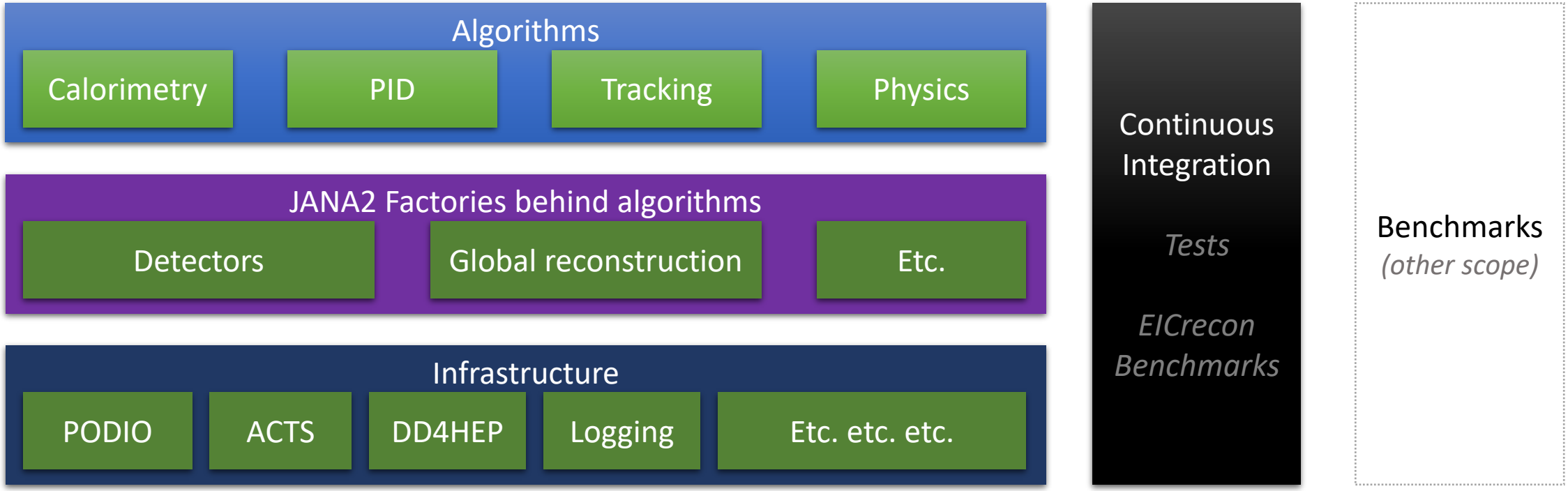
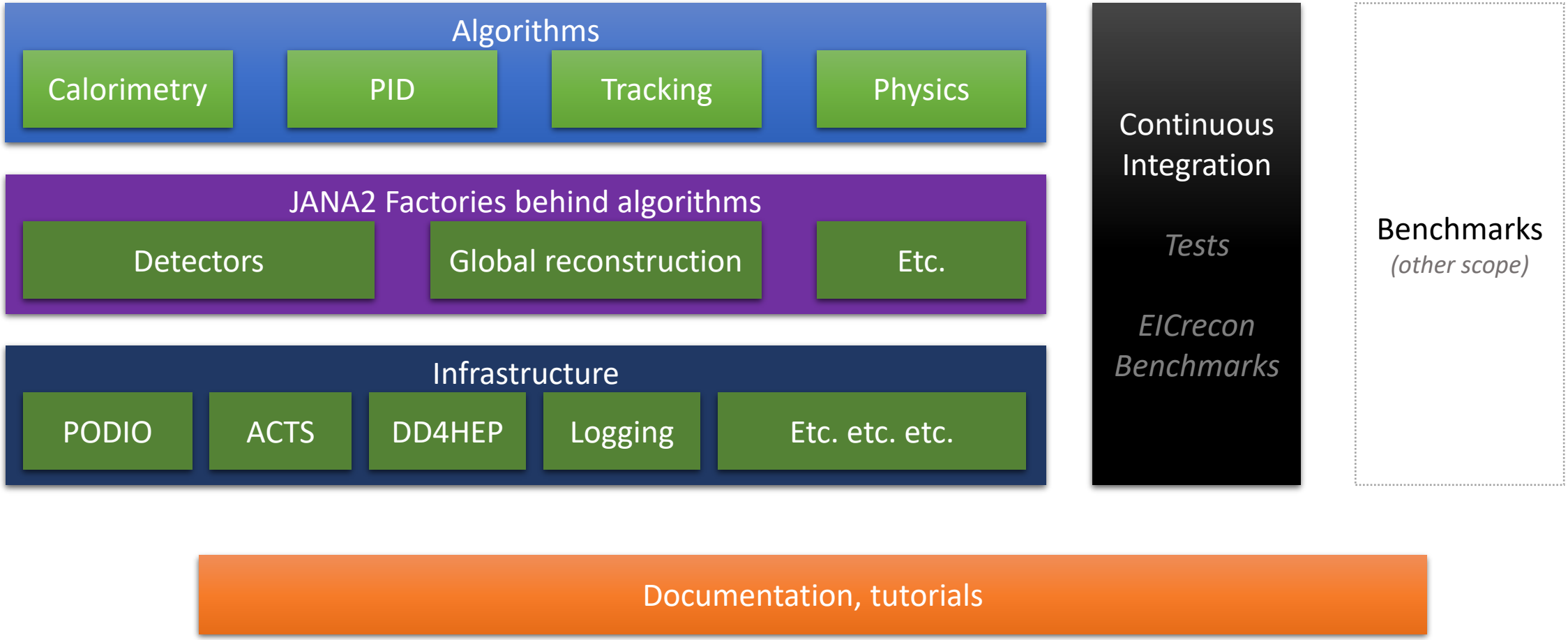
EICrecon
March simulation campaign

Dmitry Romanov
2023-03-23

EIC recon parts. CI Testing



Responsibilities



Major new features

- PODIO reimplementation *(end of this week)*
  - Inheritance from JFactoryPodioT *(end of this week)*
  - **Enable associations of reconstruction-MC** *(1 week)*
  - **Enable track – cluster matching** *(1.5 weeks)*
- Tracking chain improvement:
  - Allow events+background to be propagated through tracking chain *(days)*
  - Realistic seeding (1 month from today morning update)
  - Extended trajectory info *(days)*

Major new features

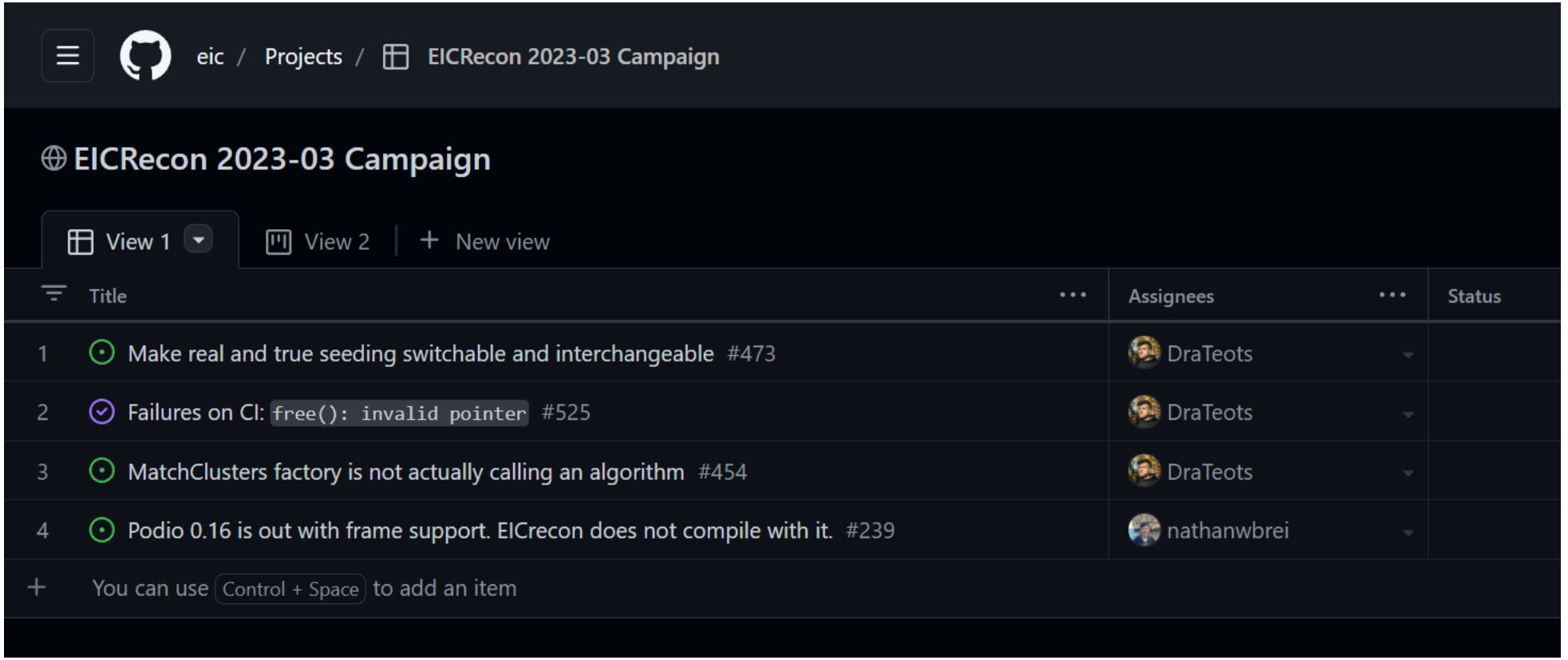
- Calorimetry *(TBD)*
- DRICH *(2 weeks. From TF meeting yesterday)*
- Initial Jet reconstruction *(2 weeks. From TF meeting yesterday)*
- Far forward – backward *(TBD)*

PODIO

- Testing branch on JANA2 – there
- Testing branch on EICrecon – there
- CMake refactoring – in progress with JANA2 new release

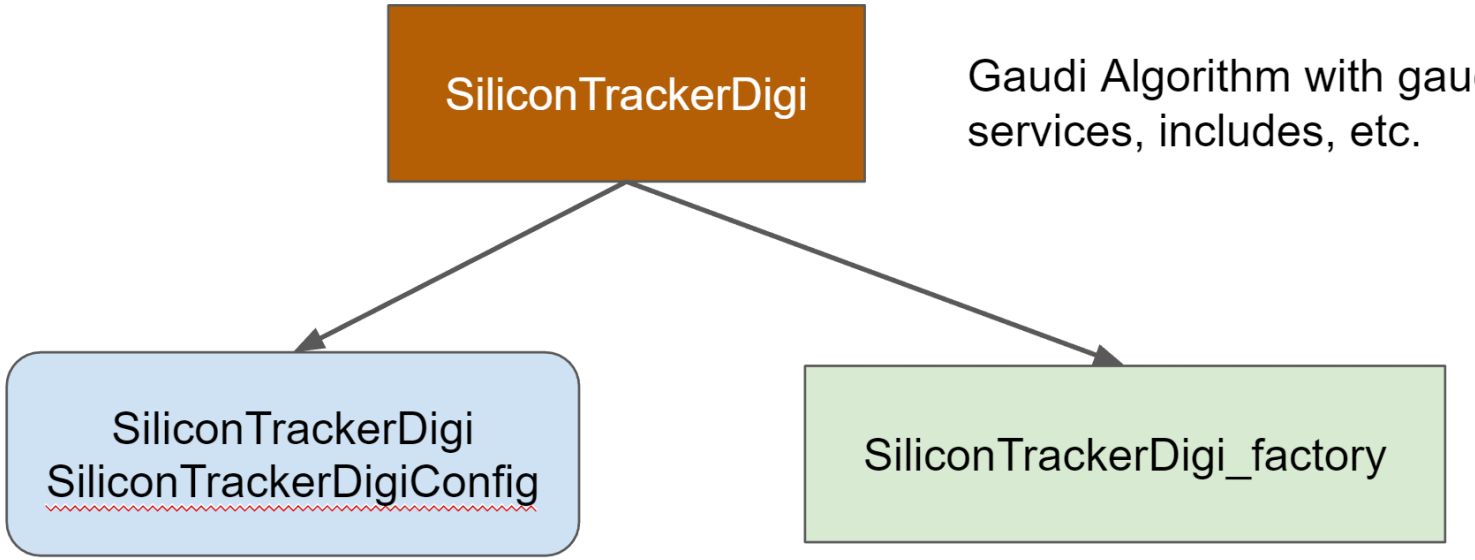
GitHub project

- [The link]



BACKUP

How we ported juggler algorithm



Gaudi Algorithm with gaudi properties, services, includes, etc.

Completely framework independent relying only on event model, libraries (like dd4hep) and other independent files and interfaces

JANA factories, parameters, services etc - framework related parts invoking algorithms

EIC recon parts. Algorithms

Each algorithm :

- Require some global context (geometry, logging, ACTS)
- Process events
- Configuration

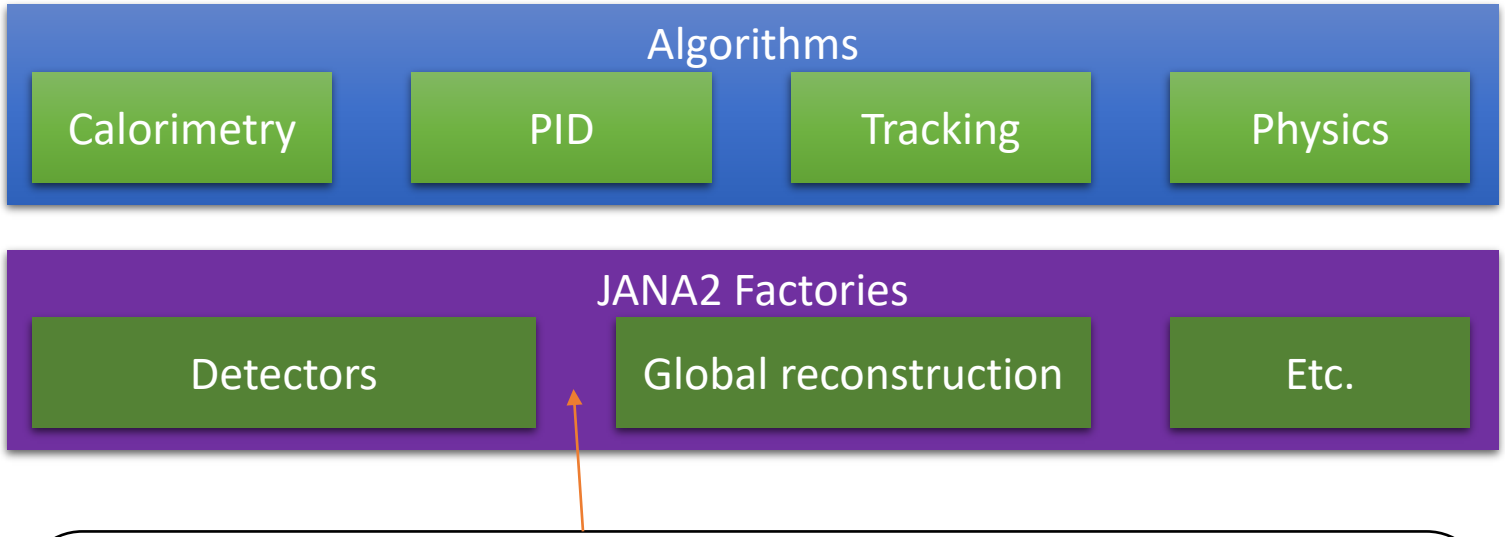
1. **Algorithms has no links to JANA2 or EICrecon**,
   they are completely independent.
   No services or any other elements are used.

2. **Live in their own separated folder**

3. **Separate build system**
   They are built like regular libraries (not plugins)
4. **Usable in any other framework out of the box**

5. **Algorithms are isolated from each other**, so if one takes a single algorithm and just drop it to another framework - **it will work with no any code modification**.

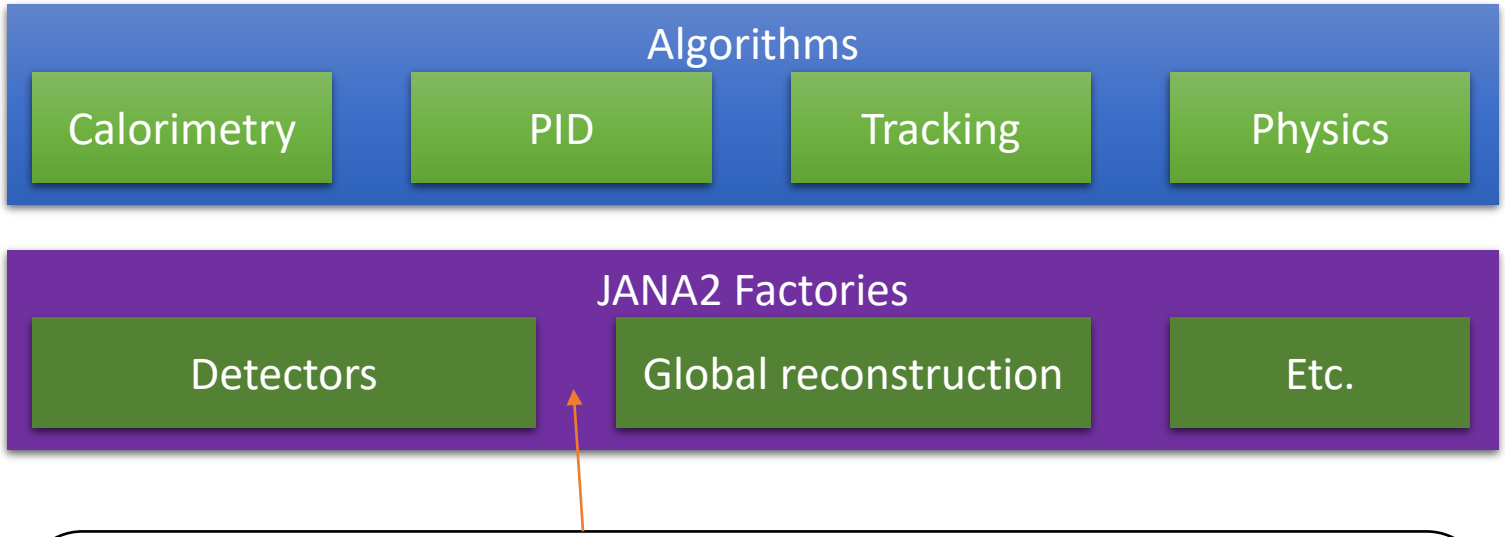
EIC recon parts. Middle factories



Middle factories:

- Backend factories provide context, event data and configs
- Uses framework infrastructure
- Define data flow order

EIC recon parts. Middle factories



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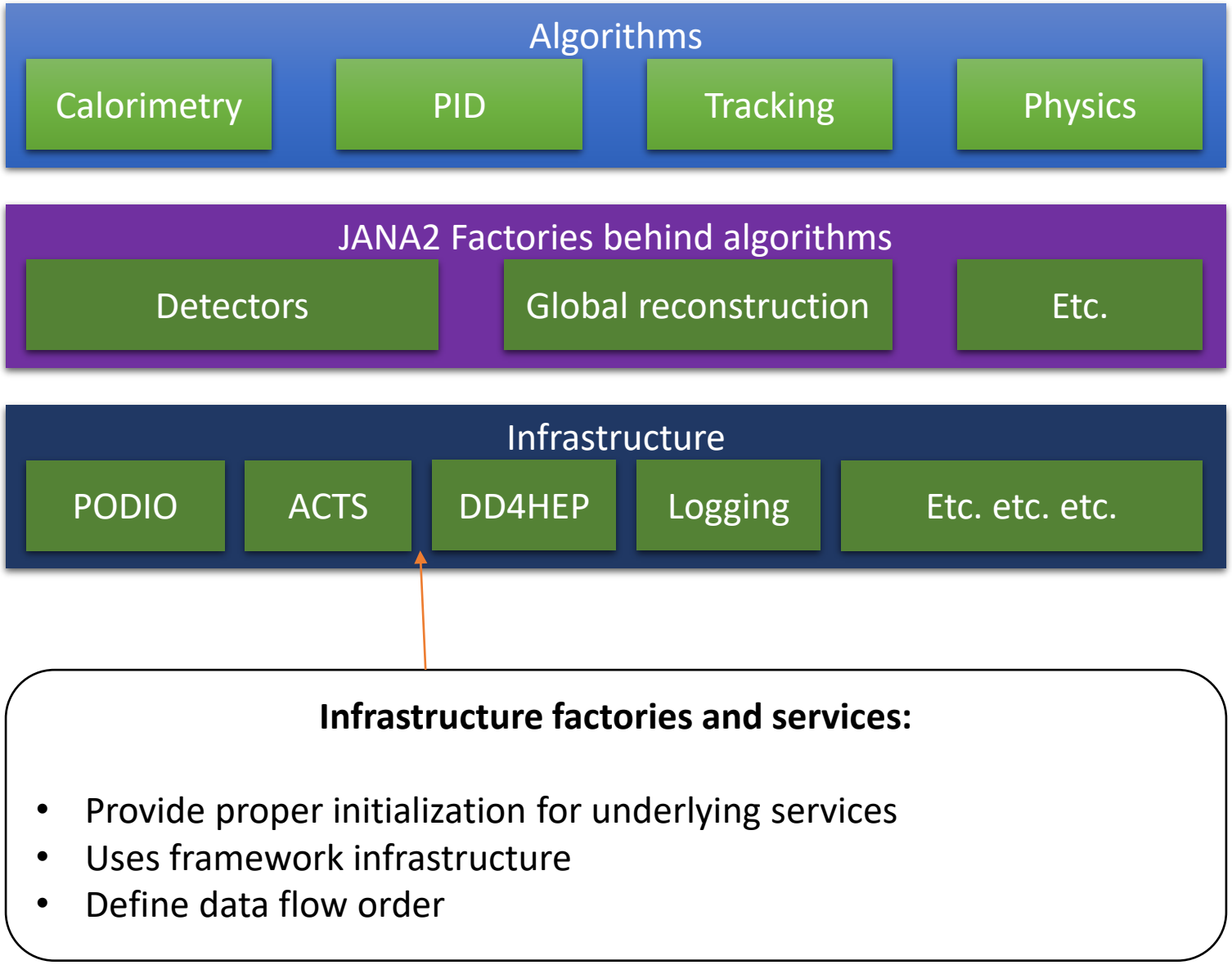
EIC recon parts. Infrastructure

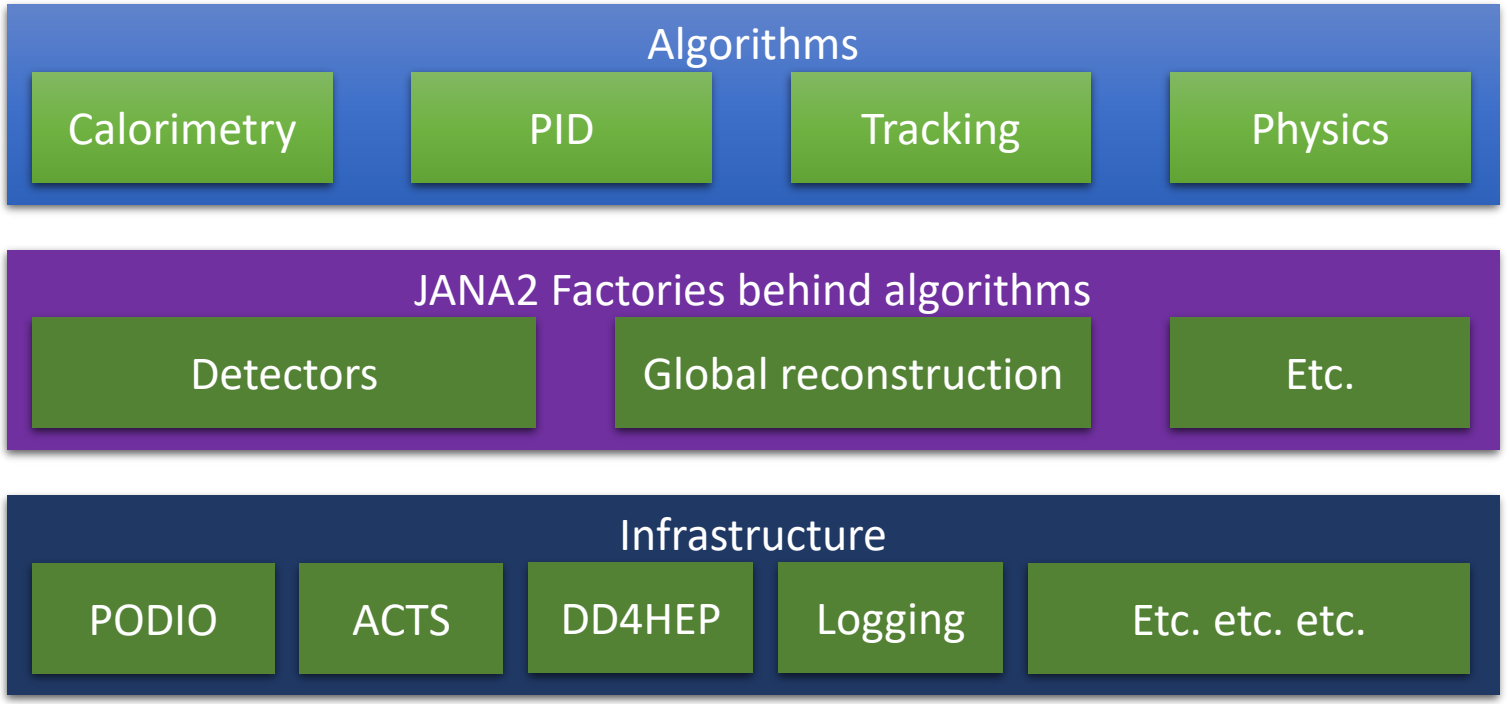


EIC recon parts. Infrastructure

Modified to fit new API

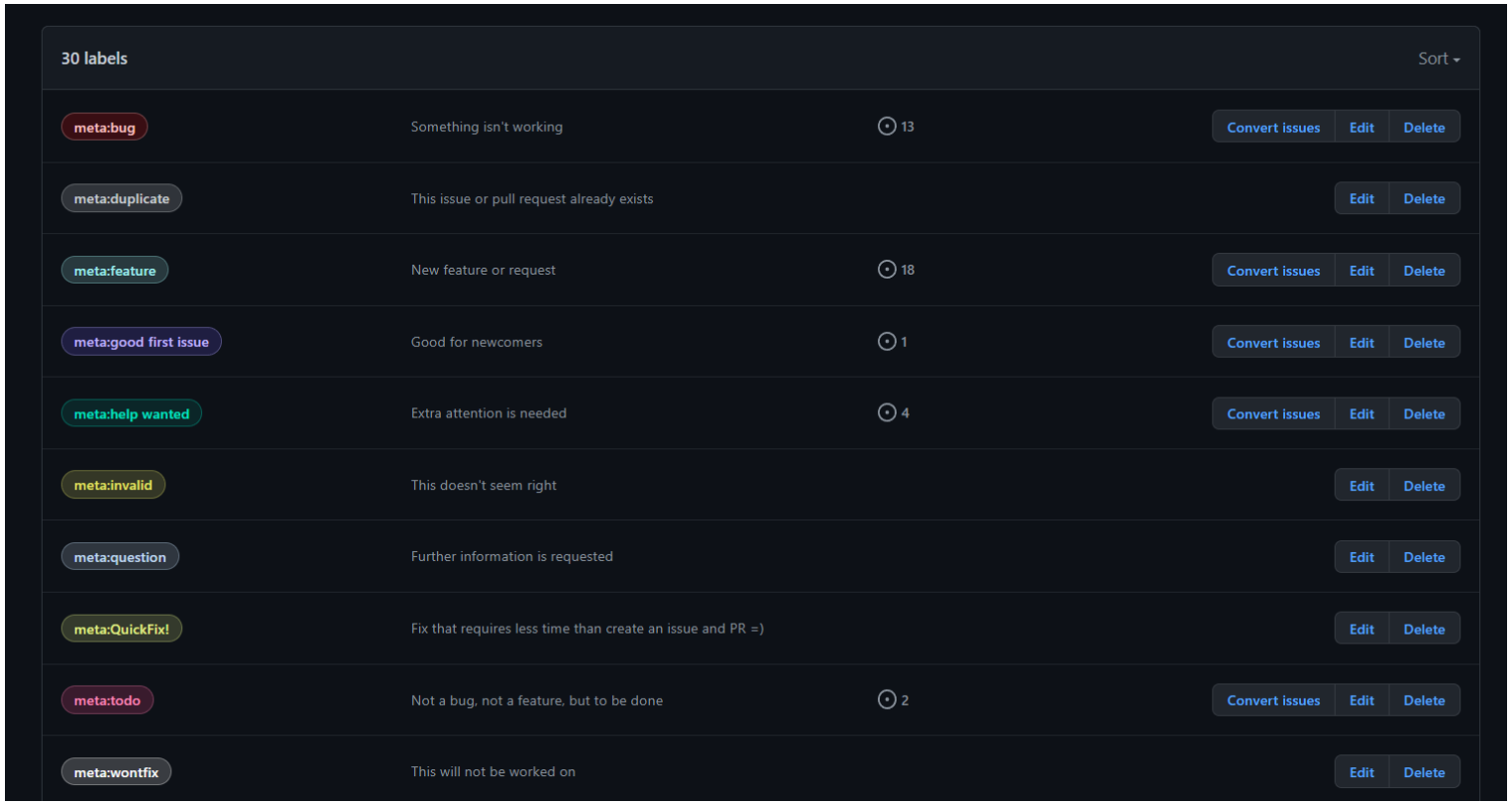
Heavy rework

Mostly intact fit new API



GitHub labels:

30 labels



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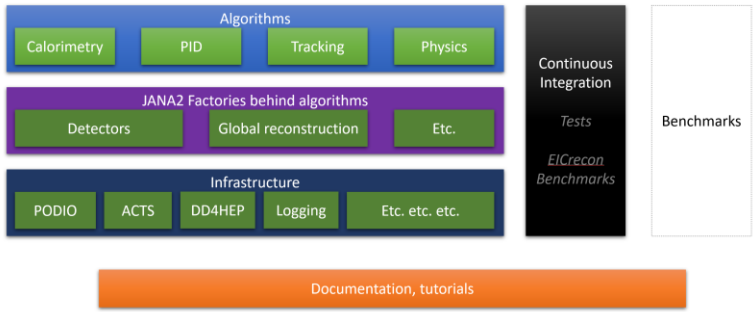
Label categories

[meta]
(Usual labels)

meta:bug	Something isn't working
meta:duplicate	This issue or pull request already exists
meta:feature	New feature or request
meta:good first issue	Good for newcomers
meta:help wanted	Extra attention is needed
meta:invalid	This doesn't seem right
meta:question	Further information is requested
meta:QuickFix!	Fix that requires less time than create an issue and PR =)
meta:todo	Not a bug, not a feature, but to be done
meta:wontfix	This will not be worked on

[part]
(EIC recon part)

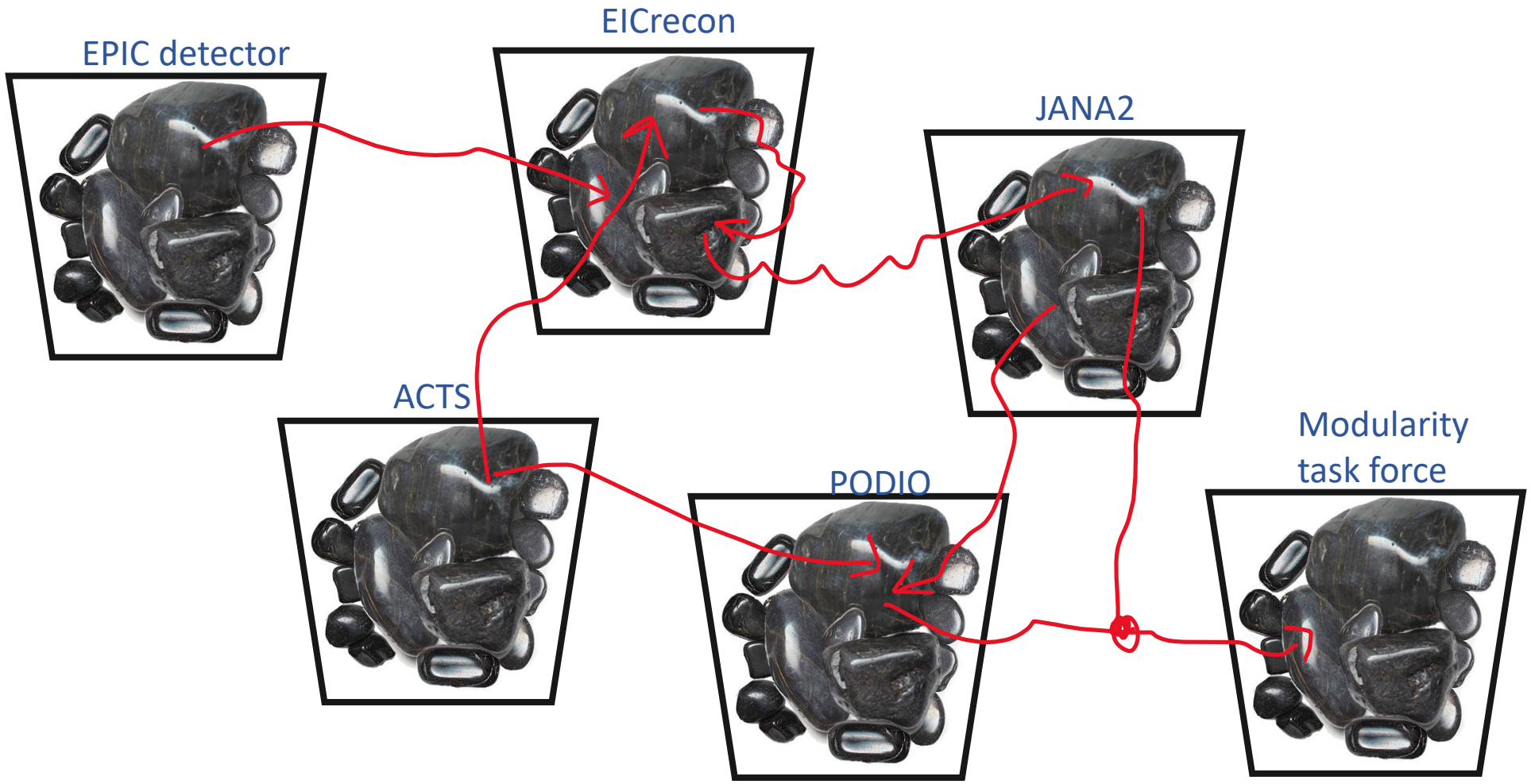
part:algorithms	Relates to algorithm
part:CI	Continuous integration and testing
part:cmake	Build system bugs and features
part:detectors	Relates to a separate detector (or a couple of)
part:documentation	Improvements or additions to documentation
part:factories	Backend factories and related data flow
part:geometry	Relates to geometry
part:integration	Integration with dependencies and peer packages
part:io	Input and output, PODIO and others
part:logging	What goes to log and output
part:services	Core services and functionality
part:tests-benchmarks	Tests, benchmarks, visual and other tools for that



[reco]
(Reconstruction context)

reco:calorimetry	relates to calorimetry
reco:defaults and flags	User parameters and default values
reco:digitization	Digitization algorithms we use
reco:far-forward	Far forward reconstruction
reco:global-reco	Global reco such as particles association, global PID, etc
reco:physics	
reco:PID	Relates to PID reconstruction
reco:tracking	Relates to tracking reconstruction

Big rocks, small rocks



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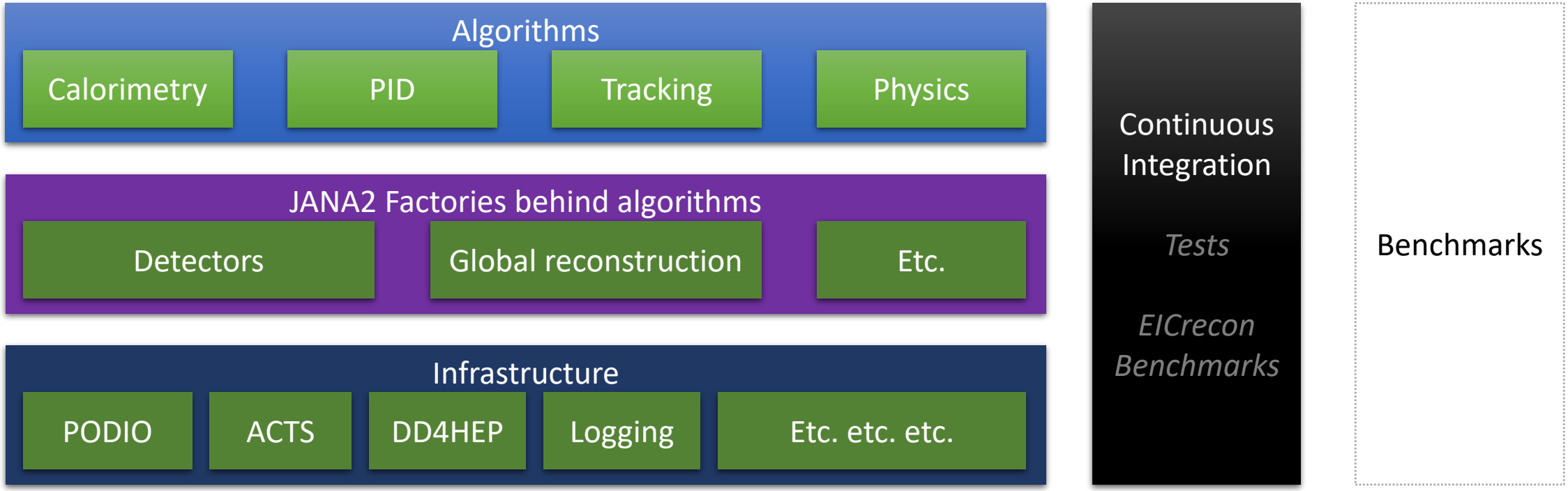

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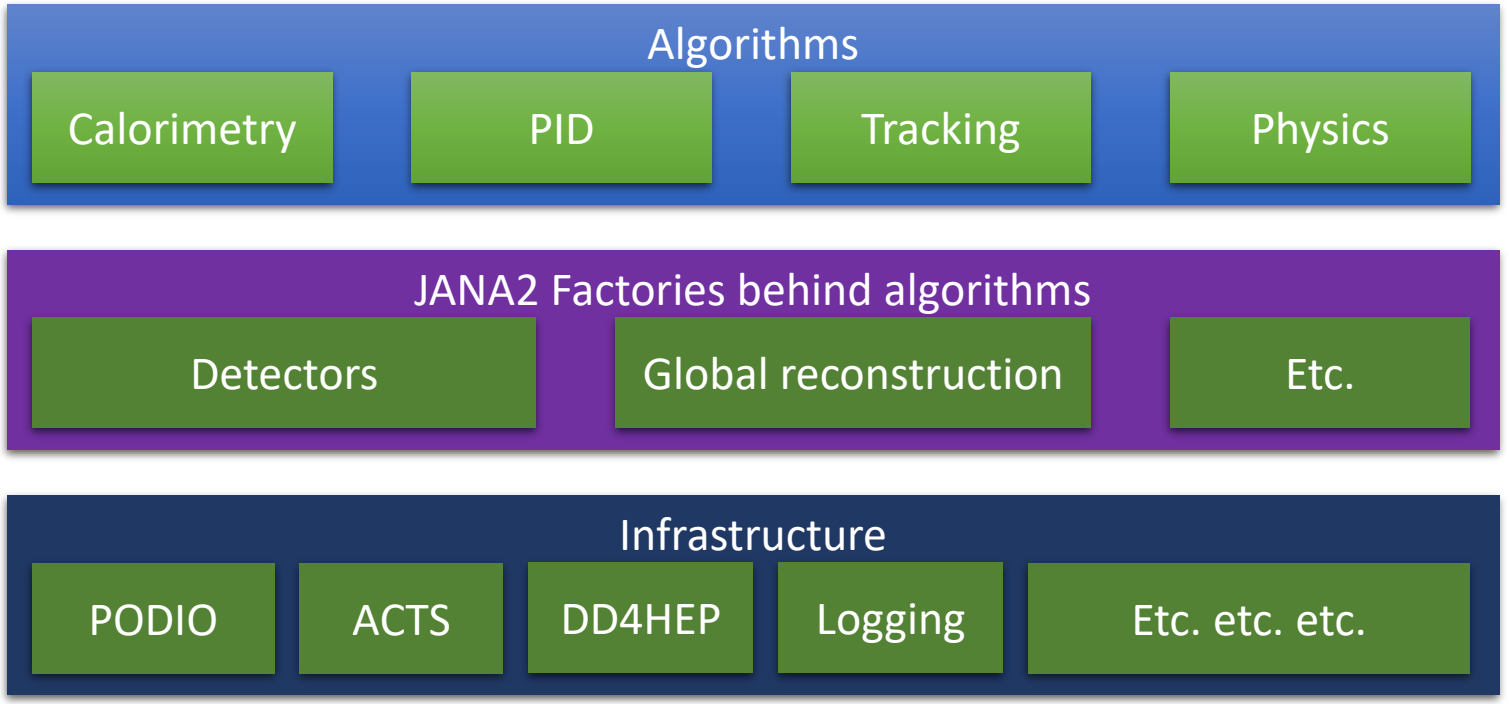
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