

README

JOZSO: a standalone program for calculating broad neutron resonances

Prerequisites:

- GNU gfortran compiler and GNU make
- *optionally* GNU octave

These are fairly standard packages/programs available on all major Linux distributions.

Installation

- simply extract the supplied zip file to a desired location

Directory structure

```
JOZSO
├── dat
│   └── extformf.dat
├── log
├── obj
├── res
│   ├── maprajz.m
│   └── trajz.m
├── src
│   └── jozso.f90
├──
├── cgws.config
├── dev.config
├── ext.config
├── makefile
├── sahu.config
└── user.config
```

Short description of files

- the file **dat/extformf.dat** consists the values used for defining an external potential to be read in
- the **log** directory is for log files created by **jozso**
- the **obj** directory is used to store the **.mod** files created by the compiler
- **jozso** will place all the output files into directory **res**
 - you also find here two small octave scripts, which can be used to quickly generate plots from the results:
 - in the directory **res** the command 'octave -f maprajz.m' will result the file 'map.eps' (after a mode=1 run)
 - in the directory **res** the command 'octave -f trajz.m' will result the file 'ktraj.eps' (after a mode=2 run)
- **src**: source code of the main program.
- the **makefile** controls the compilation

Config files

According to the used potential type, the program's behaviour can be controlled through the following config files:

- `cgws.conf`: for parameters controlling Wood-Saxon type potential
- `sahu.conf`: for parameters controlling Sahu-Sahu type potential
- `ext.conf`: for parameters controlling the external potential option

A comprehensive description of the parameters used can be found in the chapter 3 of <http://arxiv.org/abs/1711.04619> (<http://arxiv.org/abs/1711.04619>)

- `user.conf`
 - here you can change the default names of data,result,log and config files
- `dev.conf`
 - internal constant used during the development: do not change it

Compiling

In the *JOZSO* directory issue the following commands:

```
| make clean; make
```

You should not get any errors (warnings are possible, due to different gfortran configurations).

Executing

In the **JOZSO** directory issue:

```
| ./jozso
```

optional parameter can be passed to the program:

- **-h** for getting a short help message
- **-1** or **-cgws** for choosing Wood-Saxon potential, it is the **default** potential option
- **-2** or **-sahu** for Sahu-Sahu type potential
- **-4** or **-ext** for external potential option

Troubleshooting

If you are encountering problems, bugs, etc. please contact:
noszaly.csaba@gmail.com (<mailto:noszaly.csaba@gmail.com>)