

FREEFEM DAYS

16TH EDITION - PARIS

December 12 & 13 , 2024 (under construction) version 0

[Previous FreeFem days](#)

An academic and industrial research hybrid conference (in Place or in Zoom)

It is now open via the page.

FreeFEM is now used as research tool or investigation software by a continuously increasing community gathering scientists from different areas of research (mathematics, physics, finance, healthcare, automotive, etc).

Following the success of the previous workshops on FreeFEM, this new event is aimed to reflect the latest capabilities and applications of the software and to exchange information with other communities involved in the development of generic solvers for PDEs.

 The previous editions presentations are available on [this repository](#).



Morning presentation session

[lien zoom](#) Code secret : 045314014 ID de réunion : 634 846 0832 (from 9H to 18h) td> 634 846 0832

09:00 - 09:25 Room 15-16 309	Mr Alan Riquier : Using FreeFem to solve the 2d free-surface Navier-Stokes equations with a Lagrangian interface. (the abstract)
09:25 - 09:50 Room 15-16 309	Atsushi Suzuki : Indefinite direct solver for primal-dual interior method by FreeFEM script (the abstract)
09:50 - 10:15 Room 15-16 309	Mr Azoug slimane (visio) : flows of polymer aqueous solutions with fractional time-derivative. (the abstract)
10:15 - 10:40 Room 15-16 309	B. Loire : Modelling oceanic tides with FreeFEM++ (the abstract)
10:40 - 11:10 Room 15-16 309	Coffe break
11h10 - 11:35 Room 15-16 309	F. Feppon : PyFreeFEM: a seamless Python/FreeFEM interface (the abstract)
11:35 - 12:00 Room 15-16 309	Dr. Yongxing Wang : Optimal Flow Control for the Reconstruction of <i>C. elegans</i> Locomotion (the abstract)

FRIDAY

PDEs and Geometry: Numerical Aspects

Mar 11 - 15, 2024

 Apply with Cube



Workshop Overview



Workshop Participants



Workshop Schedule



Applications



Your Visit to ICERM



Visa Information



Financial Support



Semester Workshops

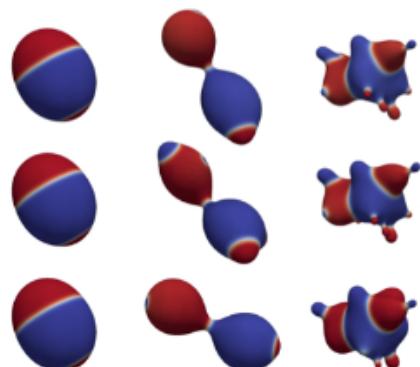
Organizing Committee

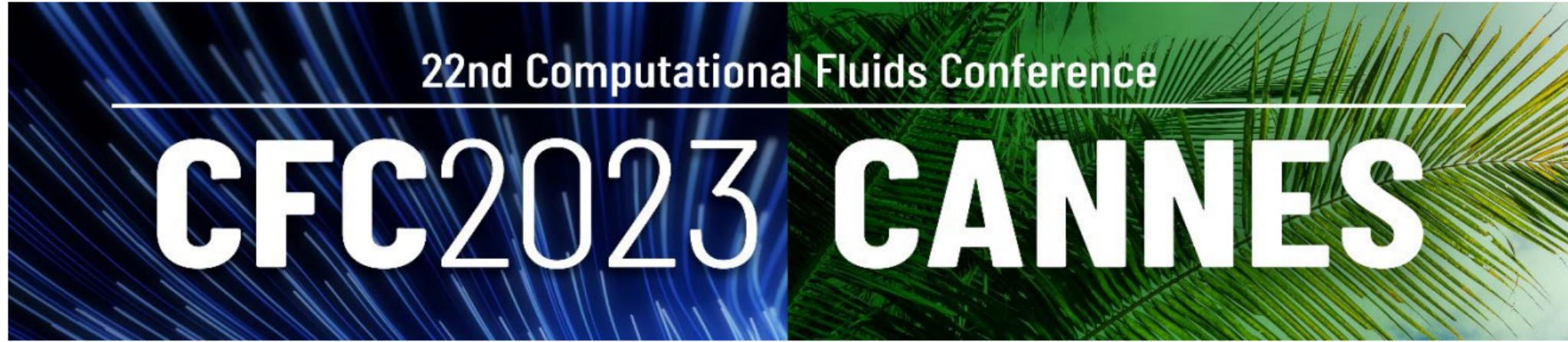
- Charlie Elliott
University of Warwick
- Brittany Hamfeldt
New Jersey Institute of Technology
- Maxim Olshanskiy
University of Houston
- Axel Voigt
Institute of Scientific Computing - Technische Universität Dresden
- Michael Neilan
University of Pittsburgh

Abstract

The development and analysis of numerical methods for PDEs whose formulation or interpretation is derived from an underlying geometry is a persistent challenge in numerical analysis. Examples include PDEs posed on complicated manifolds or graphs, PDEs that describe interactions across complex interfaces, and equations derived from intrinsically geometric concepts such as curvature-driven flows or highly nonlinear Monge-Ampere equations arising in optimal transport. In recent years, these PDEs have gained significance in diverse areas such as machine learning, optical design problems, meteorology, medical imaging, and beyond. Hence, the development of numerical methods for this class of PDEs is poised to lead to breakthroughs for a wide range of timely problems. However, designing methods to accurately and efficiently solve these PDEs requires careful consideration of the interactions between discretization methods, the PDE operators, and the underlying geometric properties.

This workshop aims to foster new interactions and collaborations between researchers in PDEs related to geometry. The expertise of the participants will span the analysis, computational implementation, and application of these problems. This collaborative effort will facilitate the identification of key problems in the field and the development of novel discretizations that respect both the underlying geometry of the problem and the needs of current applications.





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MS5-02C Computational Fluid Mechanics with Free and Moving Boundaries: Methods and Applications

□ Wed, 26/04/2023

Chaired by:

⌚ 16:00 - 18:00

Phd. Alec Kucala (Sandia National Labs) , Dr. Scott Roberts

📍 Auditorium H

(Sandia National Laboratories)

MS5-02C

Contributions in this session:

- **Keynote** A one-velocity-field monolithic method for fluid-structure interaction
Y. Wang*, P. Jimack, M. Walkley, O. Pironneau
- **EFPA** An efficient and accurate iterative solution algorithm for fluid-structure interactions using an ALE finite element method
G. Walton*, P. Jimack, M. Walkley
- **EFPA** A Moving-mesh Approach for Interface-tracking Multiphase Flow
L. Li*, J. Xiang, C. Pain
- **EFPA** A space-time framework for periodic flows
J. Lotz*, M. ten Eikelder, I. Akkerman
- A Verified Conforming Transient h-r Unstructured Adaptive Mesh Refinement (cThruAMR) Method for Capillary Hydrodynamics
D. Noble*

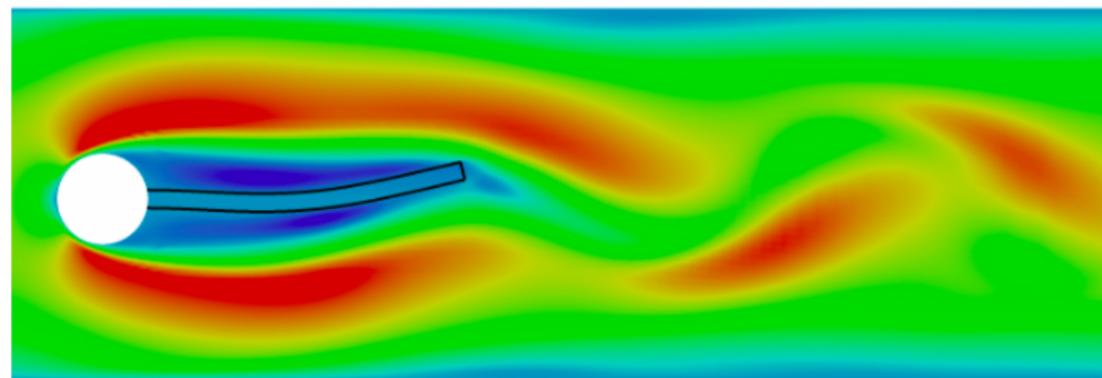


14th WCCM & ECCOMAS Congress 2020

Virtual Congress 11-15 January, 2021

Computational Methods for Interface Problems Workshop

03 January 2019–04 January 2019, 9:00 am–2:00 pm



The workshop Computational Methods for Interface Problems will take place at UCL on Thursday 3rd January - Friday 4th January 2019

Stefanie Gutschmidt
James N. Hewett
Mathieu Sellier *Editors*

IUTAM Symposium on Recent Advances in Moving Boundary Problems in Mechanics

Proceedings of the IUTAM Symposium
on Moving Boundary Problems,
Christchurch, New Zealand,
February 12–15, 2018



WEDNESDAY 6 - FRIDAY 8 SEPTEMBER, 2017

UK Fluids Conference 6-8 September 2017

Date: Wednesday 6 - Friday 8 September, 2017

External URL: <http://www.fluid-dynamics.leeds.ac.uk/uk-fluids-conference/>

The EPSRC Centres for Doctoral Training (CDT) in Fluid Dynamics at the University of Leeds and Imperial College London are organising the second annual UK Fluids Conference. Our primary intention is to encourage greater cohesion and interaction amongst the fluids communities in the UK and to be of benefit, in particular, to PhD students. The first annual UK Fluids Conference took place at Imperial College London on 7 – 9 September 2016.

[Read more about the UK Fluids Conference. http://www.fluid-dynamics.leeds.ac.uk/uk-fluids-conference/](http://www.fluid-dynamics.leeds.ac.uk/uk-fluids-conference/)

Inaugural UK Fluids Conference

7-9 September 2016
Imperial College London





Internationales
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Heidelberg



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Prof. Dr. Peter Comba

GESCHÄFTSFÜHRERIN:

Dr. Ellen Peerenboom

IWH SYMPOSIUM

SIMULATION AND OPTIMIZATION OF **EXTREME** **FLUIDS**

October 10-12, 2016

SPEAKERS:

Malte Braack, Universität Kiel
Roland Becker, Université de Pau
Erik Burman, University College London
Miguel Angel Fernandez, INRIA de Paris
Giovanni Galdi, University of Pittsburgh
Celine Grandmont, INRIA Paris-Rocquencourt
Gabor Janiga, Universität Magdeburg

Olivier Pironneau, Université Pierre-et-Marie-Curie

Andreas Prohl, Universität Tübingen
Stefan Turek, Technische Universität Dortmund
Christian Vergara, Politecnico di Milano
Thomas Wick, Ecole Polytechnique, Palaiseau
Winnifried Wollner, Technische Universität Darmstadt

CONTACT:

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ORGANISATION:

Interdisciplinary Center for Scientific Computing (IWR)

SUPPORTED BY:



Bundesministerium
für Bildung
und Forschung



Institute for Mathematical Sciences Event Archive

International Workshop on Fluid-Structure Interaction Problems (30 May - 3 June 2016)

[Online registration form](#)

Enquiries

[✉ General](#)

[✉ Scientific aspects](#)



[Group Photo](#)

[Organizing Committee](#) · [Visitors and Participants](#) · [Overview](#) · [Activities](#) · [Venue](#)

Organizing Committee

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- [Zhilin Li](#) (North Carolina State University)
- [Jie Liu](#) (National University of Singapore)

Members

- [Rajeev Jaiman](#) (National University of Singapore)
- [Ming-Chih Lai](#) (National Chiao Tung University)
- [Duc-Vinh Le](#) (Institute of High Performance Computing)
- [Jing Lou](#) (Institute of High Performance Computing)
- [Sheng Xu](#) (Southern Methodist University)
- [Wenjun Ying](#) (Shanghai Jiaotong University)

Visitors and Participants

- [Overseas visitors](#)
- [Local visitors](#)
- [Graduate students](#)
- [Registered local participants](#)

Overview

Many problems in applied sciences and engineering involve the motion of geometric objects such as interfaces or filaments interacting with surrounding fluids. These problems are generally called fluid-structure interaction problems. Since the interface position is unknown and must be solved as part of the solution, this poses challenging difficulties from theoretical and numerical points of view. For the past decades, the research effort on those topics is overwhelming and is still popular in applied mathematics and engineering communities. This international workshop aims to bring together mathematicians, computational scientists, and engineers having a common interest in solving fluid-structure interaction problems. The ultimate goal is to



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Institute for Mathematical Sciences