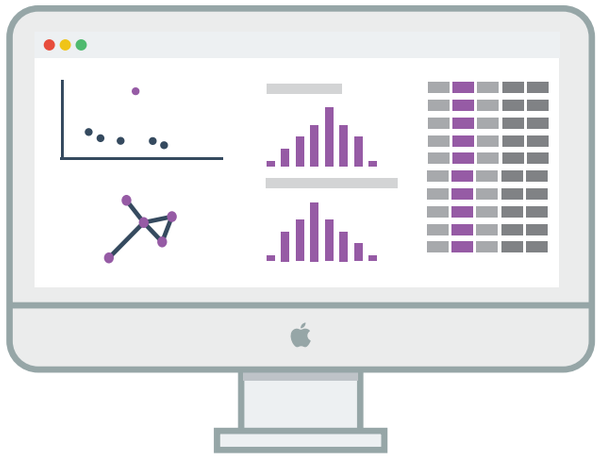

Eamonn Maguire, CERN

hepdata.net

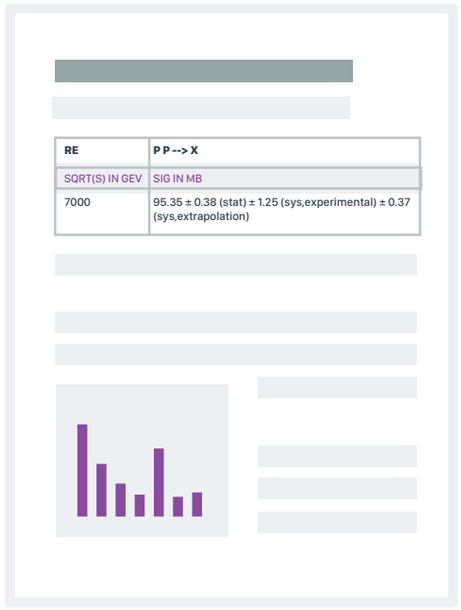
# HEPData

## What is it?

HEP Scattering experiments going back to the 1950s



Each group of scientists will analyse particular signals by processing large numbers of collision.



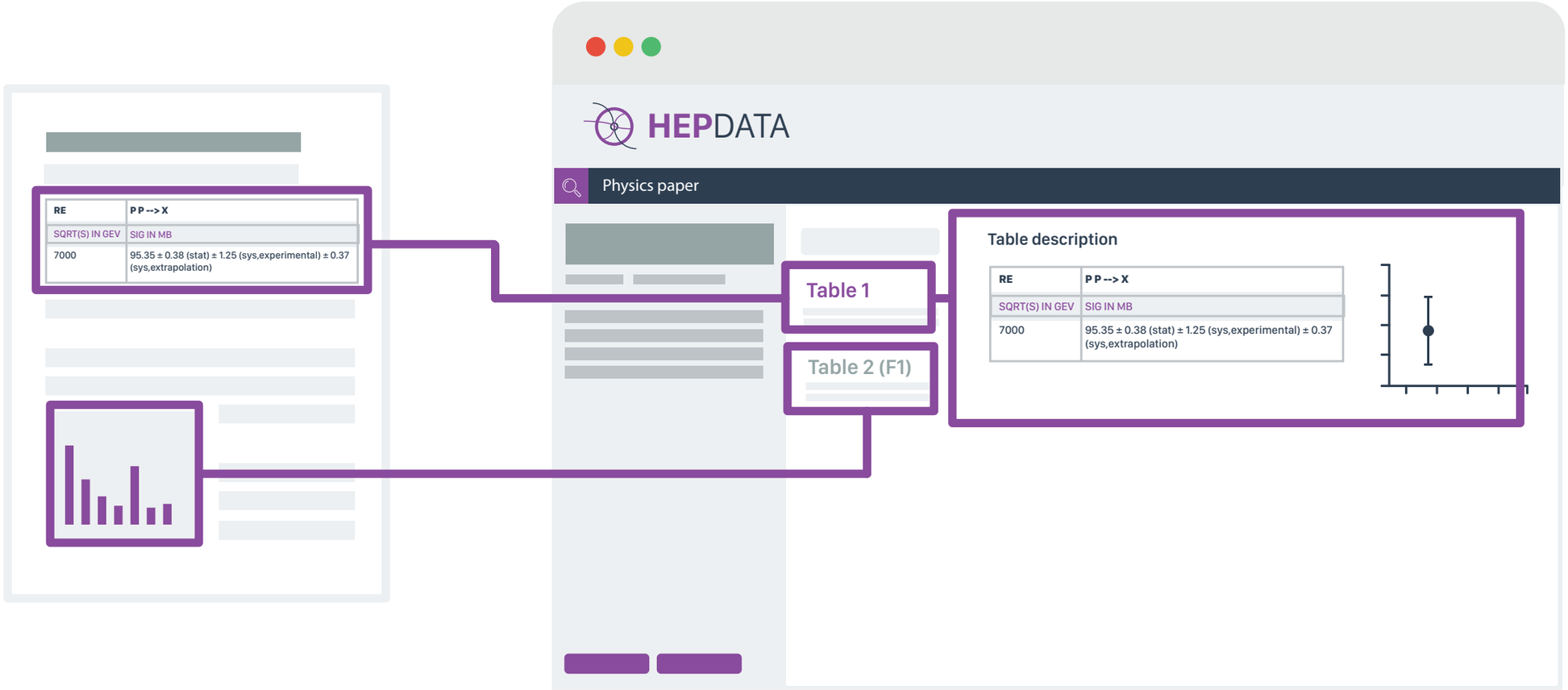

The resulting analysis will be published as a paper.

**But where does the processed data go?**

# HEPData

## What is it?

HEPData is the go to place for physicists to get access to the data underlying plots and tables in a publication. It also links to the scripts and ROOT files for instance used in the analysis (for reproducibility).



HEPData

# What is it?

## The Durham HepData Project

Durham University

REACTION DATABASE • DATA REVIEWS • PDF PLOTTER ABOUT HEPDATA • SUBMITTING DATA

Enter query: Search
examples: re gamma gamma%, re p p --> p p and obs sig, exp cern

Search Help — Output Help — Form Search — Browse Keywords — **Latest LHC DATA**

**To search the database:**
Enter your query command comprising keyword-value pairs joined with Boolean ANDs. A null entry will retrieve all records. Use % as the right or left truncation character to search for values beginning or ending with the value. All searches are **case-insensitive**. More details are in the Search Help.

**The basic HepData keywords are:**
**reac** - the reaction (e.g. p p --> charged x), also **beam**, **targ**, and **fsp**.
**obs** - the observable (e.g. SIG, DSIG/DX, DN/DPT).
**sqrts** - the centre-of-mass energy in GeV.
**exp** - the experiment/laboratory name (e.g. ZEUS, CERN, LHC).
**date** - the year of the publication/preprint.
**auth** - the first author name on the paper.
**ref** - the publication/preprint reference.

**Searching via 'Inspire':**
**title:** *word* (matches Inspire records having 'word' in the paper title).
**keyword:** *word* (matches Inspire records having 'word' in the Inspire keywords).
**author:** *name* (matches Inspire records having 'name' in the author list).

**HepData data reviews**

- NEW Quarkonia data in Hadronic Interactions
- Structure functions in DIS
- Single photon production in hadronic interactions
- Two-photon reactions leading to hadron final states
- Drell-Yan cross-sections
- Inclusive particle production data in e+e- interactions
- Hadronic total cross-sections (R) in e+e- interactions
- Low-energy neutrino cross-sections
- Event shapes in lepton-lepton and lepton-nucleon interactions

**HepData** @HepData 24 Apr
Added @ATLASpapers data on "Simultaneous measurements of the $t\bar{t}$, $W^+W^-$, and $Z/\gamma^* \to \tau\tau$ cross sections in pp at 7 TeV" to hepdata.cedar.ac.uk/view/ins1304455

**HepData** @HepData 24 Apr
Added @CMSpapers data on "Search for SM production of four top quarks in the lepton + jets channel in pp at 8 TeV" to hepdata.cedar.ac.uk/view/ins1318946

Follow @HepData

Contact us at: hepdata(at)projects.hepforge.org

HepData is funded by the UK STFC and hosted at the Durham IPPP.
HepData also maintains the UK mirror of the PDG.

IP3

Science & Technology Facilities Council

HEPData

## What are we doing?

Creating a new system based on invenio

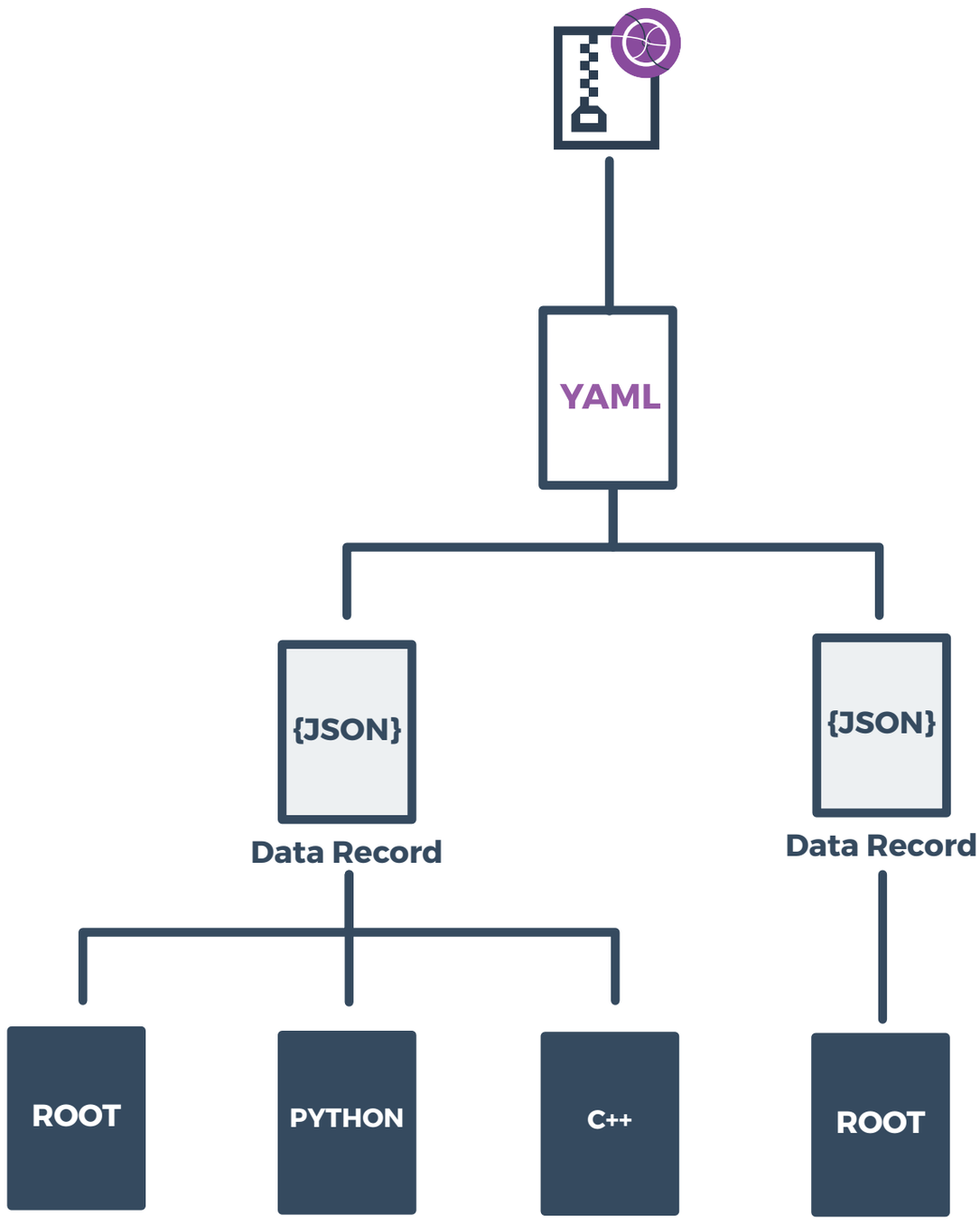
Redesigning the interface from it's current old school style

Supporting a more streamlined data submission process

Building an interactive data visualization component

HEPData

# Submission Archive




submission.zip

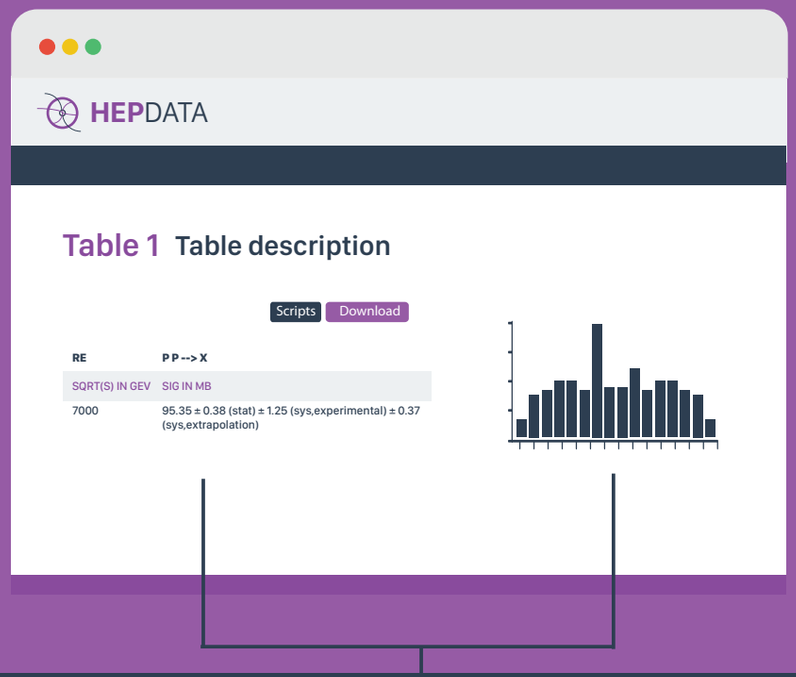
submission.yaml

data records

External data files & links

# HEPDATA

Tables rendered from JSON




Plots rendered automatically using a custom library built upon D3.js

{JSON}

Tables and plots

## Web Server

Processes YAML file, inserts records in to database and links publication record with data and files.

## HEPdata submission archive

# The System - Demo


hepdata.net

# HEPData

# Comprehensive Review System

HEPData | Search HEP Data | Search | Submit | Sandbox | Help | admin

Browse all | Mikkelsen, R.E. et al. | Accessed 5 times (5.0/day) | Download Submission as

Hide Publication Information

## Elastic photonuclear cross sections for bremsstrahlung from relativistic ions

Mikkelsen, R.E. , Sørensen, A.H. , Uggerhøj, U.I.

View paper in Inspire

**Abstract (data abstract)**
CERN-LHC. Measurements of the cross section for ZZ production using the 4l and 2l2nu decay channels in proton-proton collisions at a centre-of-mass energy of 7 TeV with 4.6 fb^-1 of data collected in 2011. The final states used are 4 electrons, 4 muons, 2 electrons and 2 muons, 2 electrons and missing transverse momentum, and 2 muons and missing transverse momentum (MET). The cross section values reported in the tables should be multiplied by a factor of 1.0141 to take

Upload New Files

Viewing version 2

Filter 9 data tables

### Table 1

Page 17 of preprint

The measured fiducial cross sections. The first systematic uncertainty is the combined systematic uncertainty excluding luminosity, the second is the...

passed review

### Table 2

Auxiliary Figure 9b.

Signal acceptance for the GGM model with tan(β)=30 in the combined electron and muon SR-Z.

passed review

### Table 3

Figure 8A

Normalized ZZ fiducial cross section (multiplied by 10^6 for readability) in values of the leading reconstructed dilepton pT for the

Signal acceptance for the GGM model with tan(β)=30 in the combined electron and muon SR-Z.

SQRT(S) 8000.0 GeV

## Data

| SQRT(S) | | 8000.0 GeV |
|---|---|---|
| MU [GEV] | M(GLUINO) [GEV] | ACCEPTANCE |
| 120 | 400 | 0.002229 |
| 150 | 400 | 0.004794 |
| 300 | 400 | 0.008519 |
| 390 | 400 | 0.005903 |
| 150 | 500 | 0.005636 |
| 200 | 500 | 0.01111 |
| 300 | 500 | 0.01587 |
| 400 | 500 | 0.01666 |
| 490 | 500 | 0.01149 |
| 120 | 600 | 0.00119 |
| 200 | 600 | 0.00873 |
| 300 | 600 | 0.0189 |
| 400 | 600 | 0.02529 |

### Review Summary

Todo | Attention Required | Passed

### Conversation

2015-10-13 09:47:08 admin: This table is missing some values.

No messages yet...

Send feedback on this data...

Send Feedback

Y Axis MU [GEV]

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About | Submission Guidelines

# HEPData

# Dashboard for Submission Management

HEPData

Search HEP Data

Search

Submit Sandbox Help admin

## HEPData Dashboard

HEPData Administration | Manage Profile | Log out

Filter submissions

Progress

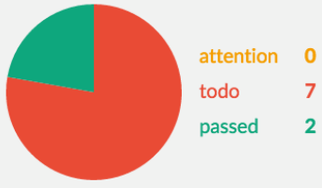
- Not started 0
- In progress 1
- Ready for Release 0

### Submissions in Progress

**In progress**

Elastic Photonuclear Cross Sections For Bremsstrahlung From Relativistic Ions

2 Versions




COORDINATOR ADMIN EMAIL

UPLOADER EAMONM MAGUIRE EMAIL

REVIEWER MAGUIRE. EAMONN EMAIL

STARTED ON 2015-10-13 09:28:26

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About | Submission Guidelines

# HEPData

# Interactive Plotting Library



Hide Publication Information

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The observed and expected EmissT distribution in the dielectron SR-Z. The negigible estimated contribution from Z+jets is omitted in these distributions. The last bin contains the overflow.

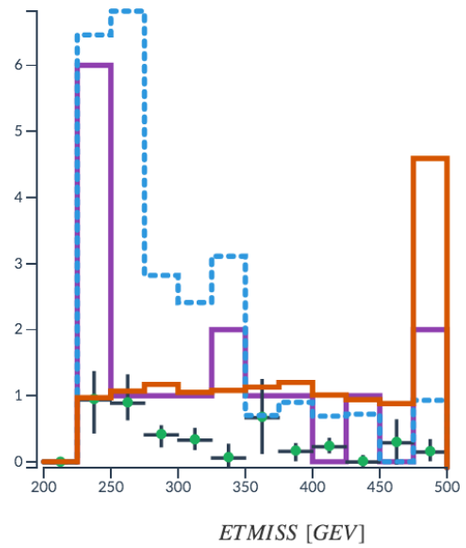
energies 8000

### Data

Download data as

| SQRT(S) | 8000.0 GeV | | | |
|---|---|---|---|---|
| EVENTS | 25 GEV | | | |
| ETMISS [GEV] | Data | Expected Background | GGM 700 200 1.5 | GGM 900 600 1.5 |
| 200 - 225 | 0 | 0 | 0 | 0 |
| 225 - 250 | 6 | 0.95 -0.51, 0.41 stat | 6.46 | 0.97 |
| 250 - 275 | 1 | 0.9 -0.26, 0.41 stat | 6.82 | 1.07 |
| 275 - 300 | 1 | 0.42 -0.19, 0.12 stat | 2.82 | 1.17 |
| 300 - 325 | 1 | 0.34 -0.15, 0.16 stat | 2.41 | 1.05 |
| 325 - 350 | 2 | 0.07 -0.16, 0.19 stat | 3.11 | 1.08 |
| 350 - 375 | 1 | 0.68 -0.55, 0.56 stat | 0.7 | 1.13 |
| 375 - 400 | 1 | 0.17 -0.15, 0.1 stat | 0.9 | 1.2 |
| 400 - 425 | 0 | 0.24 -0.1, 0.11 stat | 0.69 | 1.01 |
| 425 - 450 | 1 | 0.01 ±0.08 stat | 0.72 | 0.94 |
| 450 - 475 | 0 | 0.3 ±0.33 stat | 0 | 0.88 |

### Visualize




Sum errors:

Deselect variables or hide different error bars by clicking on them.

### Variables

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# HEPData

# Versioning

Upload New Files

Viewing version 2

Version 1

Version 2

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Page 17 of preprint

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passed review

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energies 8000

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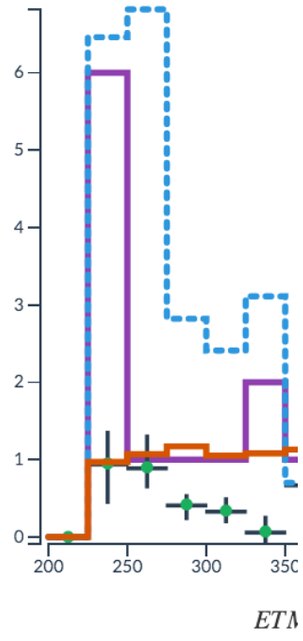


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HEPData

# Sandbox

# HEPData

# Sandbox



Filter 9 data tables

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Table 4
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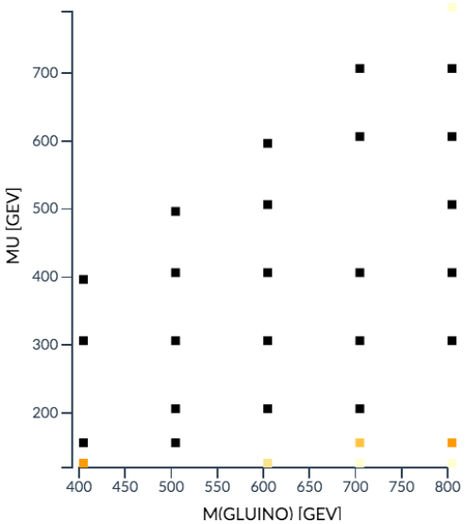


Brushing Enabled?

X Axis M(GLUINO) [GEV]
Y Axis MU [GEV]

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# HEPData

Getting Data in, getting data out...

## Converter

### Convert from YAML to ROOT, YODA, CSV

Install via PIP, use as a web service, and contribute to more conversions!

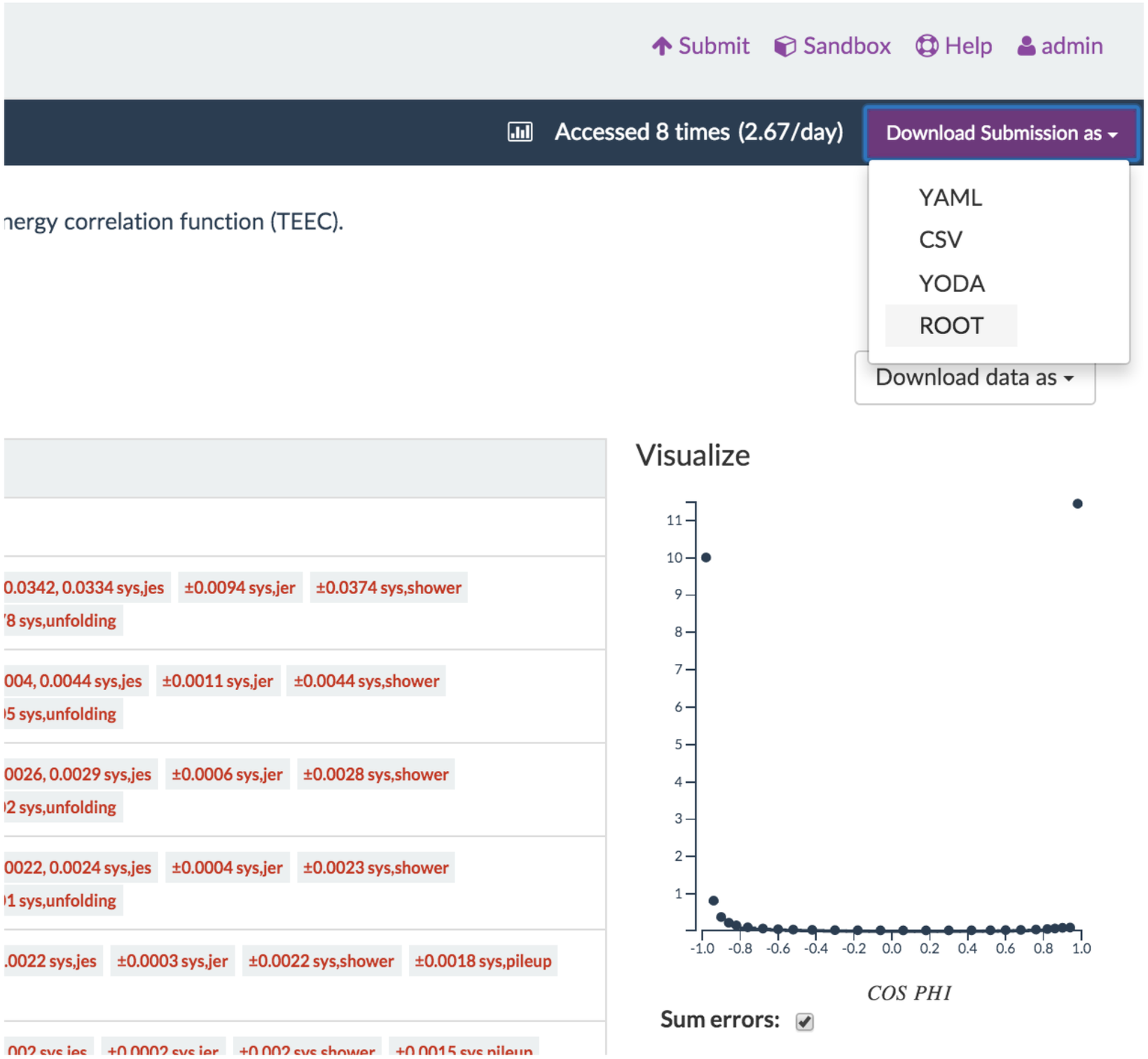
## Validator

### Validate the YAML input to ensure a stress free submission

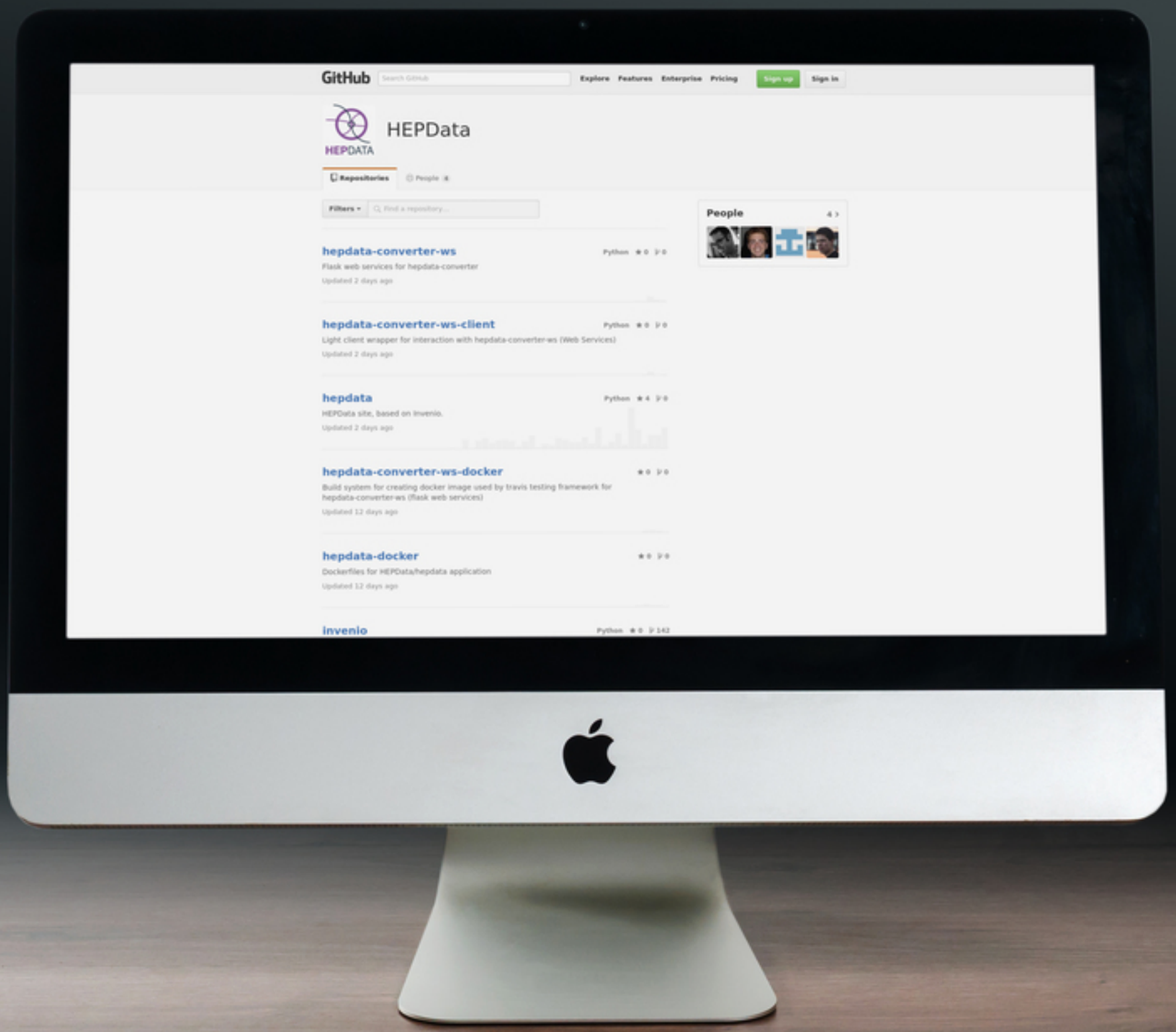
Install via PIP, easy to use API.

HEPData

# Conversion to many formats



Everything on Github! http://www.github.com/hepdata





## Acknowledgements

### HEPData @ CERN

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Jan Stypka
Salvatore Mele

### HEPData @ Durham

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Michael Whalley
Frank Kraus

### Alumni

Laura Rueda-Garcia
Michal Szoziak Summer Student

### HEPData @ NYU

Lukas Heinrich
Kyle Cramner

and all the Inspire team including Javier Martin Montull, Jan Age Lavik, and Samuel Kaplun for their help!


# Questions?