S. Perdahcioglu, UTwente, NL.
- 17.04.09 *Newton vs. Stokes: Competing Forces in Granular Matter*, H. J. Gerner, UTwente, NL.
- 20.05.09 *Tas et dunes de sable*, (These d'habilitation a diriger des recherches de l'universite Pierre et Marie Curie), P. Claudin, Paris, France.
- 21.08.09 *Jamming in Granular Media: Experiments and Models*, M. Tsukahara, Lausanne, Switzerland.

- 28.08.09 *Strain Path Dependency in Sheet Metal: Experiments and Model*, M. van Riel, UTwente, NL.
- 05.02.10 *Discontinuous Galerkin Finite Element Methods for (non-)conservative partial differential equations*, Sander Rhebergen, UTwente, NL.
- 26.05.10 *Particle based evaporation models and wall interaction for microchannel cooling*, Pieter van den Akker, TU Eindhoven, NL.
- 02.07.10 *Etude experimentale de la transition de blocage dans un milieu granulaire vibre*, Rim Harich, l'universite P. et M. Curie, Paris VI, France
- 23.08.10 *Dynamic properties of vibrated dry sand: Sphere penetration experiments and DEM modeling of vibro-fluidized phenomena*, Nicolas Denies, Univ. Louvain-la-Neuve, Belgium.
- 01.10.10 *Dynamik geschütteter Kleinteile*, Beate Muth, Uni-Stuttgart, Germany.
- 01.12.10 *Granular dynamics in rotating drums*, Marleen Arntz, UWageningen, NL.
- 10.12.10 *Viscothermal wave propagation*, Marten Nijhof, UTwente, NL.
- 04.02.11 *Colloidal suspensions under external control*, Burak Eral, UTwente, NL.
- 16.05.11 *Connecting Molecular Dynamics and Computational Fluid Dynamics*, Anton P. Markesteijn, TUDelft, NL.
- 26.09.11 *Multiscale failure modeling of quasi-brittle materials*, Vinh Phu Nguyen, TUDelft, NL.
- 07.10.11 *On meshless and nodal-based numerical methods for forming processes*, Wouter Quak, UTwente, NL.
- 07.12.11 *Sub-micron grinding of a food product*, Stephen Hennart, TUDelft, NL.
- 06.07.12 *Floater on Faraday waves: Clustering and heterogeneous flow*, Ceyda Sanli, UTwente, NL.
- 29.10.12 *Multi-Scale Modeling of Materials*, Lars Beex, TU/e, NL.
- 15.02.13 *Modeling sheet-flow sand transport under progressive surface waves*, Wouter Kranenburg, UT, NL.
- 25.03.13 *Linking DEM with micropolar continuum*, Jia Lin, BOKU Vienna, Austria.
- 30.08.13 *The influence of texture on phase transformation in metastable austenitic stainless steel*, Peter Hilkhuijsen, UT, NL.
- 04.09.13 *Measuring sound absorption using local field assumptions*, Erwin Kuipers, UT, NL.
- 25.09.13 *Fine sand in motion*, Tess Homan, UT, NL.
- 10.12.13 *Experimentelle & numerische Untersuchung des Pulver- & Aerosolverhaltens in einer Luftströmung*, Michael Becker, U. Darmstadt, Germany.
- 03.03.14 *Mesosopic discrete element modelling of cohesive powders for bulk handling applications*, Subash Chandra Thakur, UEdinburgh, UK.
- 20.06.14 *Multiscale Simulations of Star Polymer Melts*, Liu Li, UT, NL.
- 30.07.14 *Adaptiv diskret-kontinuierliche Modellierung von Materialien mit Mikrostruktur*, Annika Sorg, Univ. Stuttgart, Germany.
- 23.02.15 *Experiments and Models for Chute Flows*, Sushil Sirshat, TU/e, NL.
- 19.05.15 *Entwicklung und Anwendung von Methoden zur Simulation des Trocknens von Suspensionen*, Thomas Breinlinger, KIT, Karlsruhe, Germany.
- 10.12.15 *Colloidal dynamics in flow & confinement*, Somnath Ghosh, UTwente, NL.
- 29.04.16 *Particles in polymer functionalized micro-channels: Electrochemical experiments and MD simulations*, Bart Kievit, UTwente, NL.
- 01.07.16 *Numerical Investigation of Heat Transfer Enhancement by Means of High Thermal Conductivity Microstructures*, Nicola Pelevic, UTwente, NL.
- 21.08.16 *Plane shock waves in granular gases and regularized moment equations*, M. H. Lakshminarayana Reddy, JNCASR Bangalore, India.
- 12.12.16 , Stephanie Riber, Nice, F.

- 03.02.17 *Methodes numerique pour la simulation des ecoulements de materiaux granulaire par une approche continue*, Stephanie Riber, Nice, F.
- 31.03.17 *On the mechanical interactions between TiO2 nanoparticles*, Jens Laube, Bremen, Germany.
- 10.05.17 *Excavation of hard deposits and rocks: On the cutting of saturated rocks*, Rudy Helmons, TUDelft, NL.
- 12.09.17 *Permeability models for partly saturated cement*, Kai Li, TUDelft, NL.
- 03.11.17 *DNS of turbulent channel flow*; Paolo Cifani, UT, NL.
- 17.11.17 *A grain scale study of unsaturated flow in highly swelling granular materials*; Thomas Sweeijen, Utrecht, NL.
- 21.06.18 *Modelling superquadric particles in DEM and CFD-DEM: Implementation, validation and application in an open-source framework*, Alexander Podlozhniuk, Univ. Linz, Austria.
- 20.07.18 *Sound absorption of porous structures*, Marieke Bezemer Krijnen, UT, NL.
- 26.10.18 *Effects of nanoparticles at fluid-fluid interfaces*, Stefan Frijters, TU/e, NL.
- 20.12.18 *Multi-scale FEM-DEM model for granular materials*, Jiadun Liu, TU/e, NL.
- 17.05.19 *Laser assisted forming and phase reversal heat treatment of metastable austenitic stainless steel*, Harm Kooiker, UT, NL.
- 03.10.19 *Recycling of thermoplastic composite laminates: The role of processing*, Vincent Guillaume, UT, NL.
- 11.10.19 *Molecular Dynamics of Soft Wetting*, Liz Menzink, UT, NL.

Refereeing

Proposals

Since 1997: S. Luding acts as referee/external *advisor* for various funding institutions in Australia, The Americas, Africa, Israel (GIF), and in Europe (Belgium, Germany, Netherlands, Norway, France and UK).

Papers

Since 1993: S. Luding regularly *referees* publications for international journals, including Nature, Physical Review Letters, Science, Physical Review E, Europhysics Letters, Int. J. of Solids and Structures, European Physical Journal E, Physica A, JSTAT, New J. of Physics, Physics of Fluids, Computer Physics Communications, Journal of Computational Physics, Engineering and Computational Mechanics, Engineering Computations, Rheologica Acta, Particle Technology, Particuology, Granular Matter, Chemical Engineering Science, International Journal of Heat and Mass Transfer, International Journal of Multiphase Flow, Int. J. for Numerical and Analytical Methods in Geomechanics, Int. J. for Numerical Methods in Engineering, Modelling Simul. Mater. Sci. Eng., Int. J. for Pavement Engineering, Chemical Physics Letters, Computational Particle Mechanics, Advanced Material Science, Acta Mechanica, Acta Geotechnica, Procs. Royal Society, ZAMM, and for book-publishers like Springer, Wiley, and Cambridge University Press.

-Invited lectures/talks (invited talks from 2006)**2006**

- 21.02.2006, IUTAM06: Multiscale problems in multibody contacts, Stuttgart, Germany
A discrete model for long-time sintering
- 24.07.2006, DSM (invited by Dr. R. Janssen), Geleen, Netherlands
Application of DEM in Engineering
- 30.08.2006, Plenary, Conveying & Handling of Bulk Solids 5, Sorrento, Italy
About Particulate Solids Modeling with Discrete Elements
- 14.09.2006, Southern Workshop on Granular Materials, Vina del Mar, Chile
About agitated granular media and the role of friction
- 20.09.2006, VNPT, 8 BePCIS Seminar, Leuven, Belgium
From discrete particle simulations towards continuum models
- 05.10.2006, SF404 Conference on Multi-Field problems, Stuttgart, Germany
From discrete, cohesive and frictional fine powders towards a continuum description of their flow behavior.
- 09.11.2006, DFG-Kolloquium, Behavior of Granular Media, Muenster, Germany
About contact force-laws for cohesive frictional materials in 2D and 3D
- 28.11.2006, iPAT (inv. by Prof. Kwade), Braunschweig, Germany
Discrete Element Models for Particle Technology

2007

- 11.01.2007, Kolloquium (invited by Prof. Tomanek), Regensburg, Germany
From single particle to continuum models
- 06.03.2007, SINTEF (invited by Idar Larsen), Trondheim, Norway
Contact models for cohesive frictional materials: Compression & tension
- 07.05.2007, Kolloquium (invited by Prof. Kassner), Univ. Magdeburg, Germany
From molecular dynamics to continuum theory
- 02.07.2007, Instabilities across the scales '07, (inv. L. Sluys and A. Suiker) Delft, NL,
From particle simulations to continuum models of instabilities
- 06.07.2007, STATPHYS sat., Statics and dynamics of granular media ..., Napoli, Italy
About slow, fast and repeated deformations of granular materials
- 20.08.2007, Talk (invited by Dr. Cleary) Melbourne, Australia
DEM: From contact models to continuum theory
- 23.08.2007, Talk (invited by Prof. Yu) Sydney, Australia
Stress & strain in granular media under compression, tension, vibration
- 30.08.2007, Talk (invited by Prof. H. Muehlhaus) Brisbane, Australia
Stress & strain in granular media due to compression, tension, vibration
- 09.10.2007, Colloid Society 2008 (inv. by Hans-Juergen Butt), Budenheim, Germany
About granular matter and colloidal systems: differences and similarities
- 19.11.2007, Keynote (invited by F. Chevoir) ENPC, Paris, France
From particle simulations to continuum theory for GM

2008

- 30.01.2008, (invited by Ruud van Ommen) TUDelft, NL
From granular and colloidal systems to DENSE multi-phase flow
- 01.02.2008, (invited by Dr. K. B. Geerse) Unilever, Rotterdam, NL
Multiscale Mechanics for Particle Technology
- 11.03.2008, Talk (inv. by Hans Herrmann) ETHZ-Fracture, Monte-Verita, Switzerland
About stress & strain & fracture in granular media
- 21.05.2008, Talk (invited by Matthew Kuhn) EM08, Minnesota, USA
Granular Flow Behavior in a ring shear cell at large strains
- 27.05.2008, Plenary (invited by Hans Herrmann) ETHZ, Zuerich, Switzerland
From discrete particles to continuum theory

- 28.05.2008, Kolloquium (invited by Mario Liu) Kolloquium, Tuebingen, Germany
From DEM particle simulations to a multi-scale continuum theory for GM
- 30.06.2008, Keynote (invited by Vitali Goussev) Acoustics 08, Paris, France
Sound waves in granular media: The role of disorder, friction, adhesion,...
- 06.08.2008, Keynote (invited by Joao Plascak) CCP2008, Ouro Preto, Brazil
Comput. statistical physics for dilute and dense, frictional granular gases
- 10.09.2008, Granular Gases 2008 (invited by Thorsten Poeschel), Thurnau, Germany
From dilute to dense and frictional granular gases
- 08.10.2008, Talk (invited by Marco Ramaioli) Nestle, Lausanne, Switzerland
Discrete Particle models with application to sintering and agglomeration
- 09.10.2008, Lecture (invited by F. Darve and H. Herrmann) ALERT, Aussois, France
Introduction to DEM models of cohesive particle systems
- 01.12.2008, Talk (invited by M. Becker) Boehringer-Ingelheim Pharma, Germany
From particle simulations to industrial applications in powder flow
- 01.12.2008, Kolloquium (invited by Prof. Urbassek) Kaiserslautern, Germany
From granular particle-systems to continuum theory

2009

- 27.01.2009, Talk (invited by M. Sperl) DLR, Koeln, Germany
From granular particle-systems to continuum theory
- 29.04.2009, Talk (invited by N. Gray and T. Mullin) University of Manchester, UK
From particles towards continuum theory
- 14.08.2009, Talk (invited by H. Hayakawa), YKIS2009, Kyoto-U, Japan
Continuum kinetic theory for dense, realistic granular matter
- 19.08.2009, Talk (invited by N. Ito), Univ. Tokyo, Tokyo, Japan
Computer models for dense, realistic granular matter
- 08.09.2009, Talk (invited by Lou Kondic) ESMC2009, Lisbon, Portugal
Structure and stress anisotropy in granulates with friction and adhesion
- 14.-18.09.2009, Talk (invited by Joe Goddard) IUTAM-ISIMM, Reggio Calabria, Italy
Discrete and continuum theory for dense granulates, friction, adhesion
- 25.-27.11.2009, Talk (invited by F. Nicot and F. Darve), Barcelona, Spain
Constitutive relations from DEM for dense frictional, cohesive granulates
- 02.12.2009, Talk (invited by R. Soto), Southern Workshop, Vina del Mar, Chile
Towards dense, realistic granular media in 2D
- 10.12.2009, Kolloquium (invited by T. Pöschel) CBI-Erlangen, Germany
Self-Healing of composite materials

2010

- 10.02.2010 Kolloquium (invited by H. Steeb) RUBochum, Germany
From particles to continuum theory
- 04.05.2010 Talk (invited by A. Petri) CECAM, Lausanne, CH
From particles to continuum theory: friction in sheared granular systems
- 11.06.2010, Talk (invited by May Hou) Chin. Acad. Science, Beijing, China
Micro-macro transition for quasi-static slow granular flows
- 13.06.2010, Lecture (invited by N. Yang) MultiScale 2010 conference, Beijing, China
Multiscale phenomena in particle systems
- 09.07.2010, Talk (invited by L. La Ragione) Univ. Bari, Italy
From particles to continuum mechanics for slow flow of cohesive powders
- 10.10.2010, Keynote (invited by M. Jiang) IS-Shanghai, Tongji Univ., Shanghai, China
Critical state yield stress of adhesive powder from a single simulation
- 24.11.2010, Talk (invited by H. Hayakawa) YITP, Kyoto, Japan,
A local constitutive model with anisotropy for 2D biax-deformation modes

2011

- 17.01.2011, Keynote (invited by S. Rojek) KomPlasTech 2011, Zakopane, Poland

- From discrete particles to solids – about sintering and self-healing*
04.05.2011 Frontiers Seminar (invited by M. Ghadiri), Univ. Leeds, UK
- From particulate simulations to continuum/engineering application*
07.06.2011, Talk (invited by H. Muhlhaus) IAS3, Cairns (Palm Cove), Australia
- A DEM based constitutive model with anisotropy for granular materials*
08.07.2011, Talk (invited by B. Todd) Swinburne Univ., Melbourne, Australia
- From atoms/particles to continuum theory and rheology of complex fluids*
18.07.2011, Seminar (invited by I. Einav) Univ. Sydney, Sydney, Australia
- Micro-macro methods for granular materials*
21.07.2011, Colloquium (invited by A. Yu) UNSW, Sydney, Australia
- From particles towards continuum theory of particle systems*
27.07.2011, Keynote (invited by Aibing Yu) PPPI3 conference, Gold Coast, Australia
- About cohesive powders – from particles to continuum theories*
01.09.2011, Talk (invited by J. Besson) ICMM2, Paris, France
- From particles to continuum theory*
15.09.2011, Talk (invited by J. Brey and R. Soto) ZCAM workshop, Zaragoza, Spain
- About active, cohesive, self-healing particles and continuum theory*
28.09.2011, Tandem Lecture (invited by Hermann Feise) ECCE2011, Berlin, Germany
- Modeling of particle systems in industry and academia*
18.11.2011, Colloquium (invited by Matthias Schroeter) MPI Gottingen, Germany
- About the physics of dilute and dense granular flows*
22.11.2011, Seminar (invited by Raul Cruz-Hidalgo) Univ. Pamplona, Pamplona, Spain
- Modeling of dynamic and static particles systems*
- 2012**
- 25.01.2012, Talk (invited by Meheboob Alam) IUTAM workshop, Bangalore, India
From particles to continuum theory: shear-bands, jamming and dilatancy
- 27.03.2012, Keynote (invited by Michel Raous) Euromech 514, Cargese, Corse, France
About contacts of adhesive, elasto-plastic, frictional powders
- 30.03.2012, Keynote (invited by Ch.-Yu Wu) 70th Conf. C. Thornton, Birmingham, UK
From granular dynamics to continuum mechanics
- 02.04.2012, Talk (invited by Sebastian Vincent Bonnieu) ESA, Noordwijk, NL
Particle systems rheology – from particles to continuum
- 06.04.2012, Seminaire (invited by Fahrang Radjai) Univ. Montpellier, France
From particles to cont. theory: structure formation, jamming anisotropy
- 29.06.2012, M&M Computational Science Lecture Series, UTwente, NL
From discrete systems to continuum theory - computational methods
- 09.07.2012, Invited Talk (invited by E. Bauer) ESMC2012, Graz, Austria
From discrete particles to continuum mechanics
- 10.07.2012, Invited Talk (invited by L. Kondic) ESMC2012, Graz, Austria
Anisotropic rheology for granular matter
- 12.07.2012, Invited Talk (invited by C. Wilmanski) ESMC2012, Graz, Austria
Sound propagation in discrete particle systems
- 01.10.2012, Plenary (invited by J. Tomas) PIKO Contacts Workshop, Siegen, Germany
DEM contact models, their parameters and how to measure them
- 15.10.2012, Plenary (invited by M. Geers) KIVI-NIRIA Mechanics, Eindhoven, NL
Multiscale modeling of particle systems
- 22.10.2012, Keynote (invited by S. Odorizzi) CAE Conference, Verona, Italy
From particles to continuum theory – crossing multiple scales
- 12.11.2012, Invited Talk (invited by K. Kamrin) ASME2012, Houston, USA
From particles to continuum theory: Shear-bands, anisotropy, dilatancy
- 05.12.2012, Invited Talk (invited by R. Soto) Southern Granular Workshop, Chile
Anisotropic continuum theory for granular flows

2013

- 05.02.2013, Colloquium (invited by J. Gibmeier) KIT, Karlsruhe, Germany
Anisotropic continuum theory for granular flows
- 09.04.2013, Invited Talk (invited by A. Hoekstra) LC Workshop, Leiden, NL
Multiscale modeling: Bridging the gap from (small-scale) discrete to (large-scale) continuous systems
- 22.04.2013, Keynote (320 audience) (Tandem with H. Feise) ECCE-9, Den Haag, NL
Model Validation - A Key to Successful Simulation
- 25.04.2013, Invited Talk (invited by V. Dutschk) COST Workshop, Enschede, UT, NL
Multi-scale mechanics of nanoparticulate systems
- 28.05.2013, Invited Talk (invited by M. Hou) KITPC Workshop, Beijing, China
From discrete to continuum systems (2 talks)
- 08.06.2013, Keynote (invited by M. Hou) KITPC Workshop, Beijing, China
From discrete to continuum systems
- 04.07.2013, Keynote (invited by Mark Jones) ICBMH 2013, Newcastle, Australia
From particle models to large scale applications
- 16.07.2013, Keynote (invited by H. Hayakawa) YITP Workshop, Kyoto, Japan
Particle systems and continuum modeling
- 19.09.2013, Plenary (invited by M. Bischof) Particles 2013, Stuttgart, Germany
Multiscale particle modeling
- 20.09.2013, Invited Talk (invited by J. Mergenheim) Self-Healing Workshop, Munich, Germany, *A review of discrete self-healing models*
- 13.10.2013, Plenary (invited by J. Socolar) Bob Behringer 65th, Durham, NC, USA
About the memory of jamming and shear-jamming
- 06.12.2013, Keynote (invited by G. Ooms) 3TU Multiscale Conference, Eindhoven, NL
Dispersion of instant food powders as multiscale modeling example

2014

- 09.01.2014, Invited Talk (invited by F. Wittel) Hans Herrmann 60th, ETHZ, CH
From particles and atoms towards continuum Theory
- 30.01.2014, Colloquium (invited by C. Holm) Univ. Stuttgart, Germany
From discrete systems to Continuum Theory
- 14.02.2014, Invited Talk (invited by H. Adhibon) Fraunhofer, Freiburg, Germany
Dispersion of instant food powders as multiscale modeling example
- 21.03.2014, Invited Talk (invited by K. Soga and C. O'Sullivan) Wave Propagation and Soil Stiffness: Particle-Continuum Duality Workshop, Bristol, UK
Wave propagation in disordered granular media
- 04.04.2014, Invited Talk (invited by M. Geers) EMI Colloquium, TU/e, Eindhoven, NL
From micro-mechanics to macro-continuum theory
- 11.04.2014, Invited Talk (invited by P. Schall) UvA, Amsterdam, NL
From particles to flow rheology for frictional cohesive powders
- 23.04.2014, Invited Talk (invited by Jan Astrom) CSC workshop, Helsinki, Finland
Granular material: multi-scale models and theory - particles to continuum
- 20.05.2014, Keynote Talk (invited by Jinghai Li) World Congress on Particle Technology 7, Beijing, China, *Particles, Continuum Theory, Applications*
- 23.05.2014, Invited Talk (invited by Mingjing Jiang), Tongji Univ., Shanghai, China
From particle simulations to continuum theory and applications
- 27.05.2014, Invited Talk (invited by Shuiqing Li) Tsinghua Univ., Beijing, China
Particle systems modeling with discrete and continuous methods
- 03.06.2014, Invited Talk (invited by Xiaoping Jia) Institute Langevin, Paris, France
From particles to the continuum mechanics of wave propagation
- 03.07.2014, Invited Talk (invited by Detlef Lohse) FOM Multiphase, Amsterdam, NL
From particle based multiphase models to applications

- 09.07.2014, Invited Talk (invited by K. Kamrin & F. Radjai) Montpellier, France
Macro-model with anisotropy from the microstructure
- 16.07.2014, Invited Talk (invited by Meijing Hou) RGD29, Xi'An, China
From particles to continuum theory – from slow to rapid flow
- 03.09.2014, Invited Talk (invited by Helmut Brand) Dissipative & Reactive Systems, Merida, Mexico, *Structure formation in dissipative systems with long-range interactions*
- 15.09.2014, Invited Talk (invited by T. Pöschel) Jam-Packed, Erlangen, Germany
Memory of jamming and shear jamming
- 01.10.2014, Lecture (invited by V. Magnanimo) T-MAPPP Training, London, UK
Basic discrete particle modeling for multiscale and multiphase systems
- 15.10.2014, Invited Talk (invited by C. O'Hern and K. Dahmen) KITP, UCSB, CA, USA
About the memory of jamming, dilatancy, elasticity, and plasticity
- 17.10.2014, Invited Talk (invited by Jacek Polewczak) CSUN, Northridge, CA, USA
From discrete particles to continuum theory and applications
- 23.10.2014, Invited Talk (invited by C. O'Hern and K. Dahmen) KITP, UCSB, USA
Wave propagation in 1D and 3D disordered, granular systems
- 12.11.2014, Invited Talk (by H. Steeb and P. Junker) SiMiDe Graduate School, RUBochum, Germany, *From discrete particles to continuum theory*
- 21.11.2014, Invited Talk (by B. Peters) Université du Luxembourg, LUX
Particles and continuum theory for applications
- 12.12.2014, Invited Talk (by M. Schmieder) Düsseldorf, Germany
The memory of jamming in soft matter
- 2015**
- 16.01.2015, Talk (invited by D. Szeliga) KOMPLASTECH Krynica, Poland
Macroscopic model with anisotropy based on micro-macro information
- 26.01.2015 UT-Muenster Computational Science Seminar, Muenster, Germany
Computational science from particle based models to applications
- 19.02.2015, Plenarvortrag (invited by H.-J. Odenthal) Verein Deutscher Eisenhüttenleute (VDEh), SMS Siemag AG, Hilchenbach, Germany; *Die "Discrete Element Method" Vom Teilchen zum Kontinuum – Forschung & Anwendung*
- 24.02.2015, Keynote (by M. Geers) TU/e Euromech Coll. 559, Eindhoven, NL
Macroscopic model with evolution of structural anisotropy based on micro-macro, particle-to-continuum methods
- 18.03.2015, Talk, GVC/DECHEMA Fachausschuss Sitzung, Magdeburg, Germany
Influence of coarse graining parameters on the analysis of DEM results
- 19.03.2015, TireRoadConsortium (TRC), invited by M. Oeser, RWTH Aachen, Germany
Multiscale Mechanics Modeling for Tire and Road/Asphalt
- 07.05.2015, Talk, CHOPS conference, Tel Aviv, Israel
From Cohesive Frictional Particles to Continuum Theory and Applications
- 28.05.2015, Talk (invited by K. Kamrin) ICMM4, Berkeley, USA
Master equations for the mechanics of static disordered systems
- 07.07.2015, Talk (invited by L. Kondic) ESMC 2015, Madrid, Spain
The jamming point: How it changes under tapping, compression & shear
- 18.08.2015, Talk (invited by V. Schmidt) Univ. Ulm, Ulm, Germany; *Die Diskrete Elemente Methode – Teilchen vs. Kontinuum - Forschung & Anwendung*
- 11.09.2015, Keynote (invited by S. Utili) International Symposium on Geohazards and Geomechanics ISGG2015, Warwick, UK; *Understanding the effects of inter-particle contact friction on the elastic moduli of granular materials*
- 22.09.2015, Plenary (invited by J. Grabe) Workshop Morphodynamics, TUHH, Hamburg-Harburg, Germany; *Multi-Scale Models for particles in fluids – micro- and meso-scale particle-fluid models*

- 28.09.2015, Talk (invited by K. Kamrin and F. Radjai) Particles 2015, Barcelona, Spain
Shear bands in dense granular flow: Towards a local rheology; effects of friction, softness, cohesion
- 30.09.2015, Keynote/Review (invited by A. Thornton) Particles 2015, Barcelona, Spain
Vibrated granular systems – overview mixing/segregation, dilute/dense, and mono-/polydisperse situations
- 06.10.2015, Talk (invited by K. Dahmen) MST 2015, Columbus, Ohio, USA
From particles to continuum theory & applications
- 12.11.2015, Talk (invited by H. ter Huerne) TRC symposium, UTwente, NL
Mesoscale simulations of SBR filled rubber compounds
- 30.11.2015, Talk (invited by R. Soto) Southern Granular Workshop, Santiago, Chile
Rheology of soft and cohesive granular materials
- 16.12.2015, Talk (invited by M. Bradley) The Wolfson Centre for Bulk Solids Handling Technology, Chatham, UK; *Multi-Scale Models for particles in fluids – micro- and meso-scale particle-fluid models*
- 17.12.2015, Talk (invited by X. Li and H.-S. Yu) 12th UK Travelling Workshop: Geomechanics: From micro to macro (GM3); *From Particle Simulations to Multi-Scale (Models) and Continuum Theory (Applications)*

2016

- 04.01.2016, Talk (invited by J. Goddard, K. Kamrin), Plasticity 2016, Kona, Hawaii, USA; *Elastic-plastic granular matter with evolution of micro-structure*
- 26.01.2016, Talk (invited by C. Bierwisch), Particles Workshop, Fraunhofer, Freiburg, Germany; *Kontaktmodelle für realistische Teilchensimulationen*
- 28.01.2016, Colloquium (invited by S. Reese), Workshop, Univ. Aachen, Germany. *Elastic-plastic model with evolution of micro-structure for granular matter*
- 09.02.2016, Talk (invited by G. Hoomans), Deltares, Delft, NL
Multi-Scale Modeling for particles in fluids – From particles to applications
- 01.03.2016, Plenary, GVC/DECHEMA, Fachausschuss Sitzung, Germany
T-MAPPP Marie Curie ITN – Overview & highlights
- 10.03.2016, Keynote (invited by A. Yu), 1st Computational Particle Technology, Suzhou, China; *From Particle Simulations to Multi-Scale (Models) and Continuum Theory (Applications)*
- 15.03.2016, Keynote (invited by C. Kloss), DEM-CFD workshop, Linz, Austria
Mesoscale modeling of particles and particles in fluids
- 04.04.2016, Glass-day (invited by M. Sperl), DLR, Cologne, Germany; *From particles to continuum: Evolution of micro-structure – flowing or not flowing?*
- 06.04.2016, Kolloquium (invited by O. Paul), Engineering Faculty, Freiburg, Germany
Multi-Scale: From particles to continuum theory and applications
- 19.04.2016, Talk (invited by H. Nirschl), PARTEC 2016, Nuremberg, Germany; *From Particle Simulations to Multi-Scale (Models) and Continuum (Applications)*
- 12.07.2016, Talk (invited by C. Daraio), Granular Metamaterials, Grenoble, France
From particle simulations to continuum theory for soft and granular matter, including the solid-fluid transition and wave propagation
- 14.07.2016, Talk (invited by A. Baule), Workshop on Jamming and Granular Matter (Satellite Meeting of StatPhys26), Queens College, London, UK
Multiscale models for the memory of jamming in soft and granular matter
- 27.07.2016, Invited Lecture (invited by Xikui Li), WCCM, Seoul, Korea
From Particle Simulations to Multi-Scale – The Magic of Anisotropy
- 03.08.2016, Plenary (invited by Xikui Li), DEM conference, Dalian, China
How to Get from DEM to Continuum Models?

- 23.08.2016, Lectures (invited by R. Blumenfeld), Soft and Granular Matter in Ambient and Extreme Conditions, Changsha, China; *1) From Particle DEM to continuum theory: Multi-Scale Models with Anisotrop, and 2) Master equation for force distributions of polydisperse particles*
- 27.08.2016, Keynote (invited by Meijing Hou), Granular Behavior in Microgravity, Beijing, China; *Wave propagation and rheology at various gravity levels*
- 29.08.2016, Keynote (invited by Yujie Wang), Jam-packing, Shanghai, China; *Jamming, un-jamming & elasto-plastic flows with evolution of micro-structure*
- 03.09.2016, Keynote (invited by Meijing Hou and Lei Yang), 1st Intntl. Granular Flow Workshop, Lanzhou, China; *Examples for particle simulation applications*
- 08.09.2016, Session&Talk (invited by V. Kouznetsova), EMMC, Brussels, Belgium
Enhanced micropolar model for wave propagation in granular materials
- 01.12.2016, Keynote (invited by S. S. Mallick), PGBSIA 2016, India
Application examples of DEM particle simulations and micro-macro

2017

- 17.01.2017, Colloquium (invited by K. Kassner), OvG University Magdeburg, Germany;
Particle simulations for meso- and macro-scale models of jamming
- 24.01.2017, Plenary (invited by M. Louge), IFPRI, AMS, NL; *Fine particle research*
- 14.02.2017, Talk (invited by S. Heinrich) DECHEMA-VDI Fachausschuss, Germany; *Experimental & numerical investigation of sheared cohesive powders*
- 02.03.2017, Talk (invited by J. Harting), COST Workshop, Erlangen, Germany;
Fluid-solid interactions at interfaces for atoms and particles
- 10.03.2017, Presentation, ITWM-MSM workshop, UTwente, NL; *Multiscale Mechanics*
- 08.05.2017, Talk (invited by R. Al Khoury), INTERPORE, Rotterdam, NL;
Fluid-solid interactions for atoms and particles
- 29.05.2017, Colloquium (invited by N. Benes), MESA+, UTwente, NL; *Multiscale modeling: From particles and atoms to continuum theory and applications*
- 13.06.2017, Talk (invited by Liv Axelsen and Chandana Ratnayake), RELPOWFLO V, Skien, Norway; *From particles to continuum theory and applications*
- 10.08.2017, Keynote (invited by K. Wayne), Additive Manufacturing, Austin, TX USA;
DEM contact models for cohesive particles and sintering
- 22.08.2017, Keynote (invited by Zhao Hongwei), 2nd Granular Flow Workshop, Guiyang, China; *From Micro to Macro: From Particles to Continuum Theory*
- 14.09.2017, Keynote (invited by C. Kloss), CFDEM, Linz, Austria; *New DEM models*
- 27.09.2017, Session&Talk (invited by E. Onate), Particles 2017, Hannover, Germany;
Multiscale modeling of particulate materials
- 5-7.10.2017, School&Talks (invited by E. Onate), ALERT 2017, Aussois, France; ???

2018

- 14.03.2018, Talk (invited by S. Heinrich) DECHEMA-VDI Fachausschuss, Germany;
General(ized) model for granular rheology for frictional, soft, wet particles
- 19.04.2018, Keynote (invited by A. Hoekstra), Lorentz Centre, Leiden, NL; *Multi-scale modeling challenges: about micro- to meso- and macro-scale models*
- 23.04.2018, Talk (invited by S. Peuker) WCPT8 Orlando, Florida, USA; *Multi-scale modeling challenges: about micro- to meso- and macro-scale models*
- 24.04.2018, Talk (invited by S. Heinrich) WCPT8 Orlando, Florida, USA; *Wave propagation in soft and hard particle mixtures*
- 27.04.2018, Plenary (invited by J. Duriez and F. Nicot), 2nd YADE workshop, Aix-en-Provence, France; *From particle micromechanics to continuum theory*
- 29.05.2018, Plenary (invited by G. Giovine), Micro2Macro, Reggio-Calabria, Italy; *Enhanced micropolar model for wave propagation in granular materials*

- 07.06.2018, Colloquium (invited by Jens Harting), University Erlangen, Germany; *Multi-Scale Modeling: From particle simulations to continuum theory*
- 12.06.2018, Keynote (invited by Mikio Sakai), in the: International powder and nanotechnology forum – Simulation and modeling, ICHT, Frankfurt, Germany; *Upscaling from particles to continuum theory*
- 30.06.2018, Keynote (invited by Davide Bigoni) ESMC, Bologna, Italy; *Mechanics of Granular Media: Experiments, Theory and Modelling (invited mini-symposium organizer); Introduction-Talk: From particles to continuum theory and applications Technology*
- 14.08.2018, Talk (invited by Wei Wu), session in honor of G. Gudehus 80th birthday, in the: China-Europe Conference on Geotechnical Engineering, Vienna, Austria; *Micro-Macro Mechanics of Granular Geomaterials*
- 06.09.2018, Keynote (invited by D. Vescovi, F. Nicot, O. Millet, and C. di Prisco), GdR workshop on phase transitions in granular matter, Milano, NL; *From particles to continuum – including phase-transitions and co-existence of phases*
- 12.09.2018, Plenary (invited by Mike Bradley), ChoPS 2018, Greenwich, UK; *From discrete particle simulations towards continuum theory and applications*
- 12.10.2018, Keynote (invited by Katia Bertoldi), SES 2018, Madrid, Spain; *From discrete particles to continuum theory*
- 04.12.2018, Talk (invited by R. Soto), 6th Southern Workshop on Granular Materials, Puerto Varas, Chile; *From discrete particles to continuum theory – from static to dynamic, and back*

2019

- 30.01.2019, Talk (invited by Benyi Marks and Itai Einav), PIGS workshop, Sydney, Australia; *From particle simulations to macro-scale theory: Applications in geo, civil, mechanical and food processes*
- 13.02.2019, Keynote (invited by Aibing Yu), Monash, Melbourne, Australia; *How to upscale from particles to continuum theory in process engineering?*
- 15.02.2019, Keynote (invited by Ha Bui), Monash, Melbourne, Australia; *Upscaling from particles to continuum theory – applications in geo-physics*
- 15.02.2019, Talk (invited by Stefan Heinrich), PARTEC, Nuremberg, Germany; *Understanding the mechanics of particulate solids: particles to continuum*
- 06.03.2019, Talk (invited by Stefan Heinrich), VDI-DECHEMA, Lausanne, CH; *Upscaling from particles to continuum theory*
- 14.03.2019, Plenary (invited by Christoph Kloss), 3rd CFDEM conference, Linz, Austria; *How to upscale from particles to continuum theory*
- 16.04.2019, Talk (invited by Kai Huang), Sino-German Workshop, Schloss Banz, Germany; *Micro-macro: From particles to continuum*
- 15.05.2019, Talk (invited by Laura Vargas & Arturo Susarrey), AM Workshop, UT, NL; *Multiscale modeling approaches for powders in additive manufacturing*
- 30.07.2019, Keynote (invited by Jin Ooi), Int. Particle Technology Forum IPTF7, Edinburgh, UK; *Multiscale and multiphase modelling and simulation*
- 13.09.2019, Keynote (invited by Wei Wu), BOKU, Vienna, Austria; *Particle-Fluid coupling by SPH and other means*
- 28.10.2019, Invited session and talk (invited by E. Onate), Particles 2019, Barcelona, Spain; *Micro-macro: From particles to continuum-theory*
- 12.12.2019, Keynote, Segregation Forum (invited by Anthony Thornton), UT, NL; *Review on segregation in flowing and vibrated granular systems*

List of publications

Status: *ISI-Web of Science* (28.08.2019) **h-index 45**

7 books and 315 publications in total, 217 ISI papers, 6093 citations.

-Journal Editor

- [J1] Managing Editor-in-Chief: *Granular Matter*, Springer, since 1998.
- [J2] Editor/Advisory Board Member: *Particuology*, since 2009.
- [J3] Editor: *Journal of Computational Particle Mechanics*, since 2013.
- [J4] Editor: *AGEM²*, *Springer Book Series*, since 2013 .

-Books

- [B1] H. J. Herrmann, J-P Hovi, and S. Luding (eds.), *Physics of dry granular media*, NATO-ASI Series E 350, Kluwer academic publishers, Dordrecht, 1998
- [B2] T. Pöschel, S. Luding, (eds.), *Granular gases*, Lecture Notes in Physics 564, Springer Verlag, Berlin, 2001
- [B3] P. A. Vermeer, S. Diebels, W. Ehlers, H. J. Herrmann, S. Luding, E. Ramm (eds.), *Continuous and Discontinuous Modelling of Cohesive-Frictional Materials*, Lecture Notes in Physics 568, Springer Verlag, Berlin, 2001
- [B4] S. P. Hoogendoorn, S. Luding, P. H. L. Bovy, M. Schrekenberg, D. E. Wolf (eds.), [Traffic and Granular Flow '03](#), Springer Verlag, Berlin, 2005
- [B5] M. Nakagawa and S. Luding (Eds.), [Powders and Grains 2009, AIP Conference Proceedings #1145, ISBN 978-0-7354-0682-7](#) (1124 pages), 2009
- [B6] A. Yu, K. Dong, R. Yang, and S. Luding (Eds.), [Powders and Grains 2013, AIP Conf. Procs. #1542, ISBN: 978-0-7354-1166-1](#) (1311 pages), 2013
- [B7] F. Radjai, S. Nezamabadi, S. Luding, and J.-Y. Delenne (Eds.), [Powders and Grains 2017, EPJ Web of Conferences, vol. 140, 2017](#) (395 papers, 1620 pages)

Many papers in the electronic version of this document are clickable; all papers, also some newer ones, just submitted, are available on:

<http://www2.msm.ctw.utwente.nl/sluding/publications.html>

2019

Boschan, J, Luding, S & Tighe, BP 2019, 'Jamming and irreversibility' *Granular matter*, vol. 21, no. 3, 58.
<https://doi.org/10.1007/s10035-019-0911-9>

Cheng, H, Shuku, T, Thoeni, K, Tempone, P, Luding, S & Magnanimo, V 2019, 'An iterative Bayesian filtering framework for fast and automated calibration of DEM models' *Computer methods in applied mechanics and engineering*, vol. 350, pp. 268-294. <https://doi.org/10.1016/j.cma.2019.01.027>

Denissen, IFC, Weinhart, T, Te Voortwis, A, Luding, S, Gray, JMNT & Thornton, AR 2019, 'Bulbous head formation in bidisperse shallow granular flow over an inclined plane' *Journal of fluid mechanics*, vol. 866, pp. 263-297.
<https://doi.org/10.1017/jfm.2019.63>

Cheng, H, Luding, S, Saitoh, K & Magnanimo, V 2019, 'Elastic wave propagation in dry granular media: effects of probing characteristics and stress history' *International journal of solids and structures*. <https://doi.org/10.1016/j.ijsol-str.2019.03.030>

Cheng, H, Luding, S, Rivas, N, Harting, J & Magnanimo, V 2019, 'Hydro-micromechanical modeling of wave propagation in saturated granular crystals' *International journal for numerical and analytical methods in geomechanics*, vol. 43, no. 5, pp. 1115-1139. <https://doi.org/10.1002/nag.2920>

Luding, S 2019, 'Meso-scale transport in sticky granular fluids' *Journal of fluid mechanics*, vol. 864, pp. 1-4. <https://doi.org/10.1017/jfm.2019.34>

Rivas, NA, Luding, S & van der Meer, D 2019, 'Macroscopically equivalent granular systems with different numbers of particles' *Journal of Physics Communications*, vol. 3, no. 3, 035006. <https://doi.org/10.1088/2399-6528/ab034a>

Saitoh, K, Oyama, N, Ogushi, F & Luding, S 2019, 'Transition rates for slip-avalanches in soft athermal disks under quasi-static simple shear deformations' *Soft matter*, vol. 15, no. 17, pp. 3487-3492. <https://doi.org/10.1039/c8sm01966e>

Roy, S, Scheper, BJ, Polman, H, Thornton, AR, Tunuguntla, DR, Luding, S & Weinhart, T 2019, 'Surface flow profiles for dry and wet granular materials by Particle Tracking Velocimetry; the effect of wall roughness' *European Physical Journal E*, vol. 42, no. 2, 14. <https://doi.org/10.1140/epje/i2019-11778-x>

Saitoh, K, Shrivastava, RK & Luding, S 2019, 'Rotational sound in disordered granular materials' *Physical review E: covering statistical, nonlinear, biological, and soft matter physics*, vol. 99, no. 1, 012906. <https://doi.org/10.1103/PhysRevE.99.012906>

Cheng, H, Luding, S, Saitoh, K & Magnanimo, V 2019, 'Elastic wave propagation in dry granular media: Effects of probing characteristics and stress history' *International journal of solids and structures*. <https://doi.org/10.1016/j.ijsol-str.2019.03.030>

Jarray, A, Magnanimo, V & Luding, S 2019, 'Wet granular flow control through liquid induced cohesion' *Powder technology*, vol. 341, pp. 126-139. <https://doi.org/10.1016/j.powtec.2018.02.045>

2018

Roy, S, Luding, S & Weinhart, T 2018, 'Liquid redistribution in sheared wet granular media' *Physical review E: covering statistical, nonlinear, biological, and soft matter physics*, vol. 98, no. 5, 052906. <https://doi.org/10.1103/PhysRevE.98.052906>

Fitzgerald, BW, den Otter, WK, Luding, S & Briels, WJ 2018, 'Mesoscale Simulations of the Rheology of Filled Styrene-Butadiene Compounds' *Macromolecular theory and simulations*, vol. 27, no. 5, 1800014. <https://doi.org/10.1002/mats.201800014>

Herrmann, HJ & Luding, S 2018, 'Obituary for Professor Bob Behringer, dear friend and late Editor in Chief of Granular Matter' *Granular matter*, vol. 20, no. 3. <https://doi.org/10.1007/s10035-018-0833-y>

Van Der Vaart, K, Van Schroyen Lantman, MP, Weinhart, T, Luding, S, Ancey, C & Thornton, AR 2018, 'Segregation of large particles in dense granular flows suggests a granular Saffman effect' *Physical review fluids*, vol. 3, no. 7, 074303. <https://doi.org/10.1103/PhysRevFluids.3.074303>

Aumaitre, S, Behringer, RP, Cazaubiel, A, Clement, E, Crassous, J, Durian, DJ, Falcon, E, Fauve, S, Fischer, D, Garcimartin, A, Garrabos, Y, Hou, M, Jia, X, Lecoutre, C, Luding, S, Maza, D, Noirhomme, M, Opsomer, E, Palencia, F, Poeschel, T, Schockmel, J, Sperl, M, Stannarius, R, Vandewalle, N & Yu, P 2018, 'An instrument for studying granular media in low-gravity environment' *Review of scientific instruments*, vol. 89, no. 7, 075103. <https://doi.org/10.1063/1.5034061>

Goncu, F, Luding, S & Bertoldi, K 2018, 'Erratum: Exploiting pattern transformation to tune phononic band gaps in a two-dimensional granular crystal (vol 131, pg EL475, 2012)' *Journal of the Acoustical Society of America*, vol. 143, no. 4, pp. 2182-2183. <https://doi.org/10.1121/1.5031784>

Güven, I, Luding, S & Steeb, H 2018, 'Incoherent waves in fluid-saturated sintered granular systems: Scattering phenomena' *Journal of vibration and acoustics*, vol. 140, no. 1, 011018. <https://doi.org/10.1115/1.4037701>

Mahmoudi, AH, Pozarlik, AK, van der Weide, E, Kersten, SRA, Luding, S & Brem, G 2018, 'Effect of char on the combustion process of multicomponent bio-fuel' *Chemical engineering science*, vol. 175, pp. 286-295. <https://doi.org/10.1016/j.ces.2017.09.053>

Shi, H, Mohanty, R, Chakravarty, S, Cabiscol, R, Morgeneyer, M, Zetzener, H, Y. Ooi, J, Kwade, A, Luding, S & Magnanimo, V 2018, 'Effect of Particle Size and Cohesion on Powder Yielding and Flow' *Kona*, no. 35, 2018014, pp. 226-250. <https://doi.org/10.14356/kona.2018014>

2017

Saitoh, K, Magnanimo, V & Luding, S 2017, 'The effect of microscopic friction and size distributions on conditional probability distributions in soft particle packings' *Computational particle mechanics*, vol. 4, no. 4, pp. 409-417. <https://doi.org/10.1007/s40571-016-0138-z>

Shrivastava, RK & Luding, S 2017, 'Effect of disorder on bulk sound wave speed: A multiscale spectral analysis' *Nonlinear processes in geophysics*, vol. 24, no. 3, pp. 435-454. <https://doi.org/10.5194/npg-24-435-2017>

Thornton, A, Windows-Yule, K, Parker, D & Luding, S 2017, 'An experimental, theoretical and event-driven computational study of narrow vibrofluidised granular materials' *EPJ Web of Conferences*, vol. 140, 15029. <https://doi.org/10.1051/epjconf/201714015029>

Roy, S, Luding, S & Weinhart, T 2017, 'Effect of cohesion on local compaction and granulation of sheared soft granular materials' *EPJ Web of Conferences*, vol. 140, 03065. <https://doi.org/10.1051/epjconf/201714003065>

Taghizadeh Bajgirani, K, Steeb, H, Magnanimo, V & Luding, S 2017, 'Elastic waves in particulate glass-rubber mixture: Experimental and numerical investigations/studies' *EPJ Web of Conferences*, vol. 140, 12019. <https://doi.org/10.1051/epjconf/201714012019>

Kievitsbosch, R, Smit, H, Magnanimo, V, Luding, S & Taghizadeh Bajgirani, K 2017, 'Influence of dry cohesion on the micro- and macro-mechanical properties of dense polydisperse powders & grains' *EPJ Web of Conferences*, vol. 140, 08016. <https://doi.org/10.1051/epjconf/201714008016>

Fuchs, R, Weinhart, T, Ye, M, Luding, S, Butt, HJ & Kappl, M 2017, 'Initial stage sintering of polymer particles - Experiments and modelling of size-, temperature- and time-dependent contacts' *EPJ Web of Conferences* , vol. 140, 13012. <https://doi.org/10.1051/epjconf/201714013012>

Jarray, A, Magnanimo, V, Ramaioli, M & Luding, S 2017, 'Scaling of wet granular flows in a rotating drum' *EPJ Web of Conferences* , vol. 140, 03078. <https://doi.org/10.1051/epjconf/201714003078>

Shi, H, Luding, S & Magnanimo, V 2017, 'Steady state rheology from homogeneous and locally averaged simple shear simulations' *EPJ Web of Conferences* , vol. 140, 03070, pp. 1-4. <https://doi.org/10.1051/epjconf/201714003070>

Tolomeo, M, Saitoh, K, Gaël, C, Luding, S, Magnanimo, V, Richefeu, V & Viggiani, G 2017, 'Stochastic model for the micromechanics of jammed granular materials: Experimental studies and numerical simulations' *EPJ Web of Conferences* , vol. 140, 02021. <https://doi.org/10.1051/epjconf/201714002021>

Shrivastava, RK & Luding, S 2017, 'Wave propagation of spectral energy content in a granular chain' *EPJ Web of Conferences* , vol. 140, 02023. <https://doi.org/10.1051/epjconf/201714002023>

Gueven, I, Frijters, S, Harting, J, Luding, S & Steeb, H 2017, 'Hydraulic properties of porous sintered glass bead systems' *Granular matter*, vol. 19, no. 2. <https://doi.org/10.1007/s10035-017-0705-x>

Merkel, APL & Luding, S 2017, 'Enhanced micropolar model for wave propagation in ordered granular materials' *International journal of solids and structures*, vol. 106-107, pp. 91-105. <https://doi.org/10.1016/j.ijsolstr.2016.11.029>

Roy, S, Luding, S & Weinhart, T 2017, 'A general(ized) local rheology for wet granular materials' *New journal of physics*, vol. 19, 043014. <https://doi.org/10.1088/1367-2630/aa6141>

2016

Imole, OI, Paulick, M, Magnanimo, V, Morgenmeyer, M, Ramaioli, M, Chavez Montes, BE, Kwade, A & Luding, S 2016, 'Slow stress relaxation behavior of cohesive powders' *Powder technology*, vol. 293, no. 11412, 11412, pp. 82-93. <https://doi.org/10.1016/j.powtec.2015.12.023>

Weinhart, T, Labra, C, Luding, S & Ooi, JY 2016, 'Influence of coarse-graining parameters on the analysis of DEM simulations of silo flow' *Powder technology*, vol. 293, pp. 138-148. <https://doi.org/10.1016/j.powtec.2015.11.052>

Roy, S, Singh, A, Luding, S & Weinhart, T 2016, 'Micro–macro transition and simplified contact models for wet granular materials' *Computational particle mechanics*, vol. 3, no. 4, pp. 449-462. <https://doi.org/10.1007/s40571-015-0061-8>

Krijgsman, D & Luding, S 2016, 'Simulating granular materials by energy minimization' *Computational particle mechanics*, vol. 3, no. 4, pp. 463-475. <https://doi.org/10.1007/s40571-016-0105-8>

Vescovi, D & Luding, S 2016, 'Merging fluid and solid granular behavior' *Soft matter*, no. 41, pp. 8616-8628. <https://doi.org/10.1039/C6SM01444E>

Zhao, J, Jiang, M, Soga, K & Luding, S 2016, 'Micro origins for macro behavior in granular media' *Granular matter*, vol. 18, no. 59, pp. 1-5. <https://doi.org/10.1007/s10035-016-0662-9>

Kumar, N & Luding, S 2016, 'Memory of jamming—multiscale models for soft and granular matter' *Granular matter*, vol. 18, 58. <https://doi.org/10.1007/s10035-016-0624-2>

Imole, OI, Krijgsman, D, Weinhart, T, Magnanimo, V, Chavez Montes, BE, Ramaioli, M & Luding, S 2016, 'Reprint of "Experiments and discrete element simulation of the dosing of cohesive powders in a simplified geometry"' *Powder technology*, vol. 293, pp. 69-81. <https://doi.org/10.1016/j.powtec.2015.07.052>

Singh, A, Magnanimo, V & Luding, S 2016, 'A contact model for sticking of adhesive meso-particles' *Arxiv.org*, no. 1503.03720v2, 1503.03720v2, pp. 1-55.

Kumar, N, Magnanimo, V, Ramaioli, M & Luding, S 2016, 'Tuning the bulk properties of bidisperse granular mixtures by small amount of fines' *Powder technology*, vol. 293, pp. 94-112. <https://doi.org/10.1016/j.powtec.2015.11.042>

Luding, S 2016, 'Granular matter: So much for the jamming point' *Nature physics*, vol. 12, pp. 531-532. <https://doi.org/10.1038/nphys3680>

Imole, OI, Krijgsman, D, Weinhart, T, Magnanimo, V, Chavez Montes, BE, Ramaioli, M & Luding, S 2016, 'Experiments and discrete element simulation of the dosing of cohesive powders in a simplified geometry' *Powder technology*, vol. 287, pp. 108-120. <https://doi.org/10.1016/j.powtec.2015.07.051>

Rubio-Largo, SM, Alonso-Marroquin, F, Weinhart, T, Luding, S & Hidalgo, RC 2016, 'Homogeneous cooling state of frictionless rod particles' *Physica A*, vol. 443, pp. 477 - 485.

Ooi, JY, Magnanimo, V, Sun, J & Luding, S 2016, 'Particle Modelling with the Discrete Element Method: A success story of PARDEM' *Powder technology*, vol. 293, pp. 1-2. <https://doi.org/10.1016/j.powtec.2016.03.020>

2015

Saitoh, K, Magnanimo, V & Luding, S 2015, 'A Master equation for the probability distribution functions of overlaps between particles in two dimensional granular packings' *Soft matter*, vol. 11, no. 7, pp. 1253-1258. <https://doi.org/10.1039/C4SM02452D>

Gonzalez Briones, S, Windows-Yule, K, Luding, S, Parker, DJ & Thornton, AR 2015, 'Forced axial segregation in axially inhomogeneous rotating systems' *Physical review E: Statistical, nonlinear, and soft matter physics*, vol. 92, no. 2, 022202, pp. 022202. <https://doi.org/10.1103/PhysRevE.92.022202>

Rivas Abud, N, Thornton, AR, Luding, S & van der Meer, RM 2015, 'From the granular Leidenfrost state to buoyancy-driven convection' *Physical review E: Statistical, nonlinear, and soft matter physics*, vol. 91, no. 4, 042202, pp. 042202-. <https://doi.org/10.1103/PhysRevE.91.042202>

Singh, A, Magnanimo, V, Saitoh, K & Luding, S 2015, 'Role of gravity or confining pressure and contact stiffness in granular rheology' *New journal of physics*, vol. 17, 043028. <https://doi.org/10.1088/1367-2630/17/4/043028>

2014

Gonzalez Briones, S, Thornton, AR & Luding, S 2014, 'Free cooling phase-diagram of hard-spheres with short- and long-range interactions' *European physical journal. Special topics*, vol. 223, no. 11, pp. 2205-2225. <https://doi.org/10.1140/epjst/e2014-02259-x>

Harting, JDR, Frijters, M, Ramaioli, M, Wolf, DE & Luding, S 2014, 'Recent advances in the simulation of particle-laden flows' *European physical journal. Special topics*, vol. 223, no. 11, pp. 2253-2267. <https://doi.org/10.1140/epjst/e2014-02262-3>

Sanli, C, Saitoh, K, Luding, S & van der Meer, D 2014, 'Collective motion of macroscopic spheres floating on capillary ripples: Dynamic heterogeneity and dynamic criticality' *Physical review E: Statistical, nonlinear, and soft matter physics*, vol. 90, no. 033018, 033018, pp. -. <https://doi.org/10.1103/PhysRevE.90.033018>

Singh, A, Magnanimo, V, Saitoh, K & Luding, S 2014, 'Effect of cohesion on shear banding in quasistatic granular materials' *Physical review E: Statistical, nonlinear, and soft matter physics*, vol. 90, no. 022202, 022202. <https://doi.org/10.1103/PhysRevE.90.022202>

Lawney, B & Luding, S 2014, 'Frequency filtering in disordered granular chains' *Acta mechanica*, vol. 225, no. 8, pp. 2385-2407. <https://doi.org/10.1007/s00707-014-1130-4>

Kumar, N, Luding, S & Magnanimo, V 2014, 'Macroscopic model with anisotropy based on micro-macro informations,' *Acta mechanica*, vol. 225, no. 8, pp. 2319-2343. <https://doi.org/10.1007/s00707-014-1155-8>

Srivastava, S, Yazdchi, K & Luding, S 2014, 'Meso-scale coupling of FEM/DEM for fluid-particle interactions,' *Philosophical transactions of the Royal Society A- mathematical physical and engineering sciences*, vol. 373, no. 2035, 2035, pp. 1-30. <https://doi.org/10.1098/rsta.2013.0386>

Luding, S & Tomas, J 2014, 'Particles, contacts, bulk behavior' *Granular matter*, vol. 16, no. 3, pp. 279-280. <https://doi.org/10.1007/s10035-014-0510-8>

Krijgsman, D, Ogarko, V & Luding, S 2014, 'Optimal parameters for a hierarchical grid data structure for contact detection in arbitrarily polydisperse particle systems.' *Computational particle mechanics*, vol. 1, no. 3, pp. 357-372. <https://doi.org/10.1007/s40571-014-0020-9>

Albers, B, Bauer, E, Goddard, JD & Luding, S 2014, 'Tribute to Krzysztof Wilmanski' *Acta mechanica*, vol. 225, no. 8, pp. 2161-2162. <https://doi.org/10.1007/s00707-014-1121-5>

Imole, OI, Wojtkowski, M, Magnanimo, V & Luding, S 2014, 'Micro-Macro Correlations and Anisotropy in Granular Assemblies under Uniaxial Loading and Unloading' *Physical review E: covering statistical, nonlinear, biological, and soft matter physics*, vol. 89, no. 042210, 042210. <https://doi.org/10.1103/PhysRevE.89.042210>

Kumar, N, Imole, OI, Magnanimo, V & Luding, S 2014, 'Effects of polydispersity on the micro-macro behavior of granular assemblies under different deformation paths' *Particuology*, vol. 12, pp. 64-79. <https://doi.org/10.1016/j.partic.2013.07.011>

Fuchs, R, Weinhart, T, Meyer, J, Zhuang, H, Staedler, T, Jiang, X & Luding, S 2014, 'Rolling, sliding and torsion of micron-sized silica particles: experimental, numerical and theoretical analysis' *Granular matter*, vol. 16, no. 3, pp. 281-297. <https://doi.org/10.1007/s10035-014-0481-9>

Ogarko, V, Rivas Abud, N & Luding, S 2014, 'Structure characterization of hard sphere packings in amorphous and crystalline states' *Journal of chemical physics*, vol. 140, no. 211102, 211102, pp. -. <https://doi.org/10.1063/1.4880236>

2013

Rivas, N, Luding, S & Thornton, AR 2013, 'Low-frequency oscillations in narrow vibrated granular systems' *New journal of physics*, vol. 15, no. 11, 113043. <https://doi.org/10.1088/1367-2630/15/11/113043>

Eshuis, PG, van der Weele, JP, Alam, M, van Gerner, HJ, van der Hoef, MA, Kuipers, JAM, Luding, S, van der Meer, RM & Lohse, D 2013, 'Buoyancy driven convection in vertically shaken granular matter: experiment, numerics, and theory' *Granular matter*, vol. 15, no. 6, pp. 893-911. <https://doi.org/10.1007/s10035-013-0440-x>

Hartkamp, R, Todd, BD & Luding, S 2013, 'A constitutive framework for the non-Newtonian pressure tensor of a simple fluid under planar flows' *Journal of chemical physics*, vol. 138, no. 24, 244508, pp. 1-11. <https://doi.org/10.1063/1.4810746>

Weinhart, T, Hartkamp, R, Thornton, AR & Luding, S 2013, 'Coarse-grained local and objective continuum description of three-dimensional granular flows down an inclined surface' *Physics of fluids*, vol. 25, no. 7, 070605. <https://doi.org/10.1063/1.4812809>

Göncü, F & Luding, S 2013, 'Effect of particle friction and polydispersity on the macroscopic stress-strain relations of granular materials' *Acta geotechnica*, vol. 8, no. 6, pp. 629-643. <https://doi.org/10.1007/s11440-013-0258-z>

Robinson, MJ, Luding, S & Ramaioli, M 2013, 'Fluid-particle flow simulations using two-way-coupled mesoscale SPH-DEM and validation' *International journal of multiphase flow*, vol. 59, pp. 121-134. <https://doi.org/10.1016/j.ijmultiphaseflow.2013.11.003>

Narvaez, A, Yazdchi, K, Luding, S & Harting, J 2013, 'From creeping to inertial flow in porous media: a lattice Boltzmann - Finite Element' *Journal of statistical mechanics : theory and experiment*, vol. 2013, no. P02038, P02038, pp. 1-9. <https://doi.org/10.1088/1742-5468/2013/02/P02038>

Imole, OI, Kumar, N, Magnanimo, V & Luding, S 2013, 'Hydrostatic and shear behavior of frictionless granular assemblies under different deformation conditions' *Kona*, vol. 30, pp. 84-108.

Thornton, AR, Krijgsman, D, Fransen, RHA, Gonzalez Briones, S, Tunuguntla, DR, te Voortwis, A, Luding, S, Bokhove, O & Weinhart, T 2013, 'Mercury-DPM: Fast particle simulations in complex geometries' *EnginSoft newsletter simulation based engineering & sciences*, vol. 10, no. 1, pp. 48-53.

Thornton, AR, Weinhart, T, Ogarko, V & Luding, S 2013, 'Multi-scale methods for multi-component granular materials' *Computer methods in materials science*, vol. 13, no. 2, pp. 197-212.

Thornton, AR, Weinhart, T, Ogarko, V & Luding, S 2013, 'Multi-scale methods for multi-component granular materials' *Computer methods in materials science*, vol. 13, no. 2, pp. 197-212.

Ogarko, V & Luding, S 2013, 'Prediction of polydisperse hard-sphere mixture behavior using tridisperse systems' *Soft matter*, vol. 9, pp. 9530-9534. <https://doi.org/10.1039/C3SM50964H>

Wang, X, Zhu, HP, Luding, S & Yu, AB 2013, 'Regime transitions of granular flow in a shear cell: A micromechanical study' *Physical review E: Statistical, nonlinear, and soft matter physics*, vol. 88, no. 3. <https://doi.org/10.1103/PhysRevE.88.032203>

Schwarze, R, Gladkyy, A, Uhlig, F & Luding, S 2013, 'Rheology of weakly wetted granular materials - a comparison of experimental and numerical data' *Granular matter*, vol. 15, no. 6, pp. 455-465. <https://doi.org/10.1007/s10035-013-0430-z>

Yazdchi, K & Luding, S 2013, 'Upscaling and microstructural analysis of the flow-structure relation perpendicular to random, parallel fiber arrays' *Chemical engineering science*, vol. 98, pp. 173-185. <https://doi.org/10.1016/j.ces.2013.04.049>

2012

Hartkamp, R, Ghosh, A, Weinhart, T & Luding, S 2012, 'A study of the anisotropy of stress in a fluid confined in a nanochannel' *Journal of chemical physics*, vol. 137, no. 4, 044711, pp. 1-19. <https://doi.org/10.1063/1.4737927>

Saitoh, K, Magnanimo, V & Luding, S 2012, 'Slow dynamics near jamming' *AIP conference proceedings*, vol. 1501, pp. 1038-1043. <https://doi.org/10.1063/1.4769656>

Yazdchi, K, Srivastava, S & Luding, S 2012, 'Micro-Macro relations for flow through random arrays of cylinders' *Composites Part A: Applied Science and Manufacturing*, vol. 43, no. 11, pp. 2007-2020. <https://doi.org/10.1016/j.compositesa.2012.07.020>

Weinhart, T, Thornton, AR, Luding, S & Bokhove, O 2012, 'Closure relations for shallow granular flows from particle simulations' *Granular matter*, vol. 14, no. 4, pp. 531-552. <https://doi.org/10.1007/s10035-012-0355-y>

Göncü, F, Luding, S & Bertoldi, K 2012, 'Exploiting pattern transformation to tune phononic band gaps in a two-dimensional granular crystal' *Journal of the Acoustical Society of America*, vol. 131, no. 6, pp. EL475-EL480. <https://doi.org/10.1121/1.4718384>

Markesteyn, AP, Hartkamp, R, Luding, S & Westerweel, J 2012, 'A comparison of the value of viscosity for several water models using Poiseuille flow in a nano-channel' *Journal of chemical physics*, vol. 136, no. 13, 134104, pp. 1-8. <https://doi.org/10.1063/1.3697977>

Rivas Abud, N, Cordero, P, Risso, D, Soto, R & Luding, S 2012, 'Characterization of the energy bursts in vibrated shallow granular systems' *Granular matter*, vol. 14, no. 2, pp. 157-162. <https://doi.org/10.1007/s10035-012-0330-7>

Ogarko, V & Luding, S 2012, 'Equation of state and jamming density for equivalent bi- and polydisperse, smooth, hard sphere systems.' *Journal of chemical physics*, vol. 136, no. 12, 124508, pp. 1-12. <https://doi.org/10.1063/1.3694030>

Reza Shaebani, M, Madadi, M, Luding, S & Wolf, DE 2012, 'Influence of polydispersity on micromechanics of granular materials' *Physical review E: Statistical, nonlinear, and soft matter physics*, vol. 85, no. 1, 011301. <https://doi.org/10.1103/PhysRevE.85.011301>

Magnanimo, V & Luding, S 2012, 'A 2D non-linear constitutive model with anisotropy for granular materials' *Philosophical Magazine A: Physics of Condensed Matter, Defects and Mechanical Properties*, pp. -.

Ogarko, V & Luding, S 2012, 'A fast multilevel algorithm for contact detection of arbitrarily polydisperse objects' *Computer physics communications*, vol. 183, no. 4, pp. 931-936. <https://doi.org/10.1016/j.cpc.2011.12.019>

Kumar, N, Imole, OI, Magnanimo, V & Luding, S 2012, 'Deformation Modes for Assemblies of Frictionless Polydisperse Spheres' *Advanced materials research*, vol. 508, pp. 160-165. <https://doi.org/10.4028/www.scientific.net/AMR.508.160>

Thornton, AR, Weinhart, T, Luding, S & Bokhove, O 2012, 'Frictional dependence of shallow-granular flows from discrete particle simulations' *European physical journal. E*, vol. 35, no. 12, pp. 127. <https://doi.org/10.1140/epje/i2012-12127-5>

Weinhart, T, Thornton, AR, Luding, S & Bokhove, O 2012, 'From discrete particles to continuum fields near a boundary' *Granular matter*, vol. 14, no. 2, pp. 289-294. <https://doi.org/10.1007/s10035-012-0317-4>

Thornton, AR, Weinhart, T, Luding, S & Bokhove, O 2012, 'Modeling of particle size segregation: calibration using the discrete particle method' *International journal of modern physics C*, vol. 23, no. 8, 1240014. <https://doi.org/10.1142/S0129183112400141>

Yazdchi, K & Luding, S 2012, 'Towards unified drag laws for inertial flow through fibrous materials' *Chemical Engineering Journal*, vol. 207-208, pp. 35-48. <https://doi.org/10.1016/j.cej.2012.06.140>

2011

Magnanimo, V & Luding, S 2011, 'A local constitutive model with anisotropy for ratcheting under 2D biaxial isobaric deformation' *Granular matter*, vol. 13, no. 3, pp. 225-232. <https://doi.org/10.1007/s10035-011-0266-3>

Luding, S & Perdahcioglu, ES 2011, 'A local constitutive model with anisotropy for various homogeneous 2D biaxial deformation modes' *Chemie-Ingenieur-Technik*, vol. 83, no. 5, pp. 672-688. <https://doi.org/10.1002/cite.201000180>

González, S, Gonzalez Briones, S, Thornton, AR & Luding, S 2011, 'An event driven algorithm for fractal cluster formation' *Computer physics communications*, vol. 22, no. 1, pp. 7-14. <https://doi.org/10.1016/j.cpc.2010.11.010>

- Göncü, F, Göncü, F, Willshaw, S, Shim, J, Cusack, J, Luding, S, Mullin, T & Bertoldi, K 2011, 'Deformation induced pattern transformation in a soft granular crystal' *Soft matter*, vol. 7, no. 6, pp. 2321-2324. <https://doi.org/10.1039/C0SM01408G>
- Luding, S 2011, 'From discrete particles to solids - about sintering and self-healing (Review)' *Computer methods in materials science*, vol. 11, no. 1, pp. 53-63.
- Müller, MK & Luding, S 2011, 'Homogeneous Cooling with Repulsive and Attractive Long-Range Potentials' *Mathematical modelling of natural phenomena*, vol. 6, no. 4, pp. 118-150. <https://doi.org/10.1051/mmnp/20116406>
- Yazdchi, K, Srivastava, S & Luding, S 2011, 'Microstructural effects on the permeability of periodic fibrous porous media' *International journal of multiphase flow*, vol. 37, no. 8, pp. 956-966. <https://doi.org/10.1016/j.ijmultiphaseflow.2011.05.003>
- Singh, A, Magnanimo, V & Luding, S 2011, 'Sticking of cohesive particles in elasto-plastic collisions' *Granular matter*, pp. -.
- Luding, S & Alonso-Marroquin, F 2011, 'The critical-state yield stress (termination locus) of adhesive powders from a single numerical experiment' *Granular matter*, vol. 13, no. 2, pp. 109-119. <https://doi.org/10.1007/s10035-010-0241-4>
- ## 2010
- Duran Vinent, O, Durán, O, Kruyt, NP & Luding, S 2010, 'Analysis of three-dimensional micro-mechanical strain formulations for granular materials: evaluation of accuracy' *International journal of solids and structures*, vol. 47, no. 2, pp. 251-260. <https://doi.org/10.1016/j.ijsolstr.2009.09.035>
- Otsuki, M, Hayakawa, H & Luding, S 2010, 'Behavior of pressure and viscosity at high densities for two-dimensional hard and soft granular materials' *Progress of Theoretical Physics. Supplement*, no. 184, pp. 110-133. <https://doi.org/10.1143/PTPS.184.110>
- Gonzalez Briones, S, González, S & Luding, S 2010, 'Consequences of using different pair-correlation functions on the stability properties of the Homogeneous Cooling State for a monodisperse system of near-elastic disks' *European physical journal. Special topics*, vol. 179, no. 1, pp. 55-68. <https://doi.org/10.1140/epjst/e2010-01194-2>
- Göncü, F, Duran Vinent, O, Durán, O & Luding, S 2010, 'Constitutive relations for the isotropic deformation of frictionless packings of polydisperse spheres' *Comptes rendus mécanique*, vol. 338, no. 10-11, pp. 570-586. <https://doi.org/10.1016/j.crme.2010.10.004>
- Müller, MK, Luding, S & Pöschel, T 2010, 'Force Statistics and Correlations in Dense Granular Packings' *Chemical physics*, vol. 375, no. 2-3, pp. 600-605. <https://doi.org/10.1016/j.chemphys.2010.07.020>
- Duran Vinent, O, Durán, O, Kruyt, NP & Luding, S 2010, 'Micro-mechanical analysis of deformation characteristics of three-dimensional granular materials' *International journal of solids and structures*, vol. 47, no. 17, pp. 2234-2245. <https://doi.org/10.1016/j.ijsolstr.2010.04.014>

Kruyt, NP, Agnolin, I, Luding, S & Rothenburg, L 2010, 'Micromechanical study of elastic moduli of loose granular materials' *Journal of the mechanics and physics of solids*, vol. 58, no. 9, pp. 1286-1301.
<https://doi.org/10.1016/j.jmps.2010.06.003>

2009

Luding, S & Cleary, P 2009, 'DEM 2007 Editorial' *Granular matter*, vol. 11, no. 5, pp. 267-268.
<https://doi.org/10.1007/s10035-009-0149-z>

Wouterse, A, Luding, S & Philipse, AP 2009, 'On contact numbers in random rod packings' *Granular matter*, vol. 11, no. 3, pp. 169-177. <https://doi.org/10.1007/s10035-009-0126-6>

Mouraille, OJP, Herbst, O, Herbst, O & Luding, S 2009, 'Sound propagation in isotropically and uni-axially compressed cohesive, frictional granular solids' *Engineering fracture mechanics*, vol. 76, no. 6, pp. 786-791.
<https://doi.org/10.1016/j.engfracmech.2008.09.001>

Luding, S 2009, 'Towards dense, realistic granular media in 2D' *Nonlinearity*, vol. 22, no. 12, pp. R101-R146.
<https://doi.org/10.1088/0951-7715/22/12/R01>

2008

Luding, S 2008, 'Cohesive frictional powders: Contact models for tension.' *Granular matter*, vol. 10, no. 4, pp. 235-246.
<https://doi.org/10.1007/s10035-008-0099-x>

Luding, S 2008, 'Constitutive relations for the Shear Band Evolution in Granular Matter under Large Strain' *Particuology*, vol. 6, no. 6, pp. 501-505. <https://doi.org/10.1016/j.partic.2008.07.020>

Luding, S 2008, 'Introduction to Discrete Element Methods: Basics of Contact Force Models' *European journal of environmental and civil engineering*, vol. 12, no. 7-8 Special Issue: Alert Course, Aussois, France), pp. 785-826.

Herbst, O, Herbst, O & Luding, S 2008, 'Modelling particulate self-healing materials and application to uni-axial compression' *International journal of fracture*, vol. 154, no. 1-2, pp. 87-103. <https://doi.org/10.1007/s10704-008-9299-y>

Luding, S & Suiker, ASJ 2008, 'Self-healing of damaged particulate materials through materials through sintering' *Philosophical Magazine*, vol. 88, no. 28-29, pp. 3445-3457. <https://doi.org/10.1080/14786430802438176>

Mouraille, OJP & Luding, S 2008, 'Sound wave propagation in weakly polydisperse granular materials' *Ultrasonics*, vol. 48, no. 6-7, pp. 498-505. <https://doi.org/10.1016/j.ultras.2008.03.009>

Andersson, R, Bouwman, WG, Luding, S & de Schepper, IM 2008, 'Stress, strain and bulk microstructure in a cohesive powder' *Physical review E: Statistical, nonlinear, and soft matter physics*, vol. 77, no. 5, 051303.
<https://doi.org/10.1103/PhysRevE.77.051303>

Andersson, R, Bouwman, WG, Luding, S & de Schepper, IM 2008, 'Structure in cohesive powder studied with spin-echo small angle neutron scattering' *Granular matter*, vol. 10, no. 6, pp. 407-414. <https://doi.org/10.1007/s10035-008-0109-z>

Luding, S 2008, 'The effect of friction on wide shear bands' *Particulate science and technology*, vol. 26, no. 1, pp. 33-42. <https://doi.org/10.1080/02726350701759167>

Alam, M, Shukla, P & Luding, S 2008, 'Universality of shear-banding instability and crystallization in sheared granular fluids' *Journal of fluid mechanics*, vol. 615, pp. 293-321. <https://doi.org/10.1017/S0022112008003832>

2007

Majmudar, TS, Sperl, M, Luding, S & Behringer, RP 2007, 'Jamming transition in granular systems.' *Physical review letters*, vol. 98, no. 5, 058001, pp. 1-4. <https://doi.org/10.1103/PhysRevLett.98.058001>

David, C, Garcia-Rojo, R, Herrmann, HJ & Luding, S 2007, 'Powder flow testing with 2D and 3D biaxial and triaxial simulations' *Particle & particle systems characterization*, vol. 24, no. 1, pp. 29-33. <https://doi.org/10.1002/ppsc.200601052>

Tykhoniuk, R, Tomas, J, Luding, S, Kappl, M, Heim, L & Butt, H-J 2007, 'Ultrafine Cohesive Powders: From Interparticle Contacts to Continuum Behaviour.' *Chemical engineering science*, vol. 62, no. 11, pp. 2843-2864. <https://doi.org/10.1016/j.ces.2007.02.027>

2006

Mouraille, O, Mulder, WA & Luding, S 2006, 'Sound wave acceleration in granular materials' *Journal of statistical mechanics : theory and experiment*, no. 7, P07023. <https://doi.org/10.1088/1742-5468/2006/07/P07023>

Montanero, JM, Garzó, V, Alam, M & Luding, S 2006, 'Rheology of two- and three-dimensional granular mixtures under uniform shear flow: Enskog kinetic theory versus molecular dynamics simulations' *Granular matter*, vol. 8, no. 2, pp. 103-115. <https://doi.org/10.1007/s10035-006-0001-7>

García-Rojo, R, Luding, S & Brey, JJ 2006, 'Transport coefficients for dense hard-disk systems' *Physical review E: covering statistical, nonlinear, biological, and soft matter physics*, vol. 74, no. 6, 061305. <https://doi.org/10.1103/PhysRevE.74.061305>

2005

Luding, S 2005, 'Shear flow modeling of cohesive and frictional fine powder' *Powder technology*, vol. 158, no. 1-3, pp. 45-50. <https://doi.org/10.1016/j.powtec.2005.04.018>

Luding, S 2005, 'Anisotropy in cohesive, frictional granular media' *Journal of Physics Condensed Matter*, vol. 17, no. 24. <https://doi.org/10.1088/0953-8984/17/24/017>

Luding, S 2005, 'Structure and cluster formation in granular media' *Pramana - Journal of Physics*, vol. 64, no. 6 SPEC. ISS., pp. 893-902.

Alonso-Marroquin, F, Luding, S, Herrmann, HJ & Vardoulakis, I 2005, 'Role of anisotropy in the elastoplastic response of a polygonal packing' *Physical review E: covering statistical, nonlinear, biological, and soft matter physics*, vol. 71, no. 5, 051304. <https://doi.org/10.1103/PhysRevE.71.051304>

Luding, S, Manetsberger, K & Müllers, J 2005, 'A discrete model for long time sintering' *Journal of the mechanics and physics of solids*, vol. 53, no. 2, pp. 455-491. <https://doi.org/10.1016/j.jmps.2004.07.001>

Herbst, O, Cafiero, R, Zippelius, A, Herrmann, HJ & Luding, S 2005, 'A driven two-dimensional granular gas with Coulomb friction' *Physics of fluids*, vol. 17, no. 10, 107102. <https://doi.org/10.1063/1.2049277>

Alam, M & Luding, S 2005, 'Energy nonequipartition, rheology, and microstructure in sheared bidisperse granular mixtures' *Physics of fluids*, vol. 17, no. 6, 063303, pp. 1-18. <https://doi.org/10.1063/1.1938567>

2004

Luding, S & Santos, A 2004, 'Molecular dynamics and theory for the contact values of the radial distribution functions of hard-disk fluid mixtures' *Journal of chemical physics*, vol. 121, no. 17, pp. 8458-8465. <https://doi.org/10.1063/1.1797213>

Luding, S 2004, 'Micro-macro transition for anisotropic, frictional granular packings' *International journal of solids and structures*, vol. 41, no. 21, pp. 5821-5836. <https://doi.org/10.1016/j.ijsolstr.2004.05.048>

Madadi, M, Tsoungui, O, Lätzel, M & Luding, S 2004, 'On the fabric tensor of polydisperse granular materials in 2D' *International journal of solids and structures*, vol. 41, no. 9-10, pp. 2563-2580. <https://doi.org/10.1016/j.ijsolstr.2003.12.005>

Miller, S & Luding, S 2004, 'Cluster growth in two- and three-dimensional granular gases' *Physical Review E - Statistical, Nonlinear, and Soft Matter Physics*, vol. 69, no. 3 1, 031305. <https://doi.org/10.1103/PhysRevE.69.031305>

Miller, S & Luding, S 2004, 'Event-driven molecular dynamics in parallel' *Journal of computational physics*, vol. 193, no. 1, pp. 306-316. <https://doi.org/10.1016/j.jcp.2003.08.009>

2003

Luding, S, Tykhoniak, R & Tomas, J 2003, 'Anisotropic material behavior in dense, cohesive-frictional powders' *Chemical engineering and technology*, vol. 26, no. 12, pp. 1229-1232. <https://doi.org/10.1002/ceat.200303236>

Luding, S & Goldshtein, A 2003, 'Collisional cooling with multi-particle interactions' *Granular matter*, vol. 5, no. 3, pp. 159-163. <https://doi.org/10.1007/s10035-003-0136-8>

Lätzel, M, Luding, S, Herrmann, HJ, Howell, DW & Behringer, RP 2003, 'Comparing simulation and experiment of a 2D granular Couette shear device' *European Physical Journal E*, vol. 11, no. 4, pp. 325-333. <https://doi.org/10.1140/epje/i2002-10160-7>

Alam, M & Luding, S 2003, 'Rheology of bidisperse granular mixtures via event-driven simulations' *Journal of fluid mechanics*, no. 476, pp. 69-103. <https://doi.org/10.1017/S002211200200263X>

Muth, B, Eberhard, P & Luding, S 2003, 'Contact Simulation for Many Particles Considering Adhesion' *Mechanics Based Design of Structures and Machines*, vol. 31, no. 3, pp. 433-457. <https://doi.org/10.1081/SME-120022858>

Herrmann, HJ, Luding, S & Cafiero, R 2003, 'Dynamics of granular media' *Revista Mexicana de Fisica*, vol. 49, no. SUPPL. 3, pp. 29-32.

Alam, M & Luding, S 2003, 'First normal stress difference and crystallization in a dense sheared granular fluid' *Physics of fluids*, vol. 15, no. 8, pp. 2298-2312. <https://doi.org/10.1063/1.1587723>

2002

Alam, M & Luding, S 2002, 'How good is the equipartition assumption for the transport properties of a granular mixture?' *Granular matter*, vol. 4, no. 3, pp. 139-142. <https://doi.org/10.1007/s10035-002-0110-x>

Cafiero, R, Luding, S & Herrmann, HJ 2002, 'Rotationally driven gas of inelastic rough spheres' *Europhysics letters*, vol. 60, no. 6, pp. 854-860. <https://doi.org/10.1209/epl/i2002-00295-7>

Luding, S 2002, 'Structures and non-equilibrium dynamics in granular media' *Comptes rendus physique*, vol. 3, no. 2, pp. 153-161. [https://doi.org/10.1016/S1631-0705\(02\)01308-7](https://doi.org/10.1016/S1631-0705(02)01308-7)

Alam, M, Willits, JT, Arnarson, BÖ & Luding, S 2002, 'Kinetic theory of a binary mixture of nearly elastic disks with size and mass disparity' *Physics of fluids*, vol. 14, no. 11, pp. 4085-4087. <https://doi.org/10.1063/1.1509066>

Quinn, PV, Hong, DC & Luding, S 2002, 'Quinn, Hong, and Luding Reply' *Physical review letters*, vol. 89, no. 18. <https://doi.org/10.1103/PhysRevLett.89.189602>

2001

Luding, S, Lätzel, M, Volk, W, Diebels, S & Herrmann, HJ 2001, 'From discrete element simulations to a continuum model' *Computer methods in applied mechanics and engineering*, vol. 191, no. 1-2, pp. 21-28. [https://doi.org/10.1016/S0045-7825\(01\)00242-0](https://doi.org/10.1016/S0045-7825(01)00242-0)

Geng, J, Howell, D, Longhi, E, Behringer, RP, Reydellet, G, Vanel, L, Clément, E & Luding, S 2001, 'Footprints in sand: The response of a granular material to local perturbations' *Physical review letters*, vol. 87, no. 3, 035506, pp. 355061-355064.

Hong, DC, Quinn, PV & Luding, S 2001, 'Reverse Brazil nut problem: Competition between percolation and condensation' *Physical review letters*, vol. 86, no. 15, pp. 3423-3426. <https://doi.org/10.1103/PhysRevLett.86.3423>

Luding, S 2001, 'Global equation of state of two-dimensional hard sphere systems' *Physical Review E - Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics*, vol. 63, no. 4. <https://doi.org/10.1103/PhysRevE.63.042201>

2000

Luding, S 2000, 'On the relevance of "molecular chaos" for granular flows' *ZAMM Zeitschrift für Angewandte Mathematik und Mechanik*, vol. 80, no. 4 SUPPL. 1.

Matuttis, HG, Luding, S & Herrmann, HJ 2000, 'Discrete element simulations of dense packings and heaps made of spherical and non-spherical particles' *Powder technology*, vol. 109, no. 1-3, pp. 278-292. [https://doi.org/10.1016/S0032-5910\(99\)00243-0](https://doi.org/10.1016/S0032-5910(99)00243-0)

Lätzel, M, Luding, S & Herrmann, HJ 2000, 'Macroscopic material properties from quasi-static, microscopic simulations of a two-dimensional shear-cell' *Granular matter*, vol. 2, no. 3, pp. 123-135. <https://doi.org/10.1007/s100350000048>

Cafiero, R, Luding, S & Herrmann, HJ 2000, 'Two-Dimensional Granular Gas of Inelastic Spheres with Multiplicative Driving' *Physical review letters*, vol. 84, no. 26, pp. 6014-6017. <https://doi.org/10.1103/PhysRevLett.84.6014>

1999

Luding, S & Herrmann, HJ 1999, 'Cluster-growth in freely cooling granular media' *Chaos*, vol. 9, no. 3, pp. 673-681. <https://doi.org/10.1063/1.166441>

1998

Duran, J, Luding, S, Clément, E & Rajchenbach, J 1998, 'Decompaction, fragmentation and self organization of granular materials' *Journal of molecular liquids*, vol. 76, no. 3, pp. 221-235. [https://doi.org/10.1016/S0167-7322\(98\)80004-4](https://doi.org/10.1016/S0167-7322(98)80004-4)

McNamara, S & Luding, S 1998, 'Energy nonequipartition in systems of inelastic, rough spheres' *Physical Review E - Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics*, vol. 58, no. 2, pp. 2247-2250. <https://doi.org/10.1103/PhysRevE.58.2247>

Luding, S, Huthmann, M, McNamara, S & Zippelius, A 1998, 'Homogeneous cooling of rough, dissipative particles: Theory and simulations' *Physical Review E - Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics*, vol. 58, no. 3, pp. 3416-3425. <https://doi.org/10.1103/PhysRevE.58.3416>

Luding, S & McNamara, S 1998, 'How to handle the inelastic collapse of a dissipative hard-sphere gas with the TC model' *Granular matter*, vol. 1, no. 3, pp. 113-128. <https://doi.org/10.1007/s100350050017>

McNamara, S & Luding, S 1998, 'Energy flows in vibrated granular media' *Physical review E: covering statistical, nonlinear, biological, and soft matter physics*, vol. 58, no. 1, pp. 813-822. <https://doi.org/10.1103/PhysRevE.58.813>

1997

Luding, S 1997, 'Stress distribution in static two-dimensional granular model media in the absence of friction' *Physical Review E - Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics*, vol. 55, no. 4, pp. 4720-4729. <https://doi.org/10.1103/PhysRevE.55.4720>

1996

Luding, S, Clément, E, Rajchenbach, J & Duran, J 1996, 'Simulations of pattern formation in vibrated granular media' *Europhysics letters*, vol. 36, no. 4, pp. 247-252. <https://doi.org/10.1209/epl/i1996-00217-9>

Duran, J, Mazozi, T, Luding, S, Clément, E & Rajchenbach, J 1996, 'Discontinuous decompaction of a falling sandpile' *Physical Review E - Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics*, vol. 53, no. 2, pp. 1923-1930. <https://doi.org/10.1103/PhysRevE.53.1923>

Luding, S, Duran, J, Clément, E & Rajchenbach, J 1996, 'Simulations of dense granular flow: Dynamic arches and spin organization' *Journal de Physique I*, vol. 6, no. 6, pp. 823-836. <https://doi.org/10.1051/jp1:1996244>

1995

Luding, S 1995, 'Granular materials under vibration: Simulations of rotating spheres' *Physical Review E*, vol. 52, no. 4, pp. 4442-4457. <https://doi.org/10.1103/PhysRevE.52.4442>

Oshanin, G, Stemmer, A, Luding, S & Blumen, A 1995, 'Smoluchowski approach for three-body reactions in one dimension' *Physical Review E*, vol. 52, no. 6, pp. 5800-5805. <https://doi.org/10.1103/PhysRevE.52.5800>

1994

Luding, S, Clément, E, Blumen, A, Rajchenbach, J & Duran, J 1994, 'Anomalous energy dissipation in molecular-dynamics simulations of grains: The detachment effect' *Physical Review E*, vol. 50, no. 5, pp. 4113-4122. <https://doi.org/10.1103/PhysRevE.50.4113>

Luding, S, Clément, E, Blumen, A, Rajchenbach, J & Duran, J 1994, 'Onset of convection in molecular dynamics simulations of grains' *Physical Review E*, vol. 50, no. 3. <https://doi.org/10.1103/PhysRevE.50.R1762>

Luding, S, Herrmann, HJ & Blumen, A 1994, 'Simulations of two-dimensional arrays of beads under external vibrations: Scaling behavior' *Physical Review E*, vol. 50, no. 4, pp. 3100-3108. <https://doi.org/10.1103/PhysRevE.50.3100>

Luding, S, Clément, E, Blumen, A, Rajchenbach, J & Duran, J 1994, 'Studies of columns of beads under external vibrations' *Physical Review E*, vol. 49, no. 2, pp. 1634-1646. <https://doi.org/10.1103/PhysRevE.49.1634>

1991

Luding, S, Schnörrer, H, Kuzovkov, V & Blumen, A 1991, 'Bimolecular annihilation reactions: Immobile reactants and multipolar interactions' *Journal of statistical physics*, vol. 65, no. 5-6, pp. 1261-1267. <https://doi.org/10.1007/BF01049611>

Blumen, A, Luding, S & Sokolov, IM 1991, 'Fluctuation-dominated kinetics in the $a+b \rightarrow 0$ reaction between immobile particles' *Journal of statistical physics*, vol. 65, no. 5-6, pp. 849-857. <https://doi.org/10.1007/BF01049585>

-Others: conference abstracts/posters (about 300/50 – not listed here)