

jozsoReadme

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The online version of this document is here: <https://github.com/czylabsonasa/jozso>

1 READ.ME

JOZSO: a program for calculating broad neutron resonances

1.1 Prerequisites:

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

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

1.2 Installation

- simply extract the supplied zip file to a desired location

1.3 Directory structure

```
JOZSO
  dat
  ~~ extformf.dat
  log
  obj
  res
  ~~ maprajz.m
  ~~ trajz.m
  src
  ~~ jozso.f90
  ~~ odeint.f90 !note that, it is not shipped with JOZSO
  cgws.config
  dev.config
  ext.config
  makefile
  sahu.config
  user.config
```

1.4 Short description of files

- the file **dat/extformf.dat** consists the parameters used for defining a custom potential
- 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. You should place here a copy of odeint from *Numerical Recipes*.
- the **makefile** controls the compilation

1.5 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 type potential * **ext.conf**: for parameters controlling Wood-Saxon type potential

A comprehensive description of the parameters used can be found in the chapter 3 of <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 touch it

1.6 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).

1.7 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** * **-2** or **-sahu** for Sahu-type potential * **-4** or **-ext** for external, custom potential

1.8 Troubleshooting

If you are encountering problems, bugs please contact: noszaly.csaba@gmail.com