

Literature and Tools



EuroCC workshop

Aleksander GRM

13-15, June 2022



There are two main web pages with links to literature:

- ▶ openfoam.org (on PC workstations)
- ▶ cfd.direct (on HPC systems)

User guides:

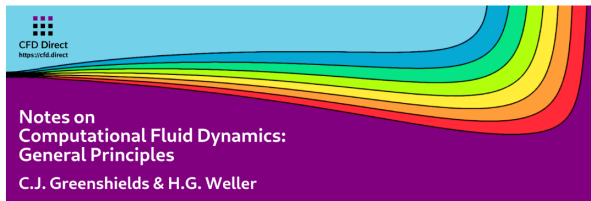
- ▶ User Guide #1
- ▶ User Guide #2
- ▶ Programming Guide – Learn c++ code!

My GitHub repository:

- ▶ [OpenFOAM_School@github](https://github.com/OpenFOAM_School)



[link to the book](#)



About the Book

Notes on Computational Fluid Dynamics (CFD) was written for people who use CFD in their work, research or study, providing essential *knowledge* to perform CFD analysis with confidence. It offers a modern perspective on CFD with the finite volume method, as implemented in OpenFOAM and other popular general-purpose CFD software. Fluid dynamics, turbulence modelling and boundary conditions are presented alongside the numerical methods and algorithms in a series of short, digestible topics, or *notes*, that contain complete, concise and relevant information. The book benefits from the experience of the authors: Henry Weller, core developer of OpenFOAM since writing its first lines in 1989; and, Chris Greenshields, who has delivered over 650 days of CFD training with OpenFOAM.

Contents

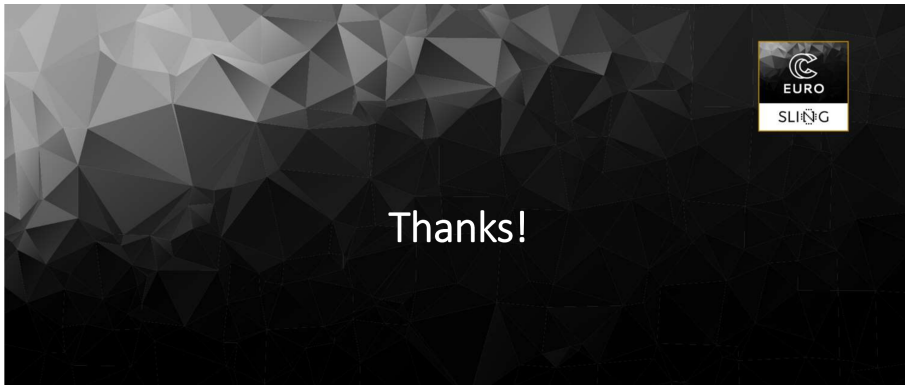
- Preface
- Symbols
- 1 Introduction
- 2 Fluid Dynamics
- 3 Numerical Method
- 4 Boundary Conditions
- 5 Algorithms and Solvers
- 6 Introduction to Turbulence
- 7 Reynolds-Averaged Turbulence Modelling
- 8 Sample Problems
- Index

ISBN 978-1-3999-2078-0, 291 pages.

[link to the book](#)



- ▶ Small introduction into PDEs
- ▶ Solution methods
- ▶ Mesh description



This project has received funding from the European High-Performance Computing Joint Undertaking (JU) under grant agreement No 951732. The JU receives support from the European Union's Horizon 2020 research and innovation programme and Germany, Bulgaria, Austria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Greece, Hungary, Ireland, Italy, Lithuania, Latvia, Poland, Portugal, Romania, Slovenia, Spain, Sweden, United Kingdom, France, Netherlands, Belgium, Luxembourg, Slovakia, Norway, Switzerland, Turkey, Republic of North Macedonia, Iceland, Montenegro



EuroHPC
Joint Undertaking