# LinQT

1.0

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**File compute-DOS+FFT.cpp**

No know bugs.

**File types_definitions.hpp**

No know bugs.

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## 6.1 kpm Namespace Reference

### Typedefs

- typedef int integer

  *This defines the complex datatype. No other format should be used in the program.*
- typedef double real

  *This defines the complex datatype. No other format should be used in the program.*
- typedef std::complex< real > complex

  *This defines the complex datatype. No other format should be used in the program.*
- typedef long int dim

  *This defines the dimension datatype. No other format should be used in the program.*
- typedef size_t index

  *This defines the index datatype. No other format should be used in the program.*

### Functions

- const kpm::complex I (0., 1.)

  *This defines the imaginary number, although its use is not advisable due to performance issues.*

### 6.1.1 Detailed Description

The kpm namespace is used to group all the methods and variables related to the kpm calculation.

# Chapter 7

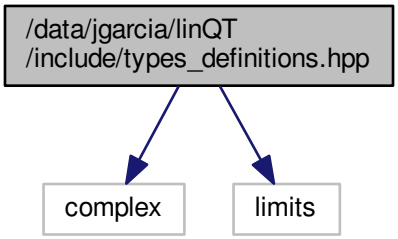
# File Documentation

## 7.1 /data/jgarcia/linQT/include/types_definitions.hpp File Reference

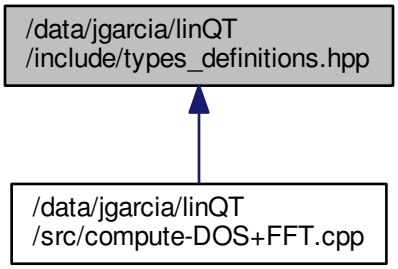
The definitions for the project data types are given in this header.

```
#include <complex>
#include <limits>
```

Include dependency graph for types_definitions.hpp:




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



### Namespaces

- kpm

### Typedefs

- typedef int kpm::integer

  *This defines the complex datatype. No other format should be used in the program.*
- typedef double kpm::real

  *This defines the complex datatype. No other format should be used in the program.*
- typedef std::complex< real > kpm::complex

  *This defines the complex datatype. No other format should be used in the program.*
- typedef long int kpm::dim

  *This defines the dimension datatype. No other format should be used in the program.*
- typedef size_t kpm::index

  *This defines the index datatype. No other format should be used in the program.*

### Functions

- const kpm::complex kpm::I (0., 1.)

  *This defines the imaginary number, although its use is not advisable due to performance issues.*
- const kpm::complex **I** (0., 1.)

#### 7.1.1 Detailed Description

The definitions for the project data types are given in this header.

**Author**

Jose H. Garcia (adamecius)

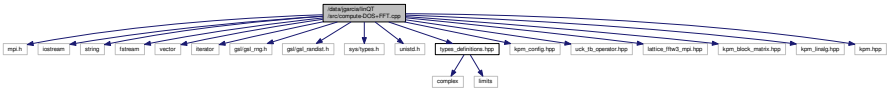
**Bug** No know bugs.

## 7.2 /data/jgarcia/linQT/src/compute-DOS+FFT.cpp File Reference

This defines the compute-DOS+FFT function, which uses the kernel polynomial method and fast-fourier transform for computing the density of states in sparse systems.

```
#include <mpi.h>
#include <iostream>
#include <string>
#include <fstream>
#include <vector>
#include <iterator>
#include <gsl/gsl_rng.h>
#include <gsl/gsl_randist.h>
#include <sys/types.h>
#include <unistd.h>
#include "types_definitions.hpp"
#include "kpm_config.hpp"
#include "uck_tb_operator.hpp"
#include "lattice_fftw3_mpi.hpp"
#include "kpm_block_matrix.hpp"
#include "kpm_linalg.hpp"
#include "kpm.hpp"
```

Include dependency graph for compute-DOS+FFT.cpp:




## Functions

- int main (int argc, char ∗argv[ ])

  *The body of the function.*

### 7.2.1 Detailed Description

This defines the compute-DOS+FFT function, which uses the kernel polynomial method and fast-fourier transform for computing the density of states in sparse systems.

#### Author

Jose H. Garcia (adamecius)

**Bug** No know bugs.

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