

Numerical Methods for Partial Differential Equations Introduction to laboratory lectures

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Installation of required software

1. Install the software required by the course as described at the following link: <https://github.com/HPC-Courses/AMSC-Labs/blob/main/Labs/2023-24/lab00-setup/README.md>. The software is the same used in the courses of Numerical Linear Algebra and Advanced Methods for Scientific Computing.
2. For Docker users only: read the guide at the following link: <https://github.com/HPC-Courses/AMSC-Labs/tree/main/Labs/2023-24/docker-bugfix-mpi> to fix incorrect behavior when using MPI.
3. Install the Paraview visualization software, downloading it from the official website (<https://www.paraview.org/download/>). Install Paraview on the host system (not inside the Docker container, not inside WSL).

Laboratory material

The material for the laboratories will be uploaded to this GitHub repository: <https://github.com/michelebucelli/nmpde-labs-aa-23-24>.

Additional useful material

1. `deal.II` documentation: <https://dealii.org/9.3.3/doxygen/deal.II/index.html>.
2. `deal.II`'s tutorial collection: <https://dealii.org/9.3.3/doxygen/deal.II/Tutorial.html>. This page contains a very large collection of tutorials for the `deal.II` library that we use in the course.

3. `deal.II`'s video tutorials: <https://www.math.colostate.edu/~bangerth/videos.html>. This page lists a series of video lectures given by Wolfgang Bangerth of Colorado State University, founder and developer of `deal.II`.
4. A recorded seminary on how to use Paraview: https://polimi365-my.sharepoint.com/:v:/g/personal/10461512_polimi_it/EQIf-g1cYM1Eiadf0KJGoAgBWolEQfw8VVCpZ1dp4Cv?e=aFEzpt.
5. An introductory course to `git`: <https://www.udemy.com/course/intro-to-git/>.