

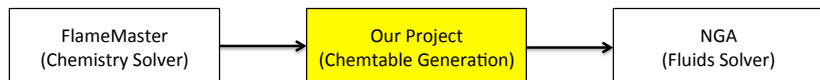
Tabulation of Chemical Source Terms for Turbulent Combustion Simulations

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January 8, 2014

Introduction

Flamelet Modeling for Tubulent Combustion Simulations:



Key Data Processing Capabilities:

- ▶ Sorting
- ▶ Monotonicity checking
- ▶ Convolution
- ▶ Interpolation

SWIG is used to interface C++ and Python.

Git is used for version control.

Doxygen is used for documentation.

Python Unittest is used for automated testing.

Progress Variable

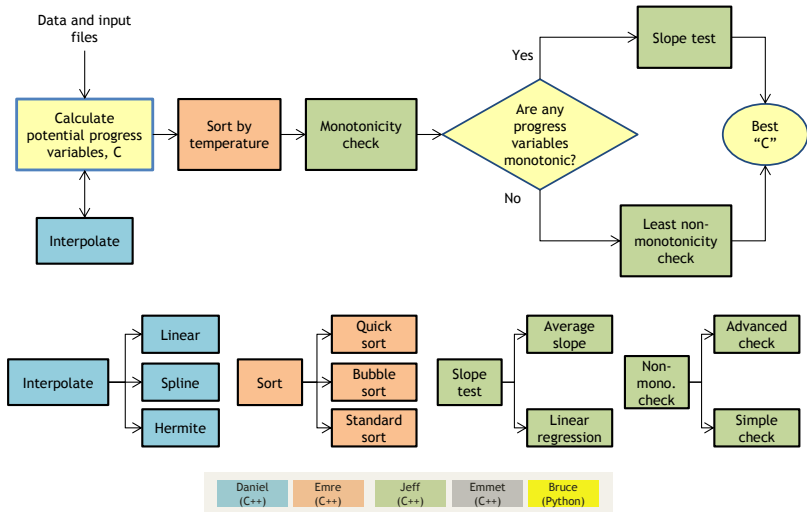
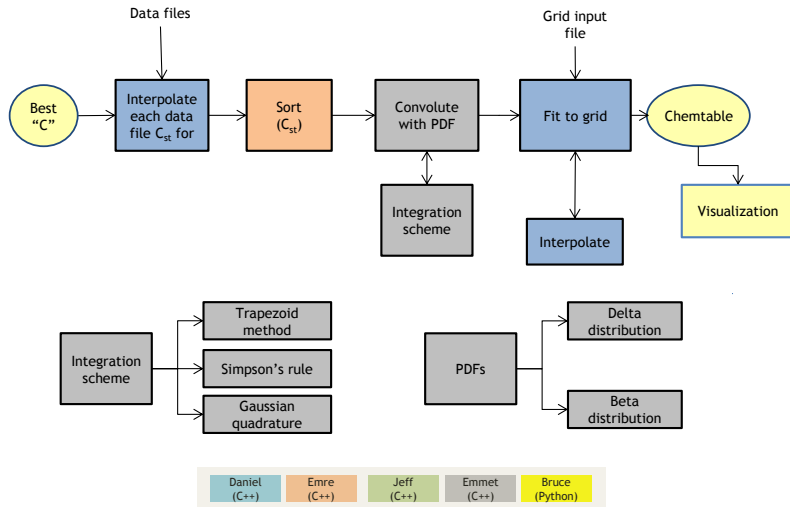


Table Generation



Python: User Interface and Wrapper

Python files:

- ▶ `chemtable_io.py`: Main program run by user: processes inputs, calls `findprogvar.py` and C++ functions, and generates output
- ▶ `findprogvar.py`: contains function that determines the best progress variable, calls C++ functions
- ▶ `iofuncs.py`: contains functions used by the above for text processing
- ▶ `combinations.py`: contains helper functions used by `findprogvar.py`

Inputs:

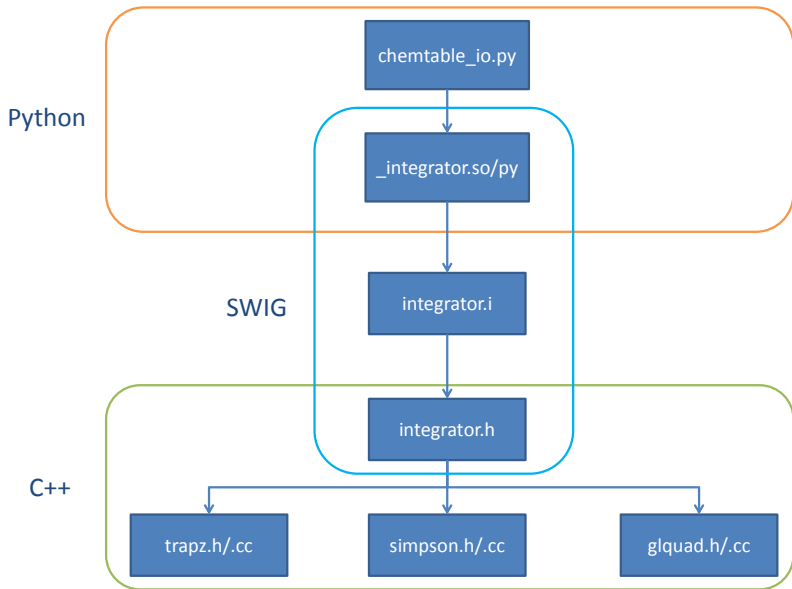
- ▶ `chemtable_inputs`: text file containing input options from user
- ▶ `flamelet(.kg)` data files: stored in a directory specified in the input file

User specified inputs stored in a Python dictionary

Outputs:

- ▶ `data_out`: text file containing processed chemical source

Python/C++ Interface Using SWIG



Documentation: Doxygen

CHEMTABLE: sorting Class Reference - Mozilla Firefox

CHEMTABLE: sorting Class Re...

file:///home/eturkoz/Codes/APC_Fina/apc524/beta/doc/html/df/d42/classsorting.htm

Google

Main Page Classes Files

Class List Class Hierarchy Class Members

Q Search

sorting Class Reference

Inheritance diagram for sorting:

```
graph BT; brute_sort --> sorting; bubble_sort --> sorting; standard_sort --> sorting;
```

List of all members.

Classes

class	_object
class	brute_sort
class	bubble_sort
class	sorting
class	standard_sort

Public Member Functions

virtual int	sort_data (0=0)
	Virtual function to be inherited by each sorting algorithm to sort the give data.
virtual void	SetRefColNum (int num)
	Setting the reference column according to which the data will be sorted.

Public Attributes

sorting_swigregister	= _sorting . sorting_swigregister
bubble_sort_swigregister	= _sorting . bubble_sort_swigregister
standard_sort_swigregister	= _sorting . standard_sort_swigregister
brute_sort_swigregister	= _sorting . brute_sort_swigregister

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

- src/sorting.h
- src/sorting.py

Generated on 7 Jan 2015 for CHEMTABLE by 1.6.1

Conclusions