

Accommodation

- **Katholische Akademie Die Wolfsburg**
Falkenweg 6
45478 Mülheim an der Ruhr
Tel. 0208 99919-0
<https://www.die-wolfsburg.de>
- **Mercure Hotel Duisburg City**
Landfermannstr. 20
47051 Duisburg
Tel. 0203 3000 3 666
<https://all.accor.com/hotel/0743/index.en.shtml>
Price for a single room: € 79.99 incl. breakfast
- **Intercity Hotel Duisburg**
Mercatorstraße 57
47051 Duisburg
Tel. 0203 60716 0
www.intercityhotel.com/en/hotels/all-hotels/germany/duisburg/intercityhotel-duisburg
Price for a single room: € 79.50 incl. breakfast

Registration

Please register informally via email: (claudia.odonoghue@uni-due.de) stating the institution, the number of participants, and the subject "Cavitation Colloquium 2022" by 21 Oct. 2022. For later registrations, it may no longer be possible to participate at the dinner.

Dates

21 Oct. 2022 Registration of presenters and participants
7 Nov 2022 Submission of presentations
9 and 10 Nov. 2022 Colloquium

Registration Fees

From participants, we request a fee of 150 € as a contribution to the costs listed below. For doctoral students, the fee is reduced to 100 €.

- Colloquium incl. refreshments during breaks
- Lunch snack on 9 and 10 Nov. 2022
- Dinner on 9 Nov. 2022

After registration, participants will receive an invoice requesting the payment of fees by 28 Oct. 2022 to the University Duisburg-Essen.

Cash payment at the venue will not be possible.

Venue

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Falkenweg 6
45478 Mülheim an der Ruhr
Tel. 0208 99919-0
<https://www.die-wolfsburg.de>

Contact

If you have any questions, please contact Claudia O'Donoghue (claudia.odonoghue@uni-due.de)

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University of Duisburg-Essen

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4th Colloquium on Cavitation and Cavitation Erosion

9 and 10 November 2022

Program

Prof. Dr.-Ing. Bettar el Moctar
Dr.-Ing. Udo Lantermann
Dr.-Ing. Andreas Peters
Institute for Ship Technology
and Ocean Engineering (ISMT)
University of Duisburg-Essen

Prof. Dr.-Ing. Romuald Skoda
Hydraulic Fluid Machinery (HSM)
Ruhr University Bochum

Prof. Dr.-Ing. Michael Pohl
Material Testing (WP)
Ruhr University Bochum



Wednesday, 9. Nov. 2022

- 8:50 **Opening and Welcome**
Bettar el Moctar
University of Duisburg-Essen
- 9:00 **Keynote Lecture**
Modeling and measurements of laser-induced spherical bubble dynamics - new tools and findings, and open questions
Alfred Vogel, N. Linz, S. Freidank, X.-X. Liang
University of Lübeck
- 9:45 **Dynamics of spheroidal bubbles close to a solid boundary**
Christiane Lechner¹⁾, Max Koch²⁾, Werner Lauterborn²⁾, Robert Mettin²⁾
¹⁾ TU Wien; ²⁾ Georg August University of Göttingen
- 10:05 **Mushroom shaped bubbles and the fast jet**
Max Koch¹⁾, Christiane Lechner²⁾, Werner Lauterborn¹⁾, Robert Mettin¹⁾
¹⁾ Georg August University of Göttingen; ²⁾ TU Wien
- 10:25 **Cavitation bubble dynamics between non-parallel plates**
Hemant Sagar, Bettar el Moctar
University of Duisburg-Essen
- 10:45 **Coffee Break**
- 11:15 **Keynote Lecture**
On the status of acoustic cavitation modeling and simulation
Robert Mettin¹⁾, Isabelle Müller²⁾, Sergey Lesnik²⁾, Dwayne Stephens¹⁾, Atiyeh Aghelmaleki¹⁾, Gunther Brenner²⁾
¹⁾ Georg August University of Göttingen; ²⁾ Clausthal University of Technology
- 12:00 **Wave propagation and cavitation in scattering media**
Rafael Manso Sainz¹⁾, A. Aghelmaleki¹⁾, I. Stromberg²⁾, G. Brenner²⁾, R. Mettin¹⁾
¹⁾ Georg August University of Göttingen; ²⁾ Clausthal University of Technology
- 12:20 **Coalescence of gas fragments after cavitation bubble collapse by applying an ultrasound field**
Saber Izak Ghasemian¹⁾, C. Bohris²⁾, F. Reuter¹⁾, C.D. Ohl¹⁾
¹⁾ Otto von Guericke University of Magdeburg; ²⁾ Dornier MedTech Systems
- 12:40 **Cavitation bubble dynamics in a stagnation point flow**
Dominik Mnich, Fabian Reuter, Claus-Dieter Ohl
Otto von Guericke University of Magdeburg

- 13:00 **Lunch**
- 14:00 **Keynote Lecture**
Response of an equilibrium vapour bubble during liquid impact
Devaraj van der Meer
University of Twente
- 14:45 **Cavitation around gold nanoparticles: experimental and modeling advances**
Xiaoxuan Liang, N. Linz, S. Freidank, A. Vogel
University of Lübeck
- 15:05 **How chemical and physical properties of organic solvents influence the gas and hydrogen formation during LAL of Au**
Theo Fromme¹⁾, Lucie K. Tintrop²⁾³⁾, Torsten C. Schmidt²⁾³⁾, Sven Reichenberger¹⁾, Stephan Barcikowski¹⁾³⁾
¹⁾ University of Duisburg-Essen and Center for Nanointegration Duisburg-Essen CENIDE; ²⁾ University of Duisburg-Essen; ³⁾ Centre for Water and Environmental Research (ZWU)
- 15:25 **Massentransfer-basiertes Kavitationsmodell für die 3D Strömungssimulation der kavitierenden Strömung binärer Alkangemische**
Philipp Schwarz, Romuuald Skoda
Ruhr University Bochum
- 15:45 **Coffee Break**
- 16:15 **Micro size cavitation bubble collapse in a vicinity of a thin fiber**
Matevz Dular, Jaka Mur, Vid Agrez, Jure Zevnik, Rok Petkovsek
University of Ljubljana
- 16:35 **Cold plasma discharge in cavitation zone**
Pavel Rudolf¹⁾, P. Stahel²⁾, B. Marsalek³⁾, J. Rahel²⁾, L. Prokes²⁾, E. Marsalkova³⁾, M. Balko¹⁾
¹⁾ Brno University of Technology; ²⁾ Masaryk University, Brno; ³⁾ Czech Academy of Sciences, Brno
- 16:55 **Cavitation bubble-induced wall shear stress at an elastic structure**
Hendrik Reese, Siew-Wan Ohl, Claus-Dieter Ohl
Otto von Guericke University of Magdeburg
- 17:15 **Experimental investigation of bubble-detachment regimes in diffusion-driven nucleation**
Benedict Christian Depp, G. Ludwig, P. F. Pelz
Technical University of Darmstadt
- 18:30 **Conference Dinner**

Thursday, 10. Nov. 2022

- 8:45 **Keynote Lecture**
Fundamentals of the damage caused by cavitation erosion - an overview within the framework of material selection
Jorge Stella¹⁾, Michael Pohl²⁾
¹⁾ Universidad Simón Bolívar, Venezuela; ²⁾ Ruhr University Bochum
- 9:30 **Mechanismen der Kavitationserosion**
Fabian Reuter, Carsten Deiter, Claus-Dieter Ohl
Otto von Guericke University of Magdeburg
- 9:50 **Correlation of laser-induced single bubbles with cavitation damage via in-situ imaging**
Jonas Kühlmann, Christina Lopez de Arcaute y Lozano, Stefanie Hanke, Sebastian A. Kaiser
University of Duisburg-Essen
- 10:10 **Observing early cavitation damage evolution from repeated laser-induced single bubbles on aluminium, austenitic steel and nickel-aluminium bronze**
Christina Lopez de Arcaute y Lozano, Jonas Kühlmann, Sebastian A. Kaiser, Stefanie Hanke
University of Duisburg-Essen
- 10:30 **Coffee Break**
- 11:00 **Experimental techniques in cavitation erosion: from plastic deformation to mass loss**
Grigorios Hatzissawidis, Benedict C. Depp, Gerhard Ludwig
Technical University of Darmstadt
- 11:20 **Analyse der Strömungsaggressivität einer Ultraschall-Sonotrode durch Erosions-Topographiemessungen**
Felix Schreiner¹⁾, Stefanie Hanke²⁾, Romuuald Skoda¹⁾
¹⁾ Ruhr University Bochum; ²⁾ University of Duisburg-Essen
- 11:40 **Assessment of Cavitation Erosion Using Numerical Approaches of Different Complexity**
Andreas Peters, Udo Lantermann, Bettar el Moctar
University of Duisburg-Essen
- 12:00 **Closing Words**
Romuuald Skoda
Ruhr University Bochum
- 12:10 **Lunch Snack**
- 13:00
- 13:30 **Visit of facilities at the University of Duisburg-Essen**
- 15:30