



PDE Project Course

4. DOLFIN, Systems of PDEs

Johan Jansson

`johanjan@math.chalmers.se`

Department of Computational Mathematics

Lecture plan

- Solving a PDE with DOLFIN
- Systems of PDEs

Solving a PDE with DOLFIN

Goal of DOLFIN

- Automatic solution of PDE (variational formulation)
- Why?
 - Efficiency
 - Execution time
 - Development time
 - Safety - reduce chance of human error (bugs)

Goal of DOLFIN

- Solving PDEs:
 - Modeling - problem-specific
 - Method - standard methods (FEM, FD)
 - General solver - still open problem
- How to construct an efficient general solver for PDEs?
- DOLFIN, Puffin try to answer question
- Likely answer: form compilation