

Multiphase 2024

25th - 27th September 2024

UNIVERSITÄT
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MARIN

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Wednesday, 25. Sep. 2024

- 12:00 **Lunch Snack & Reception**
12:50 **Opening and Welcome**
Bettar el Moctar¹, Nicolas Couty²
¹University of Duisburg-Essen, ²Gaztransport & Technigaz
- 13:00 **Wave breaking and transport of clifftop boulders**
Constantinos Menelaou¹, Frederic Dias^{1,2}
¹University College Dublin, ²Ecole Normale Supérieure Paris-Saclay
- 13:30 **Influence of piston wave maker motion on the global breaking wave shape of a solitary wave**
Anaïs Messaoudi^{1,2}, Julien Touboul¹, Nicolas Couty², Aurélien Durel², Laurent Brosset²
¹Institut de Recherche sur les Phénomènes Hors Equilibre, Ecole Centrale Méditerranée, ²Gaztransport & Technigaz
- 14:00 **Predicting the gas pocket dynamics of a single impact wave using ML models**
Rodrigo Ezeta, Bulent Duz
Maritime Research Institute Netherlands
- 14:30 **Slamming effects during helicopter ditching**
Eduardo Tadashi Katsuno, Simon Tödter, Jörn Linde, Andreas Peters, Bettar el Moctar
University of Duisburg-Essen
- 15:00 **Coffee Break**
- 15:30 **Quick load assessment of 2D wave impacts with the Liquid Impact Simulator (LIS), a framework of theoretical models**
Nicolas Couty¹, Antonin Guérineau¹, Laurent Brosset¹, Devaraj van der Meer², Rodrigo Ezeta³
¹Gaztransport & Technigaz, ²University of Twente, ³Maritime Research Institute Netherlands
- 16:00 **Coastal boulder transport and deposition as a signature of storm climate**
Frédéric Dias^{1,3}, Hannah Spero², Andrew Kennedy²
¹University College Dublin, ²University of Notre Dame, ³Ecole Normale Supérieure Paris-Saclay,
- 16:30 **Breaking wave impact in a boiling liquid**
Devaraj van der Meer¹, Bernardo Palacios Muñiz¹, Yee Li (Ellis) Fan¹, Nayoung Kim¹, Rodrigo Ezeta², Nicolas Couty³, Laurent Brosset³
¹University of Twente, ²Maritime Research Institute Netherlands, ³Gaztransport & Technigaz
- 17:00 **Numerical investigation of the effects of phase change on sloshing-induced impact pressures**
Andreas Peters, Bettar el Moctar
University of Duisburg-Essen
- 17:30 **Visit of laboratories at University of Duisburg-Essen**
- 18:30 **Dinner in Duisburg**

Thursday, 26. Sep. 2024

- 9:15 **Numerical simulation of surface instabilities at tips of breaking waves**
Ronald A. Remmerswaal, Arthur E. P. Veldman
University of Groningen
- 9:45 **Quantifying free surface instabilities and scale effects involved in wave-in-deck type of impact loading with CFD**
Joop Helder, Peter van der Plas, Jule Scharnke
Maritime Research Institute Netherlands
- 10:15 **Hydrodynamic load during disc impact on a boiling liquid**
Yee Li (Ellis) Fan, Bernardo Palacios Muñiz, Nayoung Kim, Devaraj van der Meer
University of Twente
- 10:45 **Coffee Break**
- 11:15 **Experimental Study of Sloshing Impact Loads in BOX and Type C Tanks under High Density Ratio of Liquid Hydrogen**
Byeongwon Park^{1,2}, Sungjun Jung^{1,2}, Yongkuk Lee^{1,2}, Dongwoo Jung¹, Jong-Chun Park²
¹Korea Research Institute of Ships and Ocean Engineering, ²Pusan National University
- 11:45 **An efficient Volume-of-Fluid (VoF) weakly-compressible formulation for cryogenic liquid-gas transport modelling**
M.Y. Oomar¹, A.G. Malan^{1,2}, F. Gambioli³
¹University of Cape Town, ²SARChI, ³Airbus Operations Ltd Pegasus House
- 12:15 **Impact of boiling droplets: Vapour entrapment suppression**
Bernardo Palacios Muñiz, Edgar Ortega, Yee Li (Ellis) Fan, Devaraj Van der Meer, Nayoung Kim
University of Twente
- 12:45 **Numerical Simulation of Large-Scale Cryogenic Liquid Hydrogen Release in Natural Open Environments**
Yanwei Liang^{1,2}, Liqiang Liu², Nan Peng², Jean-Michel Ghidaglia^{1,3}, Yongfeng Qu¹
¹Université de Paris-Saclay, ²Chinese Academy of Sciences, ³Modeling, Simulation & Data Analysis Morocco
- 13:15 **Lunch Snack**
- 14:15 **Wettability Effects on Bubble Detachment in Shear Flows**
Benedict C. Depp, Gerhard J. Ludwig, Peter F. Pelz
TU Darmstadt

- 14:45 **The water-gas two-phase flow transient of Cigeo French radioactive waste disposal**
Jacques Wendling
Andra
- 15:15 **Impact of a liquid droplet containing gas and vapour bubbles**
Edgar Ortega, Bernardo Palacios Muñiz, Vatsal Sanjay, Devaraj van der Meer
Maritime Research Institute Netherlands, University of Twente
- 15:45 **Numerical modelling of air-induced drag reduction in MultiMorph**
Benjamin Krull¹, Richard Meller¹, Fabian Schlegel¹, Matej Tekavčič²
¹Helmholtz-Zentrum Dresden-Rossendorf, ²Jožef Stefan Institute
- 16:15 **Leaving for Dinner in Cologne**

Friday, 27. Sep. 2024

- 9:00 **Numerical study on the mechanism of bubble-propeller interaction in air-lubrication ship**
Daijiro Arakawa, Hideki Kawashima, Tatsuya Hamada, Koichiro Shiraishi
National Maritime Research Institute
- 9:30 **The effects of carbon allotropes on the mitigation of erosion induced by the collapse of nanobubbles**
Sasan Rezaee, Ebrahim Kadirav, Bettar el Moctar
University of Duisburg-Essen
- 10:00 **A novel low-resolution mesh CFD model for accurate interfacial mass and heat transfer prediction in two-phase flows**
Antonio Cantiani, Lilla Koloszar, Laura Peveroni
von Karman Institute for Fluid Dynamics
- 10:30 **Effects of oxygen molecules on nucleation and growing of nanobubbles**
Mazyar Dawoodian, Bettar el Moctar
University of Duisburg-Essen
- 11:00 **Coffee Break**
- 11:30 **The transition to shockwave-driven cloud cavitation about a hydrofoil**
Grigorios Hatzissawidis, Maximilian M.G. Kuhr, Peter F. Pelz
TU Darmstadt
- 12:00 **Fluid-Structure Interaction between Single Cavitation Bubble and Elastic Metal Foil**
Hemant J. Sagar^{1,2}, Bettar el Moctar¹
¹Indian Institute of Technology, ²University of Duisburg-Essen
- 12:30 **Closing Remarks**
Bettar el Moctar¹, Nicolas Couty²
¹University of Duisburg-Essen, ²Gaztransport & Technigaz
- 12:45 **Lunch Snack**