nucleardatapy

Release 0.1

Jérôme Margueron, IRL NPA, USA

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nucleardatapy (/in short nudy/) is a Python library for nuclear physicists facilitating the access to theoretical or experimental nuclear data. It is specificaly designed for equation of state practitionners interested in the modeling of neutron stars, and it offers *simple* and *intuitive* APIs.

Note: This project is under active development.

CHAPTER

ONE

CONTENTS

1.1 Usage

1.1.1 Installation

To use nucleardatapy, first doawnload the .zip file from the git repository:

```
(.venv) $ unzip nucleardatapy.zip
```

Then enter the new folder nucleardatapy:

```
(.venv) $ cd nucleardatapy
```

And finaly launch the install script:

```
(.venv) $ bash install
```

1.2 Readme:

1.3 Complement

1.3.1 SetupMicro

class nucleardatapy.setup_micro.**SetupMicro**(*model='1998-VAR-AM-APR'*)

Instantiate the object with microscopic results choosen by the toolkit practitioner. This choice is defined in the variable model. If not defined, it is taken to be the APR equation of state by default.

...

model

The model to consider. Choose between: 1998-VAR-AM-APR (default), 2008-AFDMC-NM, ...

Type
str, optional

nm_den

A list with densities in neutron matter.

Type
list

`sm_den`

A list with densities in symmetric matter.

Type
list

`nm_kfn`

A list with neutron Fermi momentum in neutron matter.

Type
list

`sm_kfn`

A list with neutron Fermi momentum in symmetric matter.

Type
list

`nm_e2a`

A list with energy per particle in neutron matter.

Type
list

`nm_e2a_err`

A list with uncertainties for the energy per particle in neutron matter.

Type
list

`sm_e2a`

A list with energy per particle in symmetric matter.

Type
list

`sm_e2a_err`

A list with uncertainties for the energy per particle in symmetric matter.

Type
list

`nm_gap`

A list with pairing gap in neutron matter.

Type
list

`sm_gap`

A list with pairing gap in symmetric matter.

Type
list

`nm_pre`

A list with pressure in neutron matter.

Type
list

nm_pre_err

A list with uncertainties for the pressure in neutron matter.

Type
list

sm_pre

A list with pressure in symmetric matter.

Type
list

sm_pre_err

A list with uncertainties for the pressure in symmetric matter.

Type
list

print_outputs()

Print outputs on terminal's screen.

nucleardatapy.setup_micro.**models_micro**()

Returns a list with the name of the models available in this toolkit and print them all.

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