

OpenFOAM® Basic Training

Table of Contents





This offering is not approved or endorsed by ESI[®] Group, ESI-OpenCFD[®] or the OpenFOAM[®] Foundation, the producer of the OpenFOAM[®] software and owner of the OpenFOAM[®] trademark.

> C () S () Except where otherwise noted, this work is licensed under http://creativecommons.org/licenses/by-nc-sa/3.0/

Editors and Contributors:

- Bahram Haddadi (TU Wien)
- Christian Jordan (TU Wien)
- Jozsef Nagy (JKU Linz)
- Clemens Gößnitzer (TU Wien)
- Vikram Natarajan (TU Wien)
- Sylvia Zibuschka (TU Wien)
- Michael Harasek (TU Wien)

Vienna University of Technology Institute of Chemical Engineering







Cover picture from:

• Bahram Haddadi, The image presented on the cover page has been prepared using the Vienna Scientific Cluster (VSC).

CC (i) (i) Except where otherwise noted, this work is licensed under http://creativecommons.org/licenses/by-nc-sa/3.0/

Attribution-NonCommercial-ShareAlike 3.0 Unported (CC BY-NC-SA 3.0)

This is a human-readable summary of the Legal Code (the full license).

Disclaimer

You are free:

to Share — to copy, distribute and transmit the work

to Remix — to adapt the work

Under the following conditions:

Attribution — You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work).

Noncommercial — You may not use this work for commercial purposes.

Share Alike — If you alter, transform, or build upon this work, you may distribute the resulting work only under the same or similar license to this one.

With the understanding that:

Waiver — Any of the above conditions can be waived if you get permission from the copyright holder.

Public Domain — Where the work or any of its elements is in the public domain under applicable law, that status is in no way affected by the license.

Other Rights — In no way are any of the following rights affected by the license:

Your fair dealing or fair use rights, or other applicable copyright exceptions and limitations;

The author's moral rights;

Rights other persons may have either in the work itself or in how the work is used, such as publicity or privacy rights.

Notice — For any reuse or distribution, you must make clear to others the license terms of this work. The best way to do this is with a link to this web page.



Tutorial One: elbow

Solver: icoFoam Geometry: 2-dimensional Purpose: Different meshes

Tutorial Two: forwardStep

Solver: sonicFoam Geometry: 2-dimensional Purpose: Built in mesh

Tutorial Three: shockTube

Solver: sonicFoam Geometry: 1-dimensional Purpose: Patching fields

Tutorial Four: shockTube

Solver: scalarTransportFoam Geometry: 1-dimensional Purpose: Discretization

Tutorial Five: circle

Solver: scalarTransportFoam Geometry: 2-dimensional Purpose: Discretization

Tutorial Six: pitzDaily

Solver: simpleFoam Geometry: 2-dimensional Purpose: Steady state, Turbulence, Parameter

Tutorial Seven: pitzDaily

Solver: pisoFoam Geometry: 2-dimensional Purpose: Turbulence, Parameter

Tutorial Eight: damBreak

Solver: interFoam Geometry: 2-dimensional Purpose: Multiphase



Tutorial Nine: depthCharge3D

Solver: compressibleInterFoam Geometry: 3-dimensional Purpose: Parallel processing, Manual method in parallel processing

Tutorial Ten: TJunction

Solver: simpleFoam, scalarTransportFoam Geometry: 3-dimensional Purpose: Residence Time Distribution

Tutorial Eleven: reactingElbow

Solver: reactingFoam Geometry: 3-dimensional Purpose: Setting reacting simulations

Appendix A: Important Commands in Linux

Appendix B: Running OpenFOAM[®]

Appendix C: Frequently Asked Questions (FAQ)

Appendix D: **ParaView**