

# DuMu<sup>x</sup> User Poll

# Statistics

# Which DuMu<sup>x</sup> Version?

- 2.8-svn: 15
- 2.7: 7
- 2.6: 2
- 2.5 and older: 2

# Where is DuMu<sup>x</sup> from?

- Tarball: 0
- SVN: 24
- Package: 0

# Which DUNE Version?

- 2.4-git: 5
- 2.3: 23
- 2.2 and older: 0

# Where is DUNE from?

- Tarball: 1
- Git: 24
- Package: 2

# Which Non-Core DUNE Modules?

- dune-fem: 0
- dune-pdelab: 5
- dune-foamgrid: 4
- dune-grid-gluce: 3
- dune-multidomaingrid: 4
- dune-multidomain: 4
- dune-cornerpoint: 3
- dune-alugrid: 11

# Which Buildsystem?

- Autotools: 12
- CMake: 16



# Which Grid Managers?

- YaspGrid: 14
- SGrid: 4
- UGGrid: 16
- ALUGrid: 14
- Cornerpoint: 2
- Alberta: 2
- FoamGrid: 4

# Porous-Media Fully-Implicit Models?

- 1p: 3, ni: 0
- 1p2c: 4, ni: 1
- 2p: 9, ni: 2
- 2p2c: 6, ni: 7
- co2: 2, ni: 2
- 3p: 1, ni: 1
- 3p3c: 1, ni: 2
- mpnc: 2, ni: 2
- 2pdfm: 3
- richards: 2, ni: 0

# Porous-Media Sequential Models?

- 1p: 1
- 2p: 5
- 2p2c: 2

# Which Free-Flow Models?

- stokes: 1
- stokesnc: 2
- stokesncni: 2

# Which Geomechanics Models?

- elastic: 1
- el1p2c: 1
- el2p: 2

# Which Spatial Discretizations?

- Implicit box model: 13
- Implicit cell centered: 8
- Sequential TPFA: 3
- Sequential MPFA-L: 2
- Sequential MPFA-O: 1
- Sequential MFD: 1

# Development Model

- I implement my stuff inside Dumux(-devel): 15
- I use/develop a DUNE module depending on Dumux: 1

# How deep do you need to get into?

- Can stay on the surface, only modifying parameter/problem files: 2
- Need to implement new components / fluid systems / material laws: 9
- Need to implement new models: 15
- Need to modify DUNE or grid managers: 2



Opinions

# What I like About DuMu<sup>x</sup>

- Free and open source
- Support
- Built on top of DUNE which is done reasonably well
- Start messages
- Constantly developed/improved
- Input via Parameter Files
- Available Models
- Property System
- Testing Dashboard

# What I **dislike/hate** About DuMu<sup>x</sup>

- Property System
- End of Autotools support
- Have to know C++
- Not user-friendly
- Some features are not well documented
- Long compilation time
- Hard to identify the source of compilation errors
- Does not work on top of Windows

# In my **absolute** viewpoint, ...

- **Installing** Dumux is  
easy: 1, moderate: 15, hard: 7
- **Using** an available Dumux model is  
easy: 16, moderate: 4, hard: 0
- **Understanding** Dumux code is  
easy: 1, moderate: 16, hard: 3
- **Coding** within Dumux is  
easy: 2, moderate: 14, hard: 3
- In terms of **performance**, Dumux is  
fast: 3, slow: 1, in between: 14

# Compared to other Simulators, ...

- **Installing** Dumux is  
easy: 1, moderate: 8, hard: 7
- **Using** an available Dumux model is  
easy: 5, moderate: 7, hard: 3
- **Understanding** Dumux code is  
easy: 7, moderate: 4, hard: 0
- **Coding** within Dumux is  
easy: 4, moderate: 4, hard: 1
- In terms of **performance**, Dumux is  
fast: 1, slow: 2, in between: 7

# What would you like to be added to Dumux?

- Linear Solver Documentation
- Easier Meshing / grid adaptation
- Easier Handling of Point Sources / Boundary Conditions
- Better Time Integration
- More tutorial-style examples
- Better documentation of the thermodynamics employed in (non-)isothermal models
- Tutorial on FluidSystems
- Better referencing inside fluid properties
- More realistic problems in stable
- Table of features of the test problem
- Mindmaps / better visualization for the documentation