

J.M.Burgerscentrum



Research School for Fluid Mechanics

2017

# BURGERS SYMPOSIUM

Conference Centre 'De Werelt' in Lunteren

30

&

31

MAY

2017

[www.jmburgerscentrum.nl](http://www.jmburgerscentrum.nl)

## TUESDAY 30 MAY

## GENERAL PROGRAMME

Tuesday 30 May 2017

09.30 - 10.30	Registration, coffee/tea
10.30 - 10.40	Plenary: opening
10.40 - 11.30	Plenary: Burgers Lecture by Prof Christophe Clanet, Ecole Polytechnique, Palaiseau, F
11.30 - 12.00	Plenary: 25 years JMBC! Presentations by Prof Jan Sengers and Prof Leen van Wijngaarden
12.00 - 13.00	Lunch
13.00 - 14.45	Parallel sessions : 1 & 2
14.45 - 15.15	Tea / coffee break
15.15 - 15.45	Plenary: pitches by PhD students
15.45 - 17.30	Parallel sessions : 3 & 4
17.30 - 18.30	Posters + Gallery of Fluid Motion + Drinks
Evening programme :	18.30 - 20.00 Joint dinner
	20.30 - 21.30 Plenary: Evening Lecture by Prof Vincent Icke, Leiden, NL
	21.30 Socialising & drinks

## WEDNESDAY 31 MAY

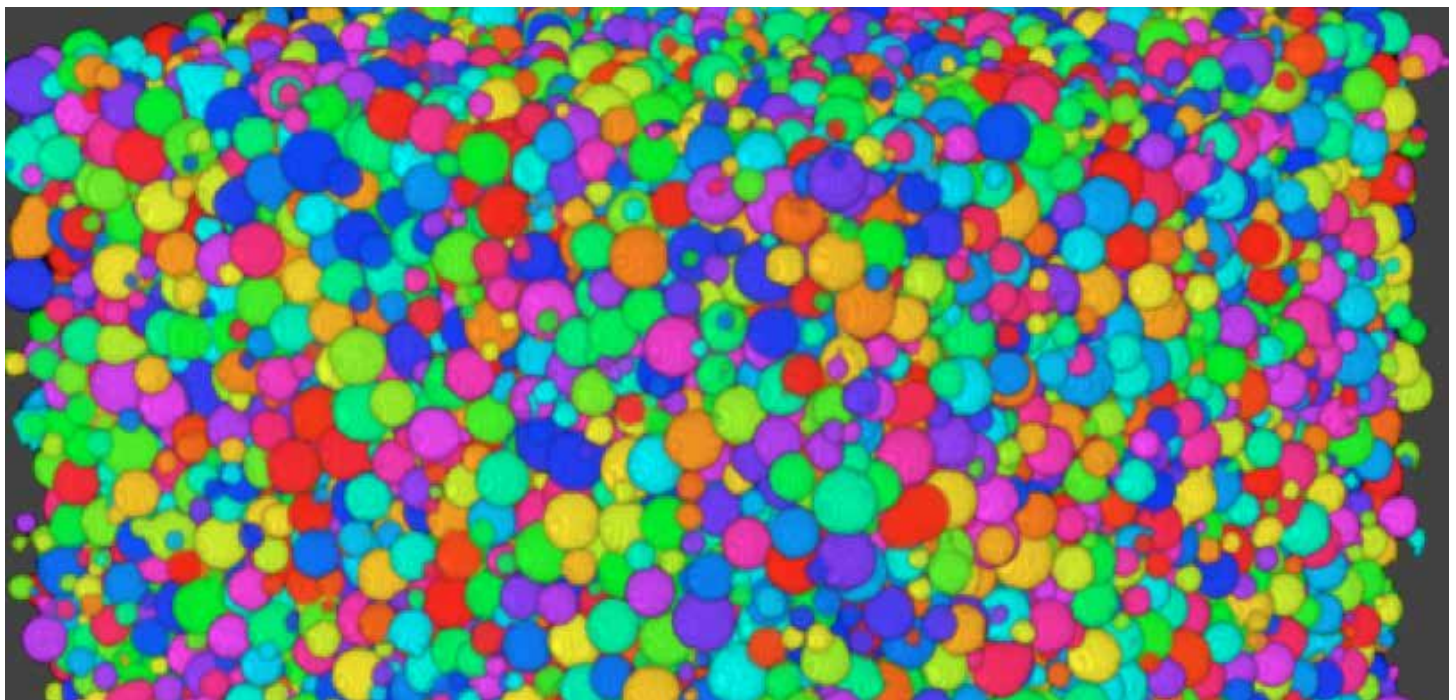
## GENERAL PROGRAMME

Wednesday 31 May 2017

09.00 - 10.30	Parallel sessions : 5 & 6
10.30 - 11.00	Coffee / tea break
11.00 - 12.30	Parallel sessions : 7 & 8
12.30 - 13.30	Lunch
13.30 - 15.00	Parallel sessions : 9 & 10
15.00 - 15.30	Plenary: Awards session
	Charles Hoogendoorn Award (KIVI)
	Laudatio by jury + presentation by recipient
	Announcement winners of the
	- Young Scientist Awards (2x)
	- Gallery of Fluid Motion Award
15.30	Closure & drinks

## PARTICIPATING GROUPS

TUD-PE	3ME - Process & Energy   Boersma, Roekaerts
TUD-FM	3ME - Fluid Mechanics   Westerweel, Henkes, Eckhardt
TUD-ME	3ME - Maritime Engineering   van Rhee
TUD-TP	Chemical Technology - Transport Phenomena   Kleijn, Kreutzer, Mudde, vdAkker
TUD-AE	Aerospace Engineering   Hickel, Scarano
TUD-AM	Applied Mathematics   Vuik, Heemink
TUD-EFM	Civil Engineering & Geosciences - Environmental Fluid Mechanics   Reniers, Uijtewaal, Pietrzak
UT-EFD	Mechanical Engineering - Engineering Fluid Dynamics   Venner
UT-NACM	Mathematics - Numerical Analysis & Computational Mechanics   van der Vegt
UT-PCF	Science & Technology - Physics of Complex Fluids   Mugele
UT-PoF	Science & Technology - Physics of Fluids   Lohse, DvdMeer, Snoeijer, Versluis, Verzicco, Prosperetti
UT-SFI	Chemical Engineering - Soft Matter, Fluidics and Interfaces   Lammertink
UT-MSM	Engineering Technology - Multi-Scale Modelling   Luding
UT-WEM	Engineering Technology - Water Engineering Management   Hulscher
TUE-BP	Built Environment - Building Physics   Blocken
TUE-CASA	Mathematics & Computer Science - Centre for Analysis, Scientific Computing & Applications   Koren, Peletier
TUE-CPI	Chemical Engineering - Chemical Process Intensification   van Sint Annaland
TUE-ET	Mechanical Engineering - Energy Technology   van Brummelen, Smeulders, van Steenhoven
TUE-MMM	Chemical Engineering - Multiscale Modelling of Multiphase Flows   Kuipers
TUE-MRF	Mechanical Engineering - Multiphase and Reacting Flows   Deen, de Goey, Kuerten
TUE-MS	Mechanical Engineering - MicroSystems   den Toonder
TUE-MTP	Applied Physics - Mesoscopic Transport Phenomena   Darhuber, Harting, Snoeijer
TUE-PP	Applied Physics - Plasma Physics   Kroesen
TUE-TPM	Applied Physics - Transport in Porous Media   Adan
TUE-WDY	Applied Physics - Vortex Dynamics & Turbulence   Clercx, van Heijst, Toschi, Geurts
RUG-CMNM	Computational Mechanics & Numerical Mathematics   Verstappen, Veldman
WUR-EZ	Wageningen University - Experimental Zoology   van Leeuwen



13.00-14.45

**TUESDAY 30 MAY**

**1 DROPLETS & MICROSYSTEMS 1**

**G HOMMERSOM (DOW CHEMICAL)**

Qingguang Xie - Evaporation of a colloidal suspension droplet

TUE-MTP | Harting

Davood Baratian - Electrowetting-enhanced condensation and drop shedding for enhanced heat transfer

UT-PCF | Mugele, vd Ende

Huanshu Tan - The evaporating Ouzo droplet

UT-POF | Lohse

Ranabir Dey - Drop evaporation in strong electric fields in electrowetting configuration

UT-PCF | Mugele, vd Ende

Robin Koldewij - Freezing sessile droplets

UT-POF | Lohse

Felix Milan - Multi-scale LBM simulations of droplets in time-dependent flows

TUE-WDY | Toschi

Giulia Finotello - Experimental investigation of milk droplet-droplet interaction

TUE-MMM | Kuipers, Buist

Shantanu Maheshwari - Dissolution of a binary droplet: MD simulations

UT-POF | Lohse, vd Hoef

15.45-17.30

**TUESDAY 30 MAY**

**3 DROPLETS & MICROSYSTEMS 2**

**J JANSSEN (UNILEVER)**

Maulik Shah - Dynamics of thin under the influence of thermal fluctuations

TUD-TP | Kreutzer, Kleijn, vSteijn

Maxime Costalonga - Delayed coalescence of surfactant drops

UT-PoF | Snoeijer

Siddhartha Mukherjee - A simple model for surfactant-laden emulsion systems by means of lattice-Boltzmann method

TUD-TP | Mudde, vdAkker, Kenjeres

Arjan Fraters - MEMS-based inkjet printing of picoliter droplets: dynamics and control of drop formation

UT-POF | Versluis

Stijn van Pelt - Magnetofluidic conveyor belt

TUE-MS | den Toonder

Guillaume Lajoinie - Laser-activated microbubble resonance: theory, numerical simulations and experiments

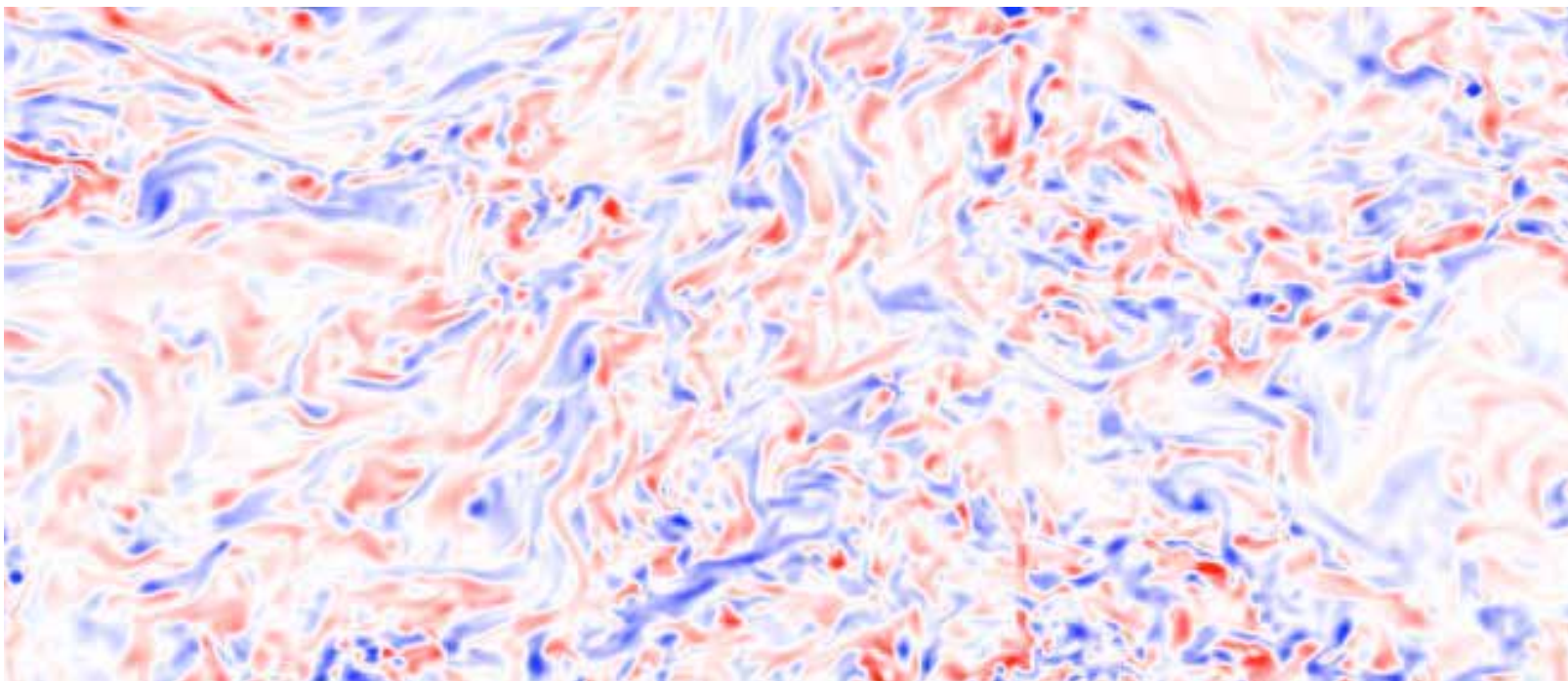
UT-POF | Versluis

Anne Benneker - Electrohydrodynamic effects near ion selective nanochannels: An experimental study

UT-SFI | Lammertink, Wood

Shuaizhong Zhang - Artificial mini-heart: an internal micropump based on magnetic artificial cilia

TUE-MS | den Toonder



13.00-14.45

**TUESDAY 30 MAY**

**2 ENVIRONMENTAL FLUID MECHANICS**

**H REINTEN (OCE)**

Sven Baars - Critical transitions in stochastic ocean-climate models

RUG-CMNM | Verstappen, Wubs

Joep van der Zanden - Turbulence and boundary layer dynamics under breaking waves

UT-WEM | Hulscher, Ribberink

Dave Weij - Numerical modelling of the unstable breaching process

TUD-ME | vRhee, Keetels

John Damen - An analysis of spatially varying sand wave morphology

UT-WEM | Hulscher, vDijk

Freekjan Brink - Robust simulations for the potential flow free surface water wave equations

UT-NACM | vd Vegt

Marijn Sanders - Aeroacoustic noise source localization and quantification for wind turbine applications

UT-EFD | Venner, de Santana

Geert Campmans - Modelling the influence of storm effects on finite amplitude sand wave dynamics

UT-WEM | Hulscher, Roos

Yoei Dijkstra - Why sediments are trapped in estuaries: an analysis using the idealised iFlow model

TUD-AM | Heemink, Schuttelaars

15.45-17.30

**TUESDAY 30 MAY**

**4 HEAT AND MASS TRANSFER**

**T PEETERS (TATA STEEL)**

Florian Charruault - Formation and growth of contact spots at an air cavity closure

TUD-FM | Westerweel

Simone Silvestri - Turbulence radiation interactions in channel flow with various optical depth

TUD-TP | Boersma, Roekaerts, Pecnik

Noud Maes - Flame development in consecutive n-dodecane injections

TUE-MRF | Deen, Dam

Samaneh Mousavi - Challenges in modelling flowing plasma

TUE-PP | Kroesen, vDijk

Wiktor Michalek - Mass transfer models in VOF method in OpenFoam

TUE-MRF | Kuerten

Carlos Alvaro - Experimental and numerical studies on riser hydrodynamics and mass transfer

TUE-MMM | Kuipers, Peters

Jo-Hendrik Thysen - Numerical study on mixing in a generic enclosure driven by time-periodic supply conditions

TUE-BP | Blocken, vHooff, vHeijst

Sebastian Contreras - Lagrangian transport in a class of three-dimensional buoyancy-driven flows

TUE-ET+WDY | Speetjens, Clercx

09.00-10.30

**WEDNESDAY 31 MAY**

**5 TURBULENCE 1**

**J KOK (NLR)**

Xiaojue Zhu - Roughness facilitated local 1/2 scaling does not imply asymptotic ultimate thermal turbulence

UT-POF | Lohse, Verzicco

Liesbeth Florentie - Source term model simulations of vortex generator induced flowfields

TUD-AE | Hickel, Hulshoff

Mattia Ricci - An LES approach to wind loads assessment

TUE-BP | Blocken, Kalkman

Jan Schneiders - On the use of the vorticity equation for spectral estimates from single PIV snapshots

TUD-AE | Hickel, Scarano

Maxim Masterov - On large scale simulations of dense bubbly flow

TUE-MMM | Kuipers, Baltussen

Melika Gul - Internal shear layers in turbulent pipe flow

TUD-FM | Westerweel

Jacopo Serpieri - Cross-flow instability: flow diagnostics and control

TUD-AE | Scarano, Kotsonis

11.00-12.30

**WEDNESDAY 31 MAY**

**7 TURBULENCE 2**

**B VREEMAN (AKZONOBEL)**

Kim Alards - Thermally inertial particles in rotating Rayleigh-Bénard turbulence

TUE-WDY | Clercx, Kunnen, Toschi

Abhineeth Gupta - Study of particle migration and stresslet in turbulent pipe-flow using lattice Boltzmann method

TUE-WDY | Toschi, Clercx

Varghese Mathai - Rising light particles and their instabilities in stagnant and turbulent flow

UT-PoF | Lohse, Sun

Hadi Rajaei - Exploring the geostrophic regime of rapidly rotating convection: An experimental study

TUE-WDY | Clercx, Kunnen, Toschi

Ruben Verschoof - Wall-roughness induces asymptotic ultimate turbulence

UT-PoF | Lohse, Sun

Ivo van Hooijdonk - Anticipating the collapse of turbulence in a stably stratified plane Couette flow

TUE-WDY | Clercx, vd Wiel (TUD)

Qingqing Ye - Mechanisms of boundary layer transition induced by isolated roughness

TUD-AE | Scarano, Schrijer

13.30-15.00

**WEDNESDAY 31 MAY**

**9 INDUSTRIAL APPLICATIONS & CFD**

**F VISSER (FLOWSERVE)**

Erik van Duin - Effect of oil viscosity on core-annular flow in a horizontal pipe

TUD-FM | Ooms, Henkes

Martin Haagh - Ion-induced wettability alteration for enhanced oil recovery

UT-PCF | Mugele, Duits

Maurice Hendrix - Development of speed controlled pigging for low pressure flow in pipelines

TUD-FM | - Henkes, Breugem

Jakob Maljaars - A high-order particle-mesh operator splitting approach for the incompressible NS equation

TUD-EFM | Uijttewaal, Labeur

Anne Eggels - Uncertainty quantification and sensitivity analysis for correlated variables

TUE-CASA | Koren, Crommelin (CWI)

Gianluca Di Staso - Lattice Boltzmann accelerated direct simulation Monte Carlo for rarefied gas flow simulations

TUE-WDY | Clercx, Toschi

Ugur Göktolga - Modeling curvature effects using MuSt-FGM

TUE-MRF | Deen, deGoey

09.00-10.30

**WEDNESDAY 31 MAY**

**6 BIOLOGICAL SYSTEMS**

**E PELSSERS (PHILIPS)**

Hossein Amirabadi - A novel microfluidic device to understand 3D tumor cell invasion

TUE-MS | den Toonder

SS Khalafvand - Numerical modelling of 4D left ventricular blood flow

TUD-TP | Kleijn, Kenjeres

Erik Groot Jebbink - Flow quantification near the aortic bifurcation

UT-POF | Versluis

Wouter den Otter - Mobility matrix and Brownian motion of complex colloidal structures

UT-MSM | Luding

Khalid El Tayeb El Obied - Velocity profile measurement around growing bacterial biofilms using optical coherence tomography

UT-SFI | Lammertink

Luis Lopez - A new model for the biofilm growth evolution in a porous medium

TUD-AM | Vuik, Vermolen

Alessandro Corbetta - Langevin modeling of pairwise avoidance in pedestrian dynamics

TUE-WDY | Toschi, Clercx

11.00-12.30

**WEDNESDAY 31 MAY**

**8 FLUID-STRUCTURE INTERACTION 1**

**P VEENSTRA (SHELL)**

Antoine Cribellier - Mosquito flight dynamics around a trap

WUR-EZ | vLeeuwen, Muijres

Paul Mannion - Computational modelling of tandem paracycling

TUE-BP | Blocken, Toparlar

Ernst Jan Grift - Hydrodynamics of propulsion in rowing and swimming

TUD-FM | Westerweel

Aura Visan - In search of food, catalyst particles self-propel towards higher nutrient concentration

UT-SFI | Lammertink

Marcel van den Berg - Fluid transport through deformable saturated porous media

UT-EFD | Venner

Paolo Lovreglio - Flow MRI in porous media

TUE-MMM | Kuipers, Buist

Koondanibha Mitra - A linear domain decomposition method for unsaturated flow in porous media

TUE-CASA | Koren, Pop

13.30-15.00

**WEDNESDAY 31 MAY**

**10 FLUID-STRUCTURE INTERACTION 2**

**H MEERMAN (TEIJIN ARAMID)**

Mathijs van Gorcum - Stick-slip wetting dynamics on a soft surface

UT-PoF | Snoeijer

Thiago Cardoso de Souza - Enhancing evaporative cooling in textiles through fractal surfaces

TUE-TPM | Adan, Erich

Deepak Tunuguntla - Mixture theory of flowing matter: Fundamentals for homogenisation and coarse graining

UT-MSM | Luding, Thornton, Weinhart

Laurent Gilson - Micromechanics of sheared granular matter in fluids

UT-MSM | Luding, Auernham (MPIP Mainz)

Loreto Oyarte Gálvez - Low-frequency oscillations in a narrow vibrated granular system

UT-PoF | D vd Meer

Irana Denissen - Bulbous head formation in segregating granular flows

UT-MSM | Luding, Thornton, Weinhart, Tunuguntla

Marnix van Schrojenstein Lantman - Saffman-like segregation mechanics in granular flows

UT-MSM | Luding, Thornton