

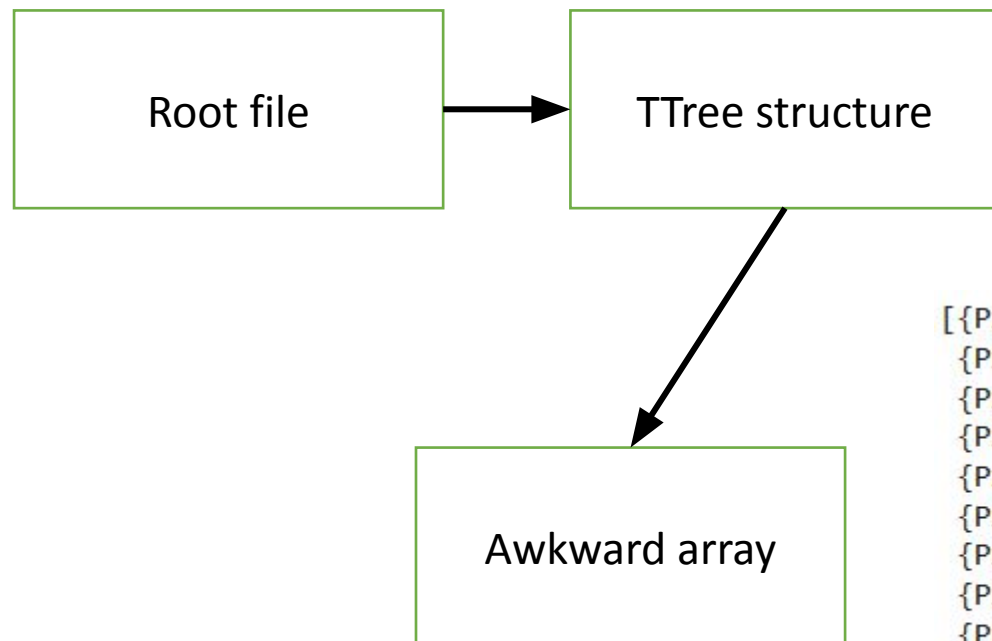
# The development of coffea schemas

This project is being made by the support of IRIS-HEP program

Speaker: Maxym Naumchyk

Mentors: Ianna Osborne, Iason Krommydas, Nick Smith, Peter Fackeldey (listing order is random)

# Coffea hands-on example



<TTree 'Events' (1499 branches) at 0x7b106caaa2d0>

```
[{PSWeight: [1.01, 1.26, 0.99, 0.791], SoftActivityJetNjets2: 5, ...},  
{PSWeight: [2.06, 0.872, ..., 0.962], SoftActivityJetNjets2: 5, ...},  
{PSWeight: [1.07, 0.887, 0.933, 1.02], SoftActivityJetNjets2: 7, ...},  
{PSWeight: [0.833, 0.827, 1.15, 1.1], SoftActivityJetNjets2: 4, ...},  
{PSWeight: [0.936, 0.622, 1.04, 1.17], SoftActivityJetNjets2: 16, ...},  
{PSWeight: [1.17, 1, 0.86, 0.978], SoftActivityJetNjets2: 6, ...},  
{PSWeight: [1.12, 1.59, 0.906, 0.688], SoftActivityJetNjets2: 4, ...},  
{PSWeight: [0.946, 0.922, ..., 0.997], SoftActivityJetNjets2: 12, ...},  
{PSWeight: [0.88, 0.855, 1.09, 0.811], SoftActivityJetNjets2: 3, ...},  
{PSWeight: [0.854, 0.518, 1.11, 1.16], SoftActivityJetNjets2: 20, ...},  
...,
```

```
-----  
backend: cpu  
nbytes: 243.3 kB  
type: 40 * event
```

# Coffea schemas

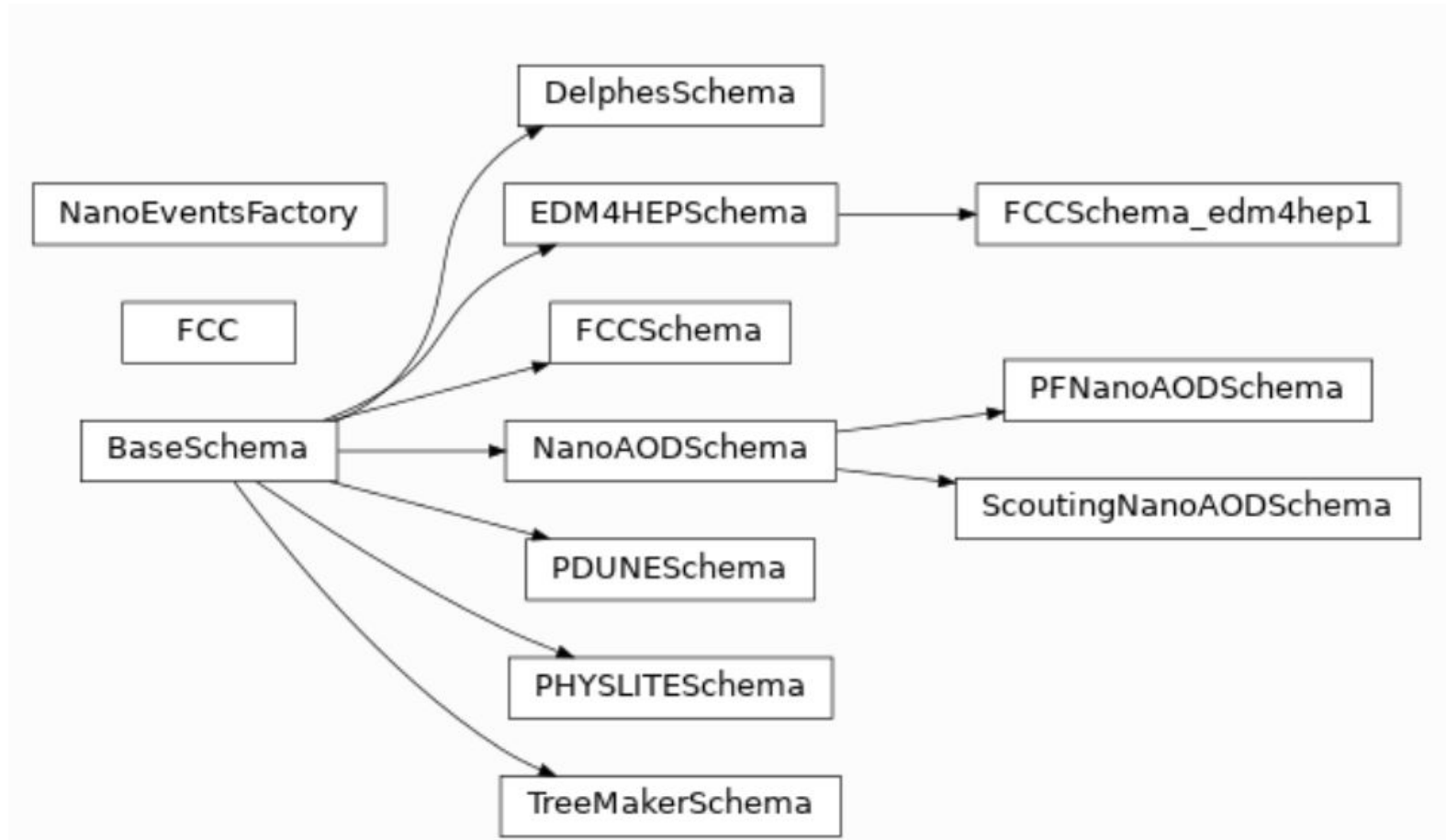


Image link: <https://coffea-hep.readthedocs.io/en/latest/modules/coffea.nanoevents.html#classes>

# Awkward-zipper

The screenshot shows the GitHub repository page for **awkward-zipper**, which is a public repository. At the top, there are buttons for Pin, Unwatch (3), Fork (1), and Star (4). Below this, the repository is managed by **maxymnaumchyk** with 3 branches and 0 tags. A search bar and buttons for 'Add file' and 'Code' are present. The main content area displays a list of files and their commit history:

File	Commit Message	Commit Time
.github	drop py 3.9 for now	last month
src/awkward_zipper	add an explicit check for awkward.Array	2 days ago
tests	feat: add counts2nestedindex kernel for virtual array	last week
.gitignore	initial commit	last month
.pre-commit-config.yaml	initial commit	last month
LICENSE	Initial commit	last month
README.md	initial commit	last month
pyproject.toml	drop py 3.9 for now	last month

Below the file list, the **README** is visible, titled **Awkward-Zipper**. It states: "Most of this code has been originally been written by the [coffea](#) developers." On the right sidebar, the **About** section notes "No description, website, or topics provided." and lists 4 stars and 3 watchers. The **Releases** section states "No releases published" with a link to "Create a new release". The **Packages** section states "No packages published" with a link to "Publish your first package". The **Contributors** section lists 2 contributors: **maxymnaumchyk** and **pfackeldey** (Peter Fackeldey).

Link: <https://github.com/maxymnaumchyk/awkward-zipper>

# Advantages of a standalone package

- Smaller package
- Only a few dependencies
- Improvements(simplifications) in how the 'schemas' work internally (makes it easier for users to create their own 'schemas')

# Plans of development

- Nanoaod format works with eager(materialized) arrays

I'm currently here ->

- Nanoaod format works with virtual(not materialized) arrays
- Nanoaod format works with dask-awkward
- Awkward zipper supports all 'schemas' from coffea

# Thank you for attention!

Full presentation link: TO ADD