Running Mace4 with the Isomorphic Cubes Algorithms

Software Requirement

The Mace4 executable is compiled in C++ version 11, and scripts are written in Python 3.8. They are tested in Linux computers:

Linux 4.19.0-6-amd64 #1 SMP Debian 4.19.67-2+deb10u1 (2019-09-20) x86_64 GNU/Linux

File Organization

top directory

```
|-- bin           # directory for executables
    |-- mace4     # Mace 4 executable
|-- p9m4          # top working directory
    |-- inputs    # Mace4 inputs files
    |-- utils
        |-- mace                  # scripts to generate models
            |-- bootstrap.py      # top script to kick off model enumeration process
            |-- extend_cubes.py   # functions to extend the length of cubes using Mace4
            |-- multi_cube_analyzer.py   # helper functions to remove isomorphic cubes
            |-- iso_cubes.py             # functions to check for isomorphism between cubes
            |-- run_cubes.py             # functions to execute Mace4 to enumerate models
            |-- some other scripts for future use and for testing
```

Model Enumeration

The algebra supported are listed in bootstrap.py, and the input files in Mace4 format are in . . . /p9m4/inputs.

To run the script, issue the command in the . . . /p9m4 directory

```
utils/mace4/bootsctrap.py
```

To clean up the working directory after the run, issue the command in the . . . /p9m4 directory:

```
rm -rf *_working_*
rm -rf utils/mace4/working
```