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# Curriculum Vitae

Dr. Tess Homan

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Researcher-ID: K-3180-2014

## Personal & Interests

- Born on October 4, 1986 in the Netherlands
- Interests: Biophysics, Fluid Physics, and Granular matter

## Education & Career

- **2018 - current** — Assistant Professor at the Department of Mechanical Engineering in the Multiphase and Reactive Flows group of prof. dr. ir. Niels Deen, Eindhoven University of Technology.
- **2015 - 2017** — Post-doc at Institut Lumière Matière, with H el ene Delano -Ayari, Charlotte Riviere, and Jean-Paul Rieu, Universit  Claude Bernard Lyon 1.
- **2014 - 2015** — Post-doc on the properties of a dynamic suspension with dr. Sylvain Joubaud and dr. Val rie Vidal at Ecole Normale Sup rieure de Lyon.
- **2013 - 2014** — Post-doc on drag experienced in a granular bed in the Physics of Fluids group, University of Twente.
- **2013** — PhD. on the interaction between air and granular matter with prof. dr. Devaraj van der Meer and prof. dr. Detlef Lohse in the Physics of Fluids group, University of Twente.  
Dissertation: *Fine Sand in Motion: The influence of interstitial air* (DOI: 10.3990/1.9789036506502).
- **2009** — MSc. Applied Physics, University of Twente (*cum laude*, top 10%).
- **2008** — Internship at the University of Maryland with Wolfgang Losert on movement of dictyostelium cells.
- **2008** — Internship at the Danish Technical University with Tomas Bohr on rotating surface flows.
- **2007** — BSc. Applied Physics, University of Twente.

## Teaching & Supervision

- **2017** — Co supervisor of Melanie Hunfan on Master II internship.
- **2017** — Co supervisor of Melina Durande on Master II internship.
- **2016** — Co supervisor of C dric Lebon on Master II internship.
- **2015** — Co supervisor of Cl ment Picard on Master II internship.
- **2013** — Direct supervisor of Christa Gjaltema on Bachelor project *Collapsing granular beds*.

- **2012, 2013** — Tutorial class teacher for *Advanced Fluid Mechanics* course.
- **2005 - 2010** — Teaching assistant for various Bachelor courses.

## References

prof. dr. D. Lohse University of Twente d.lohse@utwente.nl	prof. dr. D. van der Meer University of Twente d.vandermeer@utwente.nl	dr. S. Joubaud ENS de Lyon sylvain.joubaud@ens-lyon.fr	dr. H. Delanoë-Ayari Université Lyon 1 helene.ayari@univ-lyon1.fr
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## Scientific output

### Journal Articles – published

- Tess Homan, Rob Mudde, Detlef Lohse, and Devaraj van der Meer, *X-ray measurements of a ball impacting on loose sand*, J. Fluid Mech. **777**, 690-706 (2015).
- Sylvain Joubaud, Tess Homan, Yoann Gasteuil, Detlef Lohse, and Devaraj van der Meer, *Forces encountered by a sphere during impact into sand*, Phys. Rev. E. **90**, 060201 (2014).
- Tess Homan, Christa Gjaltema, and Devaraj van der Meer, *Collapsing granular beds: The role of interstitial air*, Phys. Rev. E. **89**, 052204 (2014).  
*Editors' Suggestion*
- Gabriel Caballero, Kevin Kelly, Tess Homan, Joost Weijs, Devaraj van der Meer, and Detlef Lohse, *Suction of splash after impact on dry quick sand*, Granular Matter **14**, 179-184 (2012).
- Meghan Driscoll, Colin McCann, Rael Kopace, Tess Homan, John Fourkas, Carole Parent, and Wolfgang Losert, *Cell shape dynamics: From waves to migration*, PLoS comp. bio. **8**, e1002392 (2012).
- Raymond Bergmann, Laust Tophøj, Tess Homan, Pascal Hersen, Anders Andersen, and Tomas Bohr, *Polygon formation and surface flow on a rotating fluid surface*, J. fluid mech. **679**, 415-431 (2011).

### Journal Articles – in preparation

- Tess Homan, H el ene Delano e-Ayari, Alexandre M ejat, Adrien Moreau, *A dedicated analysis process to study the morphology and contractile structures of cardiomyocytes derived from stem cells*, in preparation.
- Tess Homan, H el ene Delano e-Ayari, Alexandre M ejat, Adrien Moreau, *Automatic analysis of striated patterns in cardiac cells*, in preparation.
- Tess Homan, Cl ement Picard, Val erie Vidal, and Sylvain Joubaud, *Dynamic Suspensions created by a continuous airflow*, in preparation.
- Tess Homan and Devaraj van der Meer, *Granular Matter: Giant drag reduction due to interstitial air*, arXiv:1607.07774.
- Tess Homan, Detlef Lohse, and Devaraj van der Meer, *Air entrapment during the impact of a ball on sand*, in preparation.

## Valorisation

- *Analyse Automatis ee des Contractions Cellulaires* – patent pending (2017)
- AUTOBEAT : *Analyse Automatis ee des Contractions Cellulaires* – Project accepted by Pulsalys, Acc el erateur d'innovation (2016)

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## Invited Talks

- *Drag reduction due to interstitial air in a granular medium* – JMBC-Dag 2014. University of Delft, the Netherlands (jan. 2014)
- *Influence of interstitial air in a granular medium* – seminar Laboratoire de Physique, ENS de Lyon, France (sept. 2013)
- *X-ray measurements of a ball impacting on sand* – Physics@FOM 2012. Veldhoven, the Netherlands (jan. 2012)

## Talks

- *Formation and properties of a dynamic suspension* – APS March Meeting 2105. San Antonio, TX, USA (march 2015)
- *Drag reduction due to interstitial air in a granular medium* – MGMA 2104. Montpellier, France (june 2014)
- *Drag reduction due to interstitial air in a granular medium* – APS-DFD Meeting 2013. Pittsburgh, PA, USA (nov. 2013)
- *Force measurements on an intruder in pre-fluidized sand* – APS-DFD Meeting 2012. San Diego, CA, USA (nov. 2012)
- *High-speed x-ray tomographic imaging of a ball impacting on sand* – APS-DFD Meeting 2010. San Francisco, CA, USA (nov. 2010)
- *Rotating triangles on a water surface* – APS-DFD Meeting 2008. San Antonio, TX, USA (nov. 2008)

## Posters

- *Measuring stresses in vivo* – MecanoBio, Grenoble, France (jan. 2017)
- *Force measurements on an intruder in pre-fluidized sand* – Physics@FOM 2013. Veldhoven, the Netherlands (jan. 2013)
- *High-speed X-ray imaging of a ball impacting on sand* – Multidisciplinary summerschool University of Maryland, MA, USA (jun. 2011)
- *High-speed X-ray imaging of a ball impacting on sand* – GRC granular & granular fluid flow. Boston, USA (jun. 2012)
- *High-speed X-ray imaging of a ball impacting on sand* – Physics@FOM 2011. Veldhoven, the Netherlands (jan. 2011)
- *Airflow caused by a ball impacting on soft sand* – GRC granular & granular fluid flow, Boston, USA (jun. 2010)
- *Airflow caused by a ball impacting on soft sand* – Physics@FOM 2010. Veldhoven, the Netherlands (jan. 2010)

Updated: feb 2018