

## My Project

Generated by Doxygen 1.8.11



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# Chapter 1

## Class Index

### 1.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

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## Chapter 2

# File Index

### 2.1 File List

Here is a list of all documented files with brief descriptions:

<a href="#">Heat.cpp</a>	9
<a href="#">Heat.h</a>	10
<a href="#">main.cpp</a>	11





## Chapter 3

# Class Documentation

### 3.1 Heat Class Reference

#### Public Member Functions

- void `set_size` (int)  
设置进程总数
- void `set_rank` (int)  
设置进程编号
- void `set_f` (const RHS &)  
设置右端项 $f$
- void `set_Initial` (const RHF &)  
设置初值
- void `set_Boundary` (int, const RHS &)  
设置边值
- void `set_N` (int)  
设置网格密度
- void `set_t` (double)  
设置计算终止时间
- void `set_CFL` (double)  
设置 $CFL$ 条件数
- void `set_Solution` (const RHS &)  
设置真解，可以用来对有真解的情况测试误差.
- double `error` ()  
计算误差的一个测试函数
- `std::vector< double > solve` ()  
求解函数

#### 3.1.1 Member Function Documentation

##### 3.1.1.1 double Heat::error ( )

计算误差的一个测试函数

#### Returns

L2误差

3.1.1.2 void Heat::set\_Boundary ( int *flag*, const RHS & *fun* )

设置边值

## Parameters

<i>flag</i>	标志, DIRICHLET 或者 NEUMANN
<i>fun</i>	

3.1.1.3 void Heat::set\_CFL ( double *CFL1* )

设置CFL条件数

## Parameters

<i>CFL1</i>	
-------------	--

3.1.1.4 void Heat::set\_f ( const RHS & *fun* )

设置右端项f

## Parameters

<i>fun</i>	
------------	--

3.1.1.5 void Heat::set\_Initial ( const RHF & *fun* )

设置初值

## Parameters

<i>fun</i>	
------------	--

3.1.1.6 void Heat::set\_N ( int *N1* )

设置网格密度

## Parameters

<i>N1</i>	
-----------	--

3.1.1.7 void Heat::set\_rank ( int *rank1* )

设置进程编号

**Parameters**

<i>rank1</i>	
--------------	--

**3.1.1.8 void Heat::set\_size ( int *size1* )**

设置进程总数

**Parameters**

<i>size1</i>	
--------------	--

**3.1.1.9 void Heat::set\_Solution ( const RHS & *uu* )**

设置真解，可以用来对有真解的情况测试误差.

**Parameters**

<i>uu</i>	
-----------	--

**3.1.1.10 void Heat::set\_t ( double *t1* )**

设置计算终止时间

**Parameters**

<i>t1</i>	
-----------	--

**3.1.1.11 std::vector< double > Heat::solve ( )**

求解函数

**Returns**

0号进程返回整个解，其余进程返回各自负责区域的解。

The documentation for this class was generated from the following files:

- [Heat.h](#)
- [Heat.cpp](#)
- [Heat1.cpp](#)

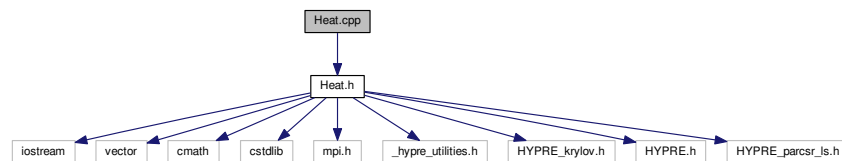
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# File Documentation

### 4.1 Heat.cpp File Reference

```
#include "Heat.h"
```

Include dependency graph for Heat.cpp:



#### 4.1.1 Detailed Description

##### Author

lczheng, [lczheng@pku.edu.cn](mailto:lczheng@pku.edu.cn)

##### Date

2016-12-31

##### Author

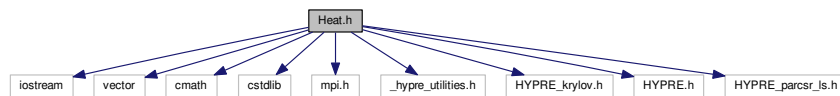
lczheng, [lczheng@pku.edu.cn](mailto:lczheng@pku.edu.cn)

##### Date

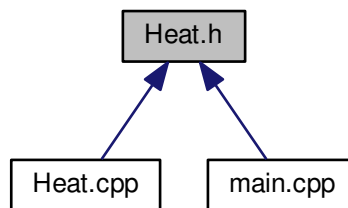
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## 4.2 Heat.h File Reference

```
#include <iostream>
#include <vector>
#include <cmath>
#include <cstdlib>
#include "mpi.h"
#include "_hypr_utilities.h"
#include "HYPRE_krylov.h"
#include "HYPRE.h"
#include "HYPRE_parcsr_ls.h"
Include dependency graph for Heat.h:
```



This graph shows which files directly or indirectly include this file:



### Classes

- class [Heat](#)

### Enumerations

- enum { **DIRICHLET** = 1, **NEUMANN** = 2 }

### 4.2.1 Detailed Description

#### Author

lczheng, [lczheng@pku.edu.cn](mailto:lczheng@pku.edu.cn)

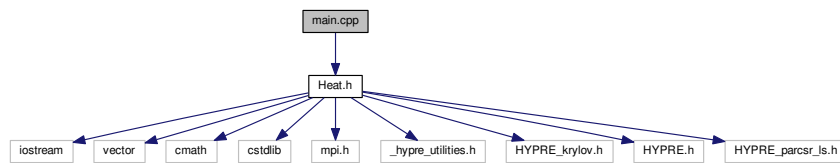
#### Date

2016-12-31

## 4.3 main.cpp File Reference

```
#include "Heat.h"
```

Include dependency graph for main.cpp:



### Functions

- double **u** (double x, double y, double z, double t)
- double **f** (double x, double y, double z, double t)
- double **u0** (double x, double y, double z)
- double **g\_up** (double x, double y, double z, double t)
- double **g\_down** (double x, double y, double z, double t)
- int **transform** (int i, int j, int k, int N)
- int **main** (int argc, char \*argv[])

#### 4.3.1 Detailed Description

##### Author

lczheng, [lczheng@pku.edu.cn](mailto:lczheng@pku.edu.cn)

##### Date

2016-12-31





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