

Numerische Strömungssimulation

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Dominik Goeb

Institute for Combustion Technology
RWTH Aachen University

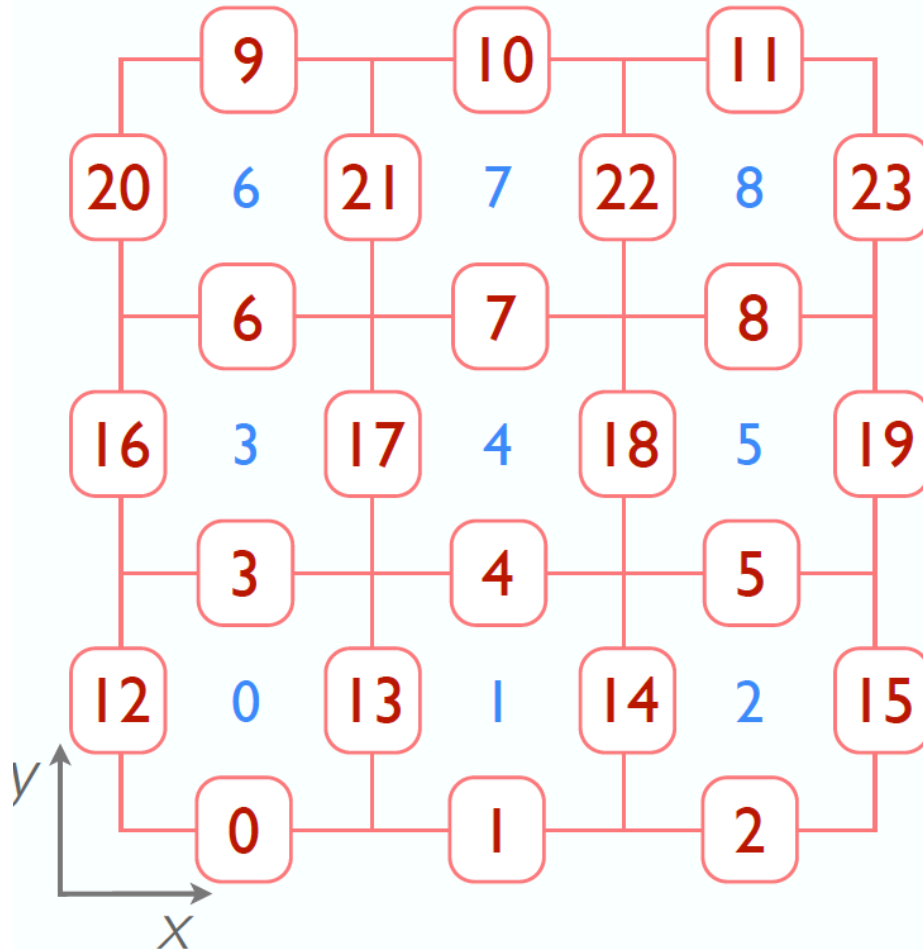
Gitter Generator

- Zielstellung: Erstellung eines kartesischen 2D Gitters für Dragonfly.
- Template auf ITV Webseite
(<https://www.itv.rwth-aachen.de/index.php?id=9>).
- Codelite: Neuer Workspace, Projekt hinzufügen.

Spider: Programmstruktur

- **Input:**
 - /run/spider.in
- **Source Code:**
 - /src/data.h
 - /src/input.cpp
 - /src/setup.cpp
 - /src/output.cpp
- **Output:**
 - /run/dragonfly.mesh

Dragonfly: Datenstruktur



```
struct sData{
    sCell* cells;
    sFace* faces;
    sPoint* points };

struct sPoint{
    int id;
    double x,y; };

struct sFace{
    int id;
    double x,y;
    double dx,dy;
    sPoint* points[2];
    sCell* neighCells[2]; };

struct sCell{
    int id;
    double x,y;
    double volume;
    sPoint* points[4];
    sFace* faces[4];
    sCell* neighCells[4]; };
```

Spider: Input

```
# --- Spider configuration file --- #  
# --- Numerical settings --- #  
xMin      0  
xMax      3  
yMin      0  
yMax      3  
nCellsX   3  
nCellsY   3  
  
# --- Boundary conditions --- #  
# FIXME  
  
# --- Initial conditions --- #  
# FIXME
```

Spider: Gitter Output

```
pointDimensions 4 4 boundaryConditions initialConditions
# type: 1=DIRICHLET #cellId value
Points
# id x y # cellId type value
0 0.0 0.0 0 1 4 0 0
1 1.0 0.0 1 1 4 3 0
2 2.0 0.0 2 2 4 4 0
3 3.0 0.0 3 1 4 5 0
4 0.0 1.0 5 2 4 6 0
5 1.0 1.0 6 1 4 7 0
6 2.0 1.0 7 1 4 8 0
7 3.0 1.0 8 2 4
...
```