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**spwla**

***Release 0.0.3.dev5***

**Jun 05, 2020**



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# CHAPTER 1

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## Overview

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docs	
tests	
package	

A Python package by SPWLA for educational purpose

- Free software: MIT license

## 1.1 Installation

```
pip install spwla
```

You can also install the in-development version with:

```
pip install https://github.com/lianglin0310/spwla/archive/master.zip
```

## 1.2 Documentation

<https://spwla.readthedocs.io/>

## 1.3 Development

To run the all tests run:

```
tox
```

Note, to combine the coverage data from all the tox environments run:

Windows	<pre>set PYTEST_ADDOPTS=--cov-append tox</pre>
Other	<pre>PYTEST_ADDOPTS=--cov-append tox</pre>

## CHAPTER 2

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### Installation

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At the command line:

```
pip install spwla
```





## CHAPTER 3

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### Usage

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To use spwla in a project:

```
import spwla
```



## 4.1 spwla

Functions for computing resistivity from saturation

`spwla.resistivity.archie` (*sw, poro, m, n, a=1*)

Compute the formation resistivity.

This function calculate formation resistivity from water saturation, porosity, and Archie's parameters a, m, and n. The formula for the Archie's Law is:

$$R_t = a * \text{poro}^{**m} * \text{sw}^{**n}$$

### Parameters

- **sw** – 1d array. Water saturations.
- **poro** – 1d array. Formation porosity.
- **a** – Archie's parameter, constant.
- **m** – Archie's parameter, cementation exponent.
- **n** – Archie's parameter, saturation exponent.

**Returns** *resistivity* – 1d array.

### Example

```
>>> from petrophysics.resistivity import archie
>>> rt = archie(1.0, 0.2, 2, 2, 1)
0.04
```



Contributions are welcome, and they are greatly appreciated! Every little bit helps, and credit will always be given.

### 5.1 Bug reports

When [reporting a bug](#) please include:

- Your operating system name and version.
- Any details about your local setup that might be helpful in troubleshooting.
- Detailed steps to reproduce the bug.

### 5.2 Documentation improvements

spwla could always use more documentation, whether as part of the official spwla docs, in docstrings, or even on the web in blog posts, articles, and such.

### 5.3 Feature requests and feedback

The best way to send feedback is to file an issue at <https://github.com/lianglin0310/spwla/issues>.

If you are proposing a feature:

- Explain in detail how it would work.
- Keep the scope as narrow as possible, to make it easier to implement.
- Remember that this is a volunteer-driven project, and that code contributions are welcome :)

## 5.4 Development

To set up *spwla* for local development:

1. Fork *spwla* (look for the “Fork” button).
2. Clone your fork locally:

```
git clone git@github.com:lianglin0310/spwla.git
```

3. Create a branch for local development:

```
git checkout -b name-of-your-bugfix-or-feature
```

Now you can make your changes locally.

4. When you’re done making changes run all the checks and docs builder with *tox* one command:

```
tox
```

5. Commit your changes and push your branch to GitHub:

```
git add .
git commit -m "Your detailed description of your changes."
git push origin name-of-your-bugfix-or-feature
```

6. Submit a pull request through the GitHub website.

### 5.4.1 Pull Request Guidelines

If you need some code review or feedback while you’re developing the code just make the pull request.

For merging, you should:

1. Include passing tests (run *tox*)<sup>1</sup>.
2. Update documentation when there’s new API, functionality etc.
3. Add a note to *CHANGELOG.rst* about the changes.
4. Add yourself to *AUTHORS.rst*.

### 5.4.2 Tips

To run a subset of tests:

```
tox -e envname -- pytest -k test_myfeature
```

To run all the test environments in *parallel* (you need to `pip install detox`):

```
detox
```

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<sup>1</sup> If you don’t have all the necessary python versions available locally you can rely on Travis - it will run the tests for each change you add in the pull request.  
It will be slower though ...

## CHAPTER 6

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### Authors

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- Lin Liang - <https://spwla.org>





## CHAPTER 7

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### Changelog

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#### 7.1 0.0.0 (2020-04-30)

- First release on PyPI.



## CHAPTER 8

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### Indices and tables

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- `genindex`
- `modindex`
- `search`



**S**

`spwla.resistivity`, [7](#)



## A

`archie()` (*in module `spwla.resistivity`*), [7](#)

## S

`spwla.resistivity` (*module*), [7](#)