

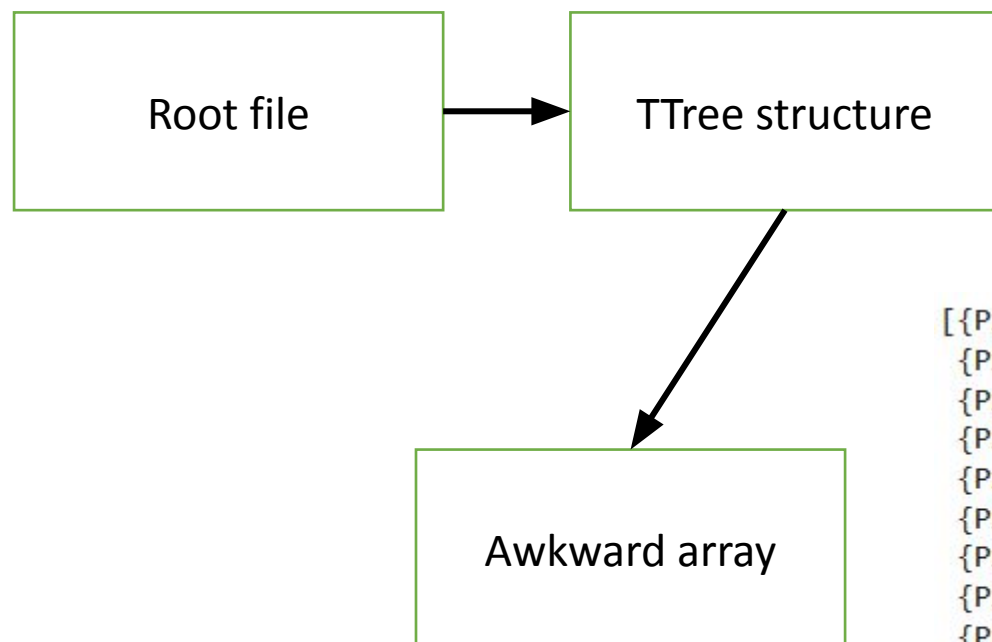
# The development of coffea schemas

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

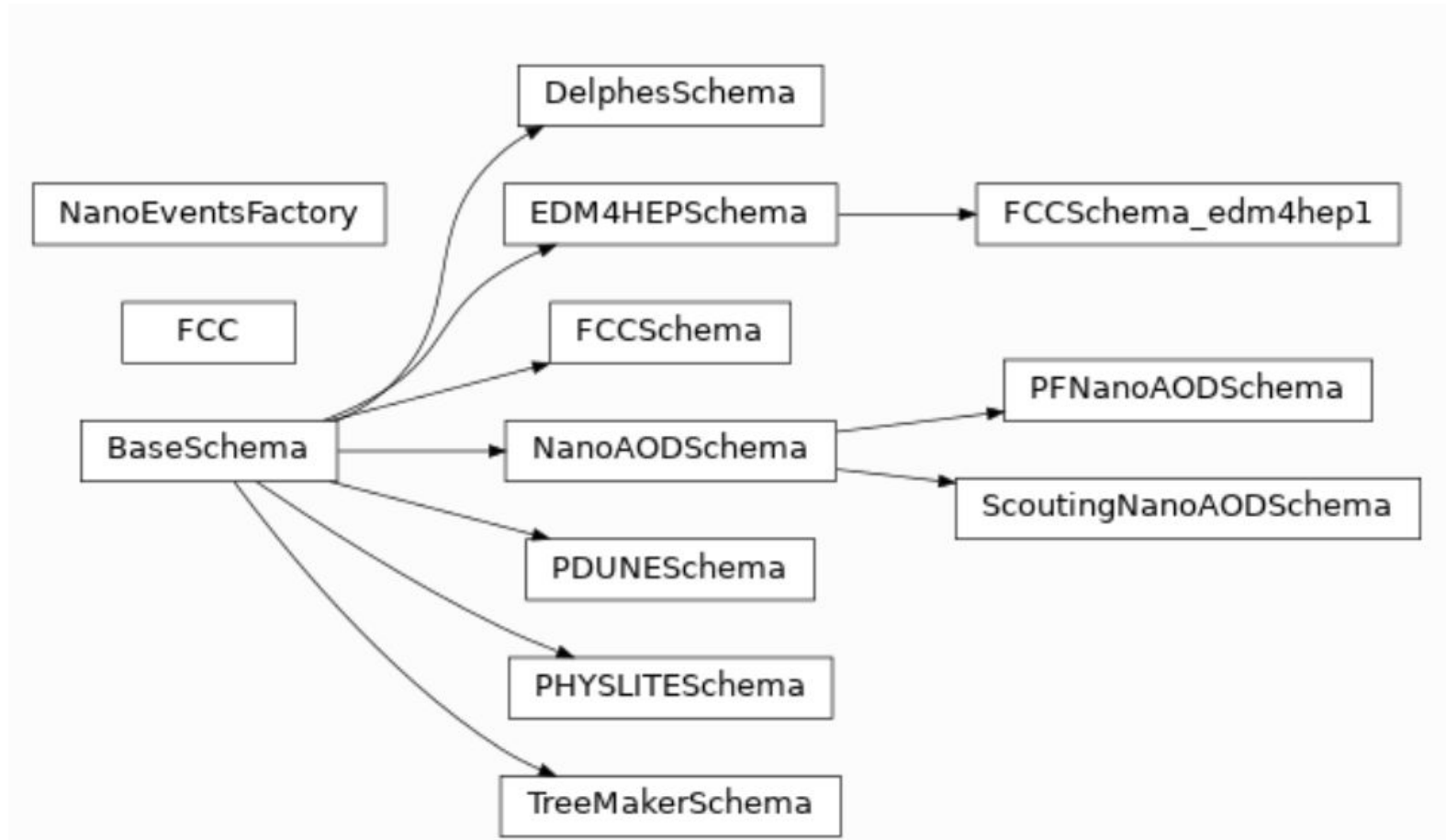


Image link: <https://coffea-hep.readthedocs.io/en/latest/modules/coffea.nanoevents.html#classes>

# Awkward-zipper

The screenshot shows the GitHub repository page for **awkward-zipper**, which is a public repository by user **maxymnaumchyk**. The repository has 3 branches, 0 tags, 3 unwatchers, 1 fork, and 4 stars. The main branch is selected. The file list shows a recent commit by **maxymnaumchyk** titled "feat: simplify the kernels" from 2 days ago, with 27 commits in total. The files listed are `.github`, `src/awkward_zipper`, `tests`, `.gitignore`, `.pre-commit-config.yaml`, `LICENSE`, `README.md`, and `pyproject.toml`. The `README.md` file is selected and shows the title "Awkward-Zipper" and a note that most of the code was originally written by the [coffea](#) developers. The right sidebar contains sections for "About" (no description), "Releases" (no releases published), "Packages" (no packages published), and "Contributors" (2 contributors: maxymnaumchyk and pfackeldey).

awkward-zipper Public

Pin Unwatch 3 Fork 1 Star 4

main 3 Branches 0 Tags Go to file Add file Code

maxymnaumchyk feat: simplify the kernels ✓ dd3613d · 2 days ago 27 Commits

.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

README BSD-3-Clause license

## Awkward-Zipper

Most of this code has been originally been written by the [coffea](#) developers.

**About**  
No description, website, or topics provided.  
Readme  
BSD-3-Clause license  
Activity  
4 stars  
3 watching  
1 fork

**Releases**  
No releases published  
[Create a new release](#)

**Packages**  
No packages published  
[Publish your first package](#)

**Contributors** 2

- maxymnaumchyk
- 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: <https://github.com/maxymnaumchyk/AGC-Demo-day-2025>