

ozzy: a Python package for PIC data visualisation and analysis

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What is ozzy?

- Developed to simplify data handling for particle-in-cell (PIC) simulations
- Enables easy analysis and visualization of large datasets across multiple codes

Why Ozzy?

- **Multi-Code Compatibility:** Works with various PIC simulation codes
- **User Benefits:**
 - Labeled dimensions for data clarity
 - Metadata retention across transformations
 - Handles large files with efficient processing

Key Features of Ozzy

1. **Data Reading:** Easy data access from complex simulation output files
2. **Metadata Tracking:** Keeps essential context for all transformations
3. **Optimized Operations:** Vectorized operations, fast indexing
4. **Built-In Plotting:** Simple visualization options
5. **Flexibility:** Built on NumPy, use your existing workflow whenever convenient

Installation and Usage

Installation

```
pip install ozzy-pic
```

Basic usage example

```
import ozzy as oz
ds = oz.open(
    'lcode', 'path/to/file/ez02500.swp',
    axes_lims = {'x1': (-100,0.0), 'x2': (0.0, 6.0)}
)
```

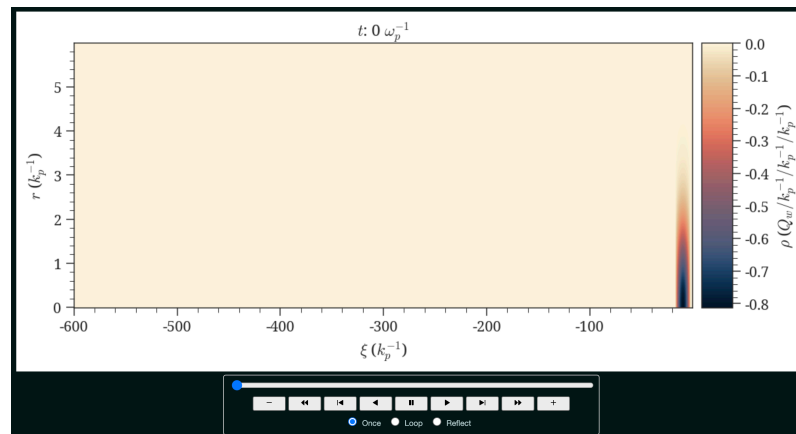
```
import ozzy as oz
ds = oz.open('osiris', '~/path/to/file/e1-000020.h5')
```

Installation and Usage

Interactive Plotting

```
import ozzy as oz
import ozzy.plot as oplt
ds = oz.open('osiris', '~/path/to/file/e1-000020.h5')

oplt.imovie(ds['e1'])
```





Welcome to



PIC simulation data analysis for the lazy and impatient

Ozzy is a data visualization and data wrangling tool geared towards particle-in-cell (PIC) simulations and the plasma physics community. Ozzy's philosophy is to make the analysis of simulation data originating from multiple simulation codes and often contained in large files as easy as possible by building on the powerful features of the xarray package.

[Get started](#)

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Why ozzy?



Any simulation code

Read and plot simulation data without



Labeled dimensions

This library is designed to help you

Community and Contributions

- **How to Get Involved:**
 - Contribute on GitHub
 - Suggest new features, report issues
 - Contribute to documentation
- **Citing ozzy:**
 - Find [ozzy](#) on Zenodo for academic citation

Conclusion

- **Try Ozzy:** Simplify your simulation data analysis.
- **Start here!**
 - [Documentation](#)
 - [GitHub Repository](#)

Please feel free to reach out: mariana.moreira@cern.ch

Thank you!