

Ferrofluids

1.0

Generated by Doxygen 1.7.6.1

Wed Dec 19 2012 18:55:37

Contents

1	File Index	1
1.1	File List	1
2	File Documentation	3
2.1	OwnMath.hpp File Reference	3
2.1.1	Define Documentation	4
2.1.1.1	AT	4
2.1.2	Typedef Documentation	4
2.1.2.1	ArrayATd	4
2.1.2.2	Matrix50d	4
2.1.2.3	MatrixATd	4
2.1.2.4	SpMat	4
2.1.2.5	T	4
2.1.3	Function Documentation	4
2.1.3.1	dc_U	4
2.1.3.2	dnc_U	4
2.1.3.3	fileName	4
2.1.3.4	Poisson	4
2.1.3.5	PoissonSparse	4
2.1.3.6	PoissonSparseSI	4
2.1.3.7	save	4
2.1.3.8	SolveHeatEquationE	4
2.1.3.9	SolveHeatEquationI	5
2.1.4	Variable Documentation	5
2.1.4.1	N	5

Chapter 1

File Index

1.1 File List

Here is a list of all files with brief descriptions:

OwnMath.hpp	3
---------------------------------------	---

Chapter 2

File Documentation

2.1 OwnMath.hpp File Reference

```
#include <iostream> #include <vector> #include <Dense>
#include <Eigen> #include <Sparse> #include <Sparse-
Core> #include <SparseCholesky> #include <Core> #include
<Eigenvalues> #include <Geometry> #include <fstream> ×
#include <string> #include <cstdlib> #include <ctime>
```

Defines

- #define [AT](#) 21

Typedefs

- typedef Matrix< double, 50, 50 > [Matrix50d](#)
- typedef Matrix< double, [AT](#), [AT](#) > [ArrayATd](#)
- typedef Eigen::SparseMatrix < double > [SpMat](#)
- typedef Eigen::Triplet< double > [T](#)
- typedef Matrix< double, [AT](#), [AT](#) > [MatrixATd](#)

Functions

- MatrixXd [dc_U](#) (MatrixXd U, double u1, double u2, double u3, double u4)
- MatrixXd [dnc_U](#) (MatrixXd U, char file[])
- MatrixXd [PoissonSparseSI](#) (MatrixXd g, MatrixXd U, double dt, double dx, double K)
- [MatrixATd](#) * [SolveHeatEquationE](#) ([MatrixATd](#) conditions, double alpha, int N_t, double L, double t_max)
- [MatrixATd](#) * [SolveHeatEquationI](#) ([MatrixATd](#) conditions, double K, int N_t, double L, double t_max)

- MatrixXd [Poisson](#) (MatrixXd g)
- MatrixXd [PoissonSparse](#) (MatrixXd g, MatrixXd U)
- void [fileName](#) (char *file)
- void [save](#) (char file[], clock_t tStart, time_t *inicio, MatrixXd U, string equation)

Variables

- int [N](#) = 21

2.1.1 Define Documentation

2.1.1.1 `#define AT 21`

2.1.2 Typedef Documentation

2.1.2.1 `typedef Matrix<double, AT, AT> ArrayATd`

2.1.2.2 `typedef Matrix<double, 50, 50> Matrix50d`

2.1.2.3 `typedef Matrix<double, AT, AT> MatrixATd`

2.1.2.4 `typedef Eigen::SparseMatrix< double > SpMat`

2.1.2.5 `typedef Eigen::Triplet< double > T`

2.1.3 Function Documentation

2.1.3.1 `MatrixXd dc_U (MatrixXd U, double u1, double u2, double u3, double u4)`

2.1.3.2 `MatrixXd dnc_U (MatrixXd U, char file[])`

2.1.3.3 `void fileName (char * file)`

2.1.3.4 `MatrixXd Poisson (MatrixXd g)`

2.1.3.5 `MatrixXd PoissonSparse (MatrixXd g, MatrixXd U)`

2.1.3.6 `MatrixXd PoissonSparseSI (MatrixXd g, MatrixXd U, double dt, double dx, double K)`

2.1.3.7 `void save (char file[], clock_t tStart, time_t * inicio, MatrixXd U, string equation)`

2.1.3.8 `MatrixATd* SolveHeatEquationE (MatrixATd conditions, double alpha, int N_t, double L, double t_max)`

2.1.3.9 `MatrixATd*` `SolveHeatEquationI` (`MatrixATd` *conditions*, `double` *K*, `int` *N_t*,
`double` *L*, `double` *t_max*)

2.1.4 Variable Documentation

2.1.4.1 `int` *N* = 21