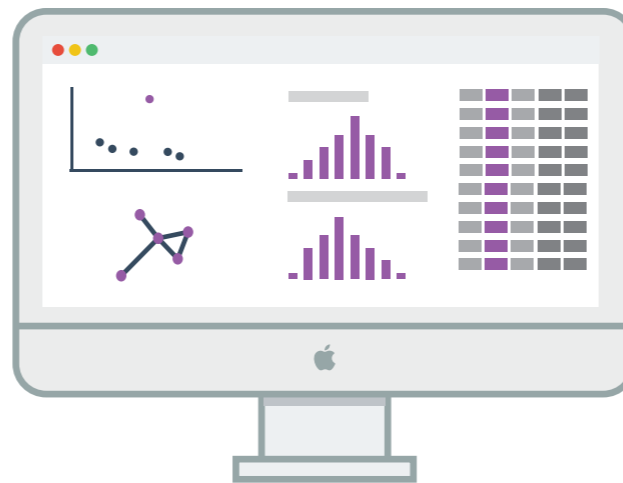


Eamonn Maguire, CERN  
HEPData Workshop  
[hepdata.net](http://hepdata.net)

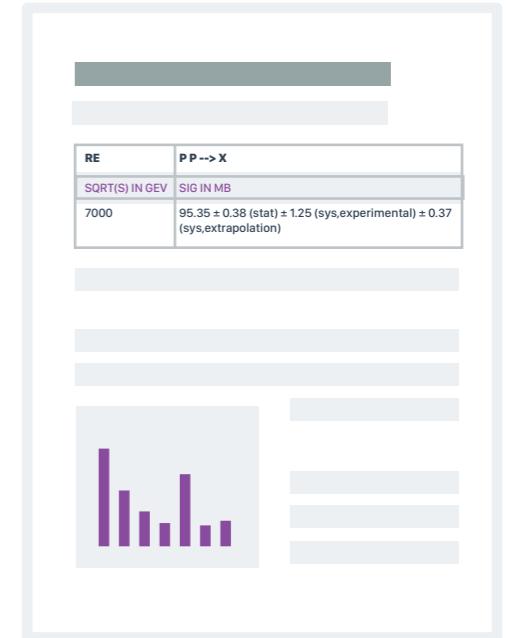
## What is it?



HEP Scattering experiments going back to the 1950s



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



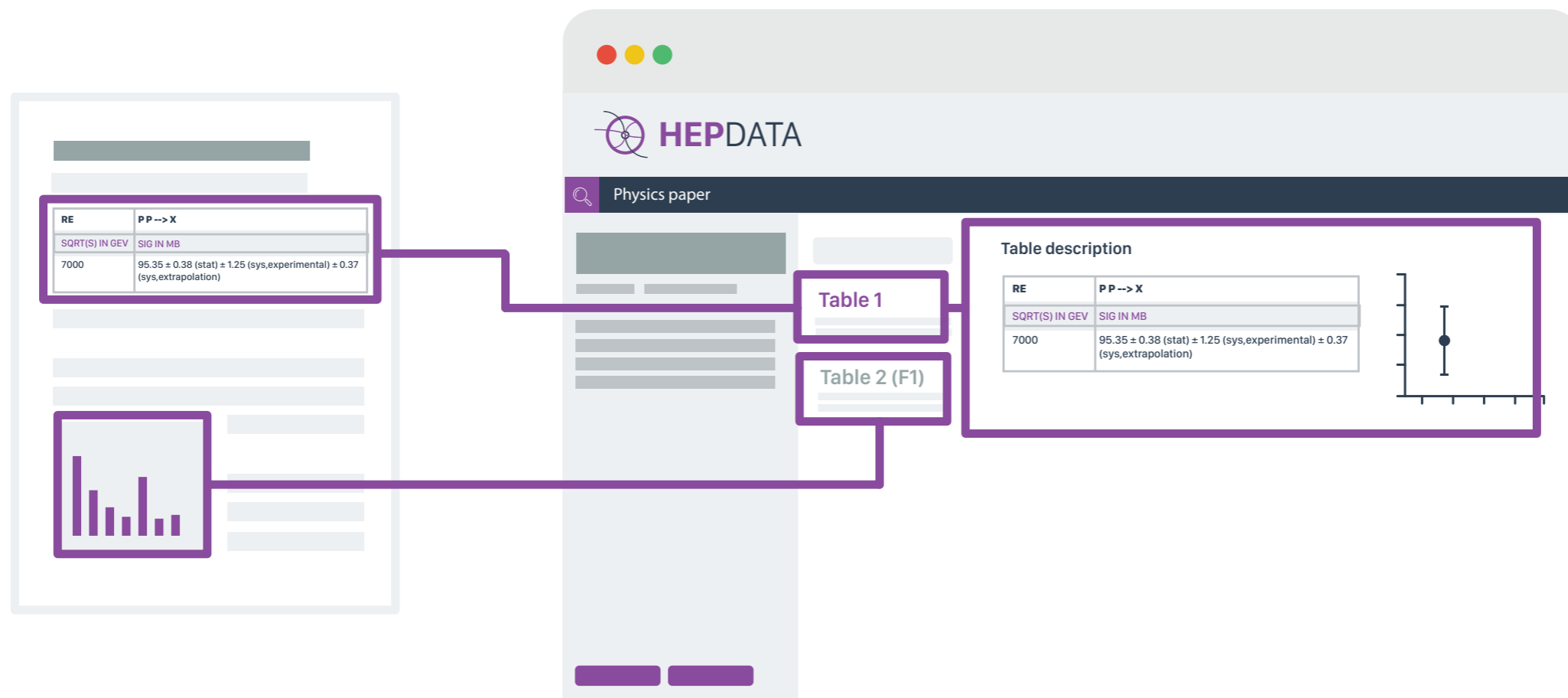
The resulting analysis will be published as a paper.

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

## 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).



# The Durham HepData Project

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examples: re gamma gamma%, re p p --&gt; 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.  $p p \rightarrow \text{charged } x$ ), 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

**Hep Data**

HepData @HepData

24 Apr

Added @ATLASpapers data on "Simultaneous measurements of the  $t\bar{t}$ ,  $W^+W^-$ , and  $Z/\gamma^* \rightarrow \tau\tau$  cross sections in pp at 7 TeV" to [hepdata.cedar.ac.uk/view/ins1304455](http://hepdata.cedar.ac.uk/view/ins1304455)**Hep Data**

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](http://hepdata.cedar.ac.uk/view/ins1318946) Follow @HepDataContact us at: [hepdata\(at\)projects.hepforge.org](mailto:hepdata(at)projects.hepforge.org)





## What is new for you?

Whether you're a data provider, or consumer, the new HEPData has many functionalities

### Data Providers

1. A Simplified Submission Process
2. A standard entry data format
3. Full review management system
4. Versioning
5. DOI minting
6. Sandbox

### Data Consumers

1. Publication Driven Search
2. Data Driven Search
3. Semantic Publishing
4. Data Conversion
5. Access in Analysis Environments



## Data Providers

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## Data Providers

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HEPData Submission



Do you have an Inspire ID?

Please enter a title for your submission.

You will be required to attach an Inspire ID at a later stage.



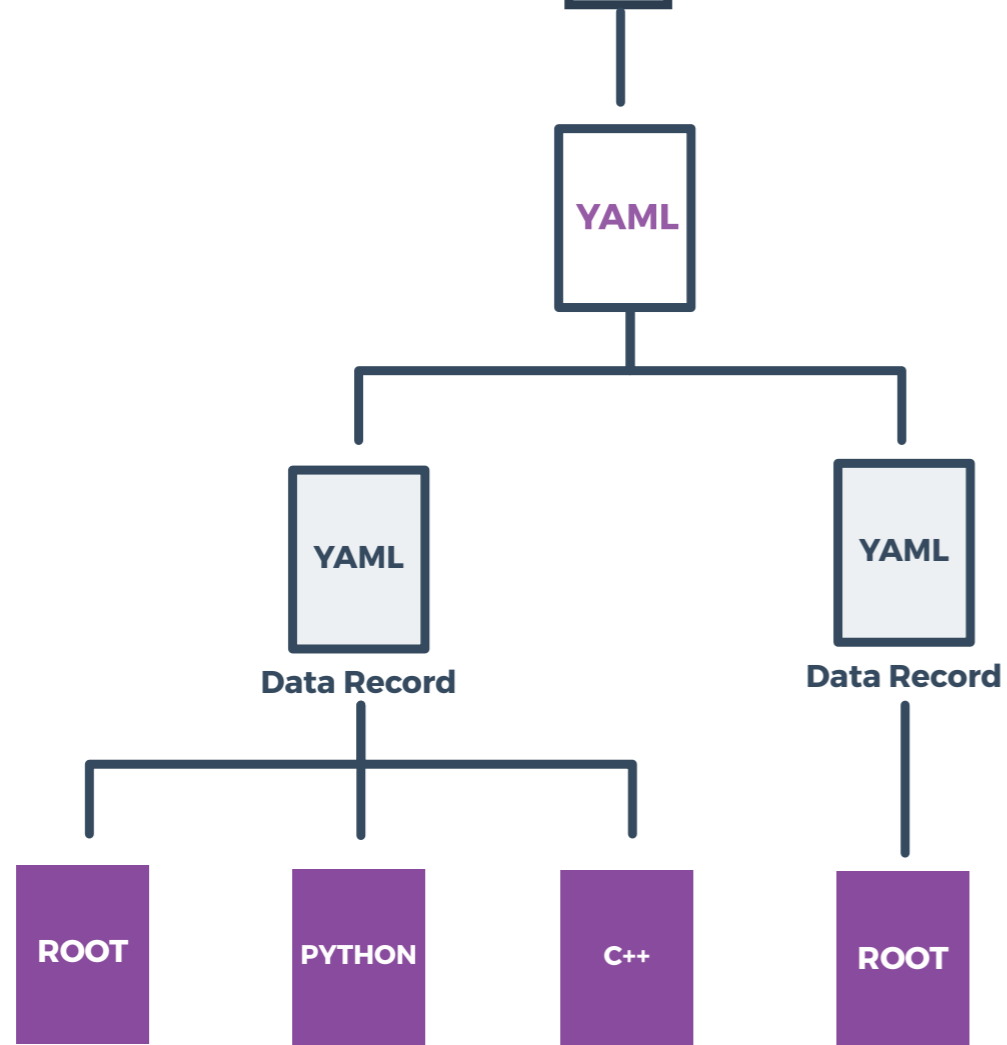
## Data Providers

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2. **A standard entry data format**
3. Full review management system
4. Versioning
5. DOI minting
6. Sandbox





## HEPData submission archive



### **submission.yaml**

links the submission together by detailing the data files to be loaded, their name and description, and their associated analysis files and code.

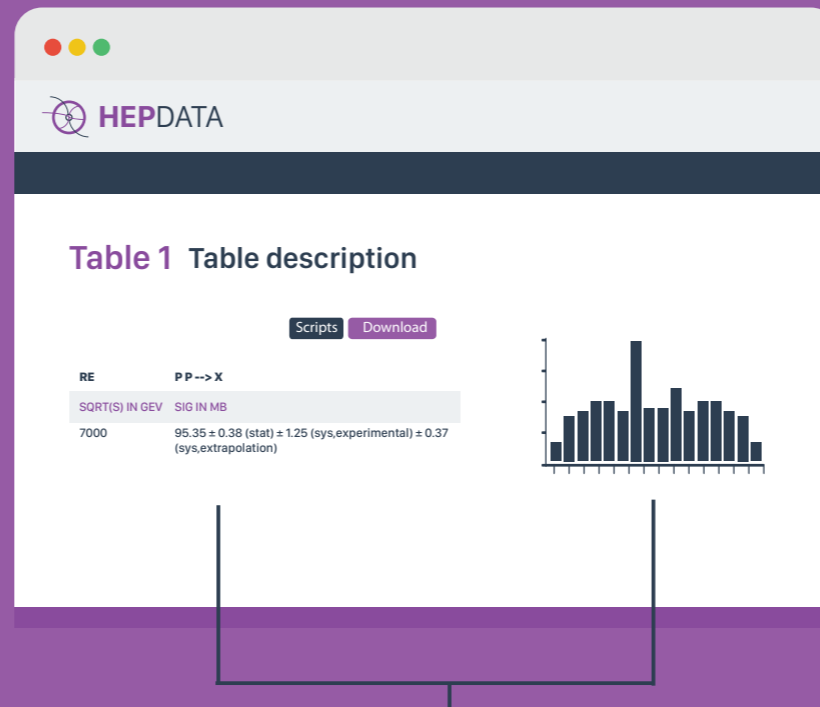
### **data records**

YAML (or JSON) representation of the underlying data files including value errors in a verbose format.

### **external data files & links**

analysis files, code, links to code repositories, etc.

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



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## Comprehensive Review System

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### Table 1

 Data from Figure 4  
None

Summary of the ATLAS Run 1 searches for direct stop pair production in models where no supersymmetric particle other than...

### Table 2

 Data from Figure 5a  
None

 Upper limits on the stop pair production cross sections for different values of the branching ratios for the decays  $\tilde{t}_1 \rightarrow c\tilde{\chi}_1^0$ ...

### Table 3

 Data from Figure 5b  
None

 Upper limits on the stop pair production cross sections for different values of the branching ratios for the decays  $\tilde{t}_1 \rightarrow c\tilde{\chi}_1^0$ ...

### Table 2

Upper limits on the stop pair production cross sections for different values of the branching ratios for the decays  $\tilde{t}_1 \rightarrow c\tilde{\chi}_1^0$  and  $\tilde{t}_1 \rightarrow ff' b\tilde{\chi}_1^0$ , where  $BR(\tilde{t}_1 \rightarrow c\tilde{\chi}_1^0) + BR(\tilde{t}_1 \rightarrow ff' b\tilde{\chi}_1^0) = 1$ . Signal points with  $\Delta m(\tilde{t}_1, \tilde{c}) \geq 10$  GeV are shown. The limits quoted are taken from the best performing, based on expected exclusion contours from the tc-M, tc-C, t1L-bCa\_low and WW analyses at each mass point.

- Theoretical cross section from [twiki.cern.ch/twiki/bin/view/LHCPhysics/SUSYCrossSections8TeVstopsbottom](http://twiki.cern.ch/twiki/bin/view/LHCPhysics/SUSYCrossSections8TeVstopsbottom).

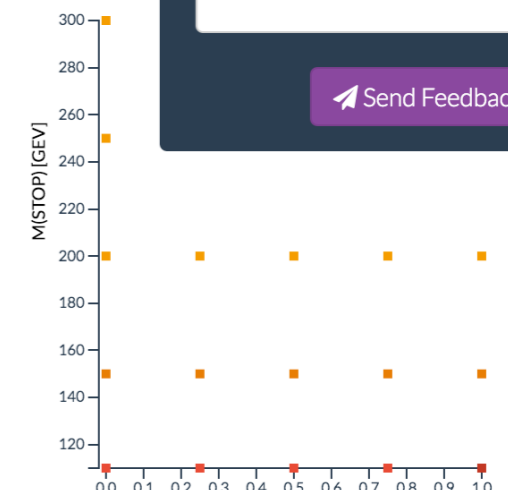
[null](#)
**cmenergies**

**observables**

**phrases**



M(STOP)-M(NEUTRALINO)		10.0 GeV	
SQRT(S)		8000.0 GeV	
M(STOP) [GEV]	BR(STOP --> C NEUTRALINO)	Best Expected SR	SIGMA [PB]
110	1	tc-M1	43.99823154
150	1	tc-M1	18.46035643
200	1	tc-M2	8.629444958
250	1	tc-M2	4.788953785
300	1	tc-M2	3.223368954

**Visualize**


### Review Summary

Todo Ctrl+1, Attention Required Ctrl+2, Passed Ctrl + 3

### Conversation

No messages yet...

## Comprehensive Review System

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### ATLAS Run 1 searches for direct pair production of third-generation squarks at the Large Hadron Collider

Aad, Georges , Abbott, Brad , Abdallah, Jalal , Abidinov, Ovsat , Aben, Rosemarie , Abolins, Maris , AbouZeid, Ossama , Abramowicz, Halina , Abreu, Henso , Abreu, Ricardo

**ATLAS**

Eur.Phys.J. C75 (2015) 510, 2015

<http://dx.doi.org/10.17182/hepdata.71384>

[DOI](#) [View paper in Inspire](#) [View old HepData](#)

[Additional Resources](#)

#### Abstract (data abstract)

CERN-LHC. This paper reviews and extends searches for the direct pair production of the scalar supersymmetric partners of the top and bottom quarks in proton-proton collisions collected by the ATLAS collaboration during the LHC Run 1. Most of the analyses use  $20 \text{ fb}^{-1}$  of collisions at a centre-of-mass energy of  $\sqrt{s} = 8 \text{ TeV}$ , although in some case an additional  $4.7 \text{ fb}^{-1}$  of collision data at  $\sqrt{s} = 7 \text{ TeV}$  are used. New analyses are introduced to improve the sensitivity to specific regions of the model parameter space. Since no evidence of third-generation squarks is found, exclusion limits are derived by combining several analyses and are presented in both a simplified model framework, assuming simple decay chains, as well as within the context




production cross sections for different values of the branching ratios for the decays  $\tilde{t}_1 \rightarrow t + \tilde{\chi}_1^0$ ...

passed review

**Table 4**  
Data from Figure 6  
None  
Combined exclusion limits assuming that the stop decays through  $\tilde{t}_1 \rightarrow t + \tilde{\chi}_1^0$  with branching ratio x and...

passed review

**Table 5**  
Data from Figure 6  
None  
Combined exclusion limits assuming that the stop decays through  $\tilde{t}_1 \rightarrow t + \tilde{\chi}_1^0$  with branching ratio x and...

passed review

**Table 6**  
Data from Figure 6  
None  
Combined exclusion limits

### Table 5

Combined exclusion limits assuming that the stop decays through  $\tilde{t}_1 \rightarrow t + \tilde{\chi}_1^0$  with branching ratio x and through  $\tilde{t}_1 \rightarrow b + \tilde{\chi}_1^\pm$  with branching ratio 1-x. This table is for the expected limit for BR=75%

- Observed limit x=BR=100% See Fig 24. [hepdata.cedar.ac.uk/view/ins1380183/d63](http://hepdata.cedar.ac.uk/view/ins1380183/d63)
- Expected limit x=BR=100% See Fig 24. [hepdata.cedar.ac.uk/view/ins1380183/d64](http://hepdata.cedar.ac.uk/view/ins1380183/d64).

null

cmenergies

8000.0

observables

M

phrases

Inclusive

Proton-Proton Scattering

reactions

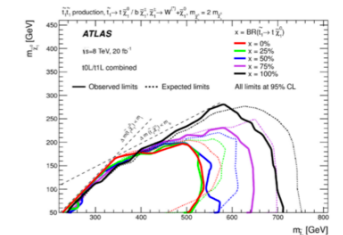
P P --> STOP1 STOP1 X

Showing 50 of 182 values

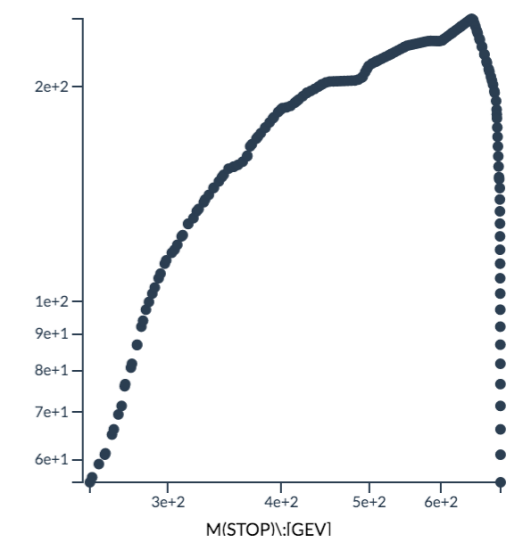
[Show All 182 values](#)

RE	P P --> STOP1 < TOP NEUTRALINO0 > STOP1 < BOTTOM CHARGINO1 > X
SQRT(S)	8000.0 GeV
M(STOP) [GEV]	M(NEUTRALINO) [GEV]
246.08	55.8
247.47	56.71
251.73	59.18
255.59	61
259.45	64.07

<http://www.hepdata.net/r>



#### Visualize





# Dashboard for Submission Management



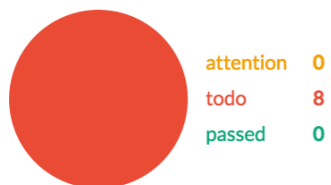
**Eamonn Maguire**  
✉ eamonnmag@gmail.com

Filter 1 submission

Started on 2016-03-07 at 10:56



## ATLAS Run 1 Searches For Direct Pair Production Of Third-Generation Squarks At The Large Hadron Collider



COORDINATOR

EAMONNMAG@GMAIL.COM

EMAIL

UPLOADER

NO PRIMARY UPLOADER

EMAIL

REVIEWER

NO PRIMARY REVIEWER

EMAIL

## Dashboard for Submission Management

HEPData

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Manage Uploaders & Reviewers

Conversation (0 messages)

**Uploaders** ➕ Add new uploader

No primary uploader

**Reserve Uploaders**

No reserve uploader

**Reviewers** ➕ Add new reviewer

No primary reviewer

**Reserve Reviewers**

No reserve reviewer

Filter 1 submission

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Started on 2016-03-07 at 10:56 🗑️ ⚙️

### ATLAS Run 1 Searches For Direct Pair Production Of Third-Generation Squarks At The Large Hadron Collider

<div style="background-color: #8e44ad; width: 40px; height: 40px; border-radius: 50%; margin: 0 auto;"></div>	<p>attention <span style="color: #f1c40f;">0</span></p> <p>todo <span style="color: #e74c3c;">8</span></p> <p>passed <span style="color: #27ae60;">0</span></p>	<p>COORDINATOR</p> <p>UPLOADER</p> <p>REVIEWER</p>	<p>EAMONNMAG@GMAIL.COM</p> <p>NO PRIMARY UPLOADER</p> <p>NO PRIMARY REVIEWER</p>	<input style="background-color: #2c3e50; color: white; padding: 2px 5px; border: none;" type="button" value="EMAIL"/>
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## Interactive Plotting Library

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momentum for...

### Table 9

Data from Auxiliary Material  
10.17182/hepdata.72205.v1/t9  
Extrapolated charged-particle multiplicity distributions in proton-proton collisions at a centre-of-mass energy of 13000 GeV for events with the number of...

### Table 10

Data from Auxiliary Material  
10.17182/hepdata.72205.v1/t10  
Extrapolated average transverse momentum in proton-proton collisions at a centre-of-mass energy of 13000 GeV as a function of the number...

### Table 11

Data from F 5A  
10.17182/hepdata.72205.v1/t11  
Charged-particle multiplicities in proton-proton collisions at a centre-of-mass energy of 13000 GeV as a function of pseudorapidity for events with...

### Table 12

Data from F 5B

### Table 10

Extrapolated average transverse momentum in proton-proton collisions at a centre-of-mass energy of 13000 GeV as a function of the number of charged particles in the event for events with the number of charged particles  $\geq 1$  having transverse momentum  $> 500$  MeV and absolute(pseudorapidity)  $< 2.5$ .

[10.17182/hepdata.72205.v1/t10](http://dx.doi.org/10.17182/hepdata.72205.v1/t10)

#### observables

#### phrases



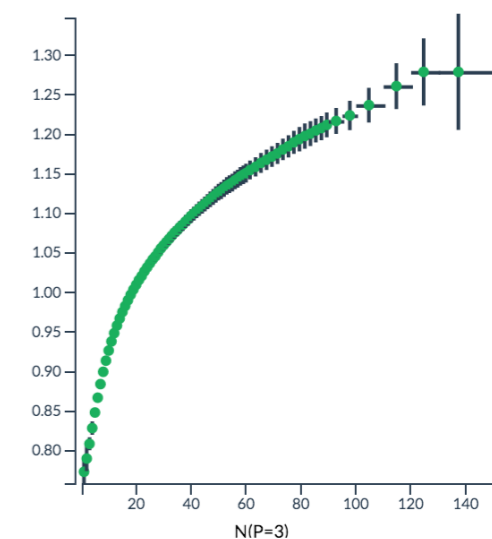
#### reactions

Showing 50 of 81 values

[Show All 81 values](#)

ETARAP(P=3)	-2.5-2.5
Extrapolated to include strange baryons	
N(P=3)	$\geq 1$
PT(P=3)	$> 500$ MEV
RE	P P --> CHARGED X
SQRTS(S)	13000.0 GeV
N(P=3)	MEAN(NAME=PT(P=3)) [GEV]
0.50 - 1.50	0.7737 $\pm 0.0008$ stat $\pm 0.0155$ sys
1.50 - 2.50	0.7904 $\pm 0.0007$ stat $\pm 0.0158$ sys
2.50 - 3.50	0.809 $\pm 0.001$ stat $\pm 0.008$ sys
3.50 - 4.50	0.8289 $\pm 0.0006$ stat $\pm 0.0084$ sys

#### Visualize


 Sum errors  Log Scale (X)  Log Scale (Y) 

### Charged-particle distributions in $\sqrt{s}=13$ TeV $pp$ interactions measured with the ATLAS detector at the LHC

Aad, Georges , Abbott, Brad , Abdallah, Jalal , Abdinov, Ovsat , Abeloos, Baptiste , Aben, Rosemarie , Abolins, Maris , AbouZeid, Ossama , Abraham, Nicola , Abramowicz, Halina

**ATLAS**

No Journal Information, 2016

<http://dx.doi.org/10.17182/hepdata.72205>




#### Abstract (data abstract)

CERN-LHC. Measurements of charged particle distributions in proton-proton collisions at a centre-of-mass energy of 13 TeV. A data sample of nearly 9 million events recorded by the ATLAS detector during a special LHC fill with low beam currents, and thus giving a low expected mean number of interactions, is used. The charged-particle multiplicity, its dependence on transverse momentum and pseudorapidity and the dependence of the mean transverse momentum on the charged-particle multiplicity are presented. The measurements are performed with charged particles with transverse momentum greater than 500 MeV and absolute pseudorapidity less than 2.5, in events with at least one charged particle satisfying these kinematic requirements



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## Versioning

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Viewing version 2 ▾

Version 1

Version 2

### 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  $\tan(\beta)=30$  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

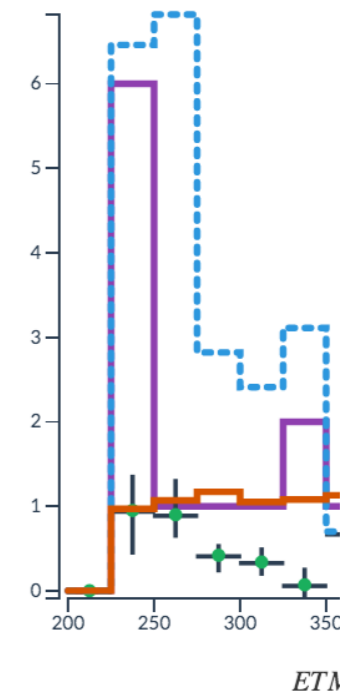
The observed and expected EmissT distribution in the dielectron SR-Z. The negligible estimated contribution from Z+jets is shown in the distributions. The last bin contains the overflow.

energies 8000

### Data

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 <span style="color:red">-0.51, 0.41 stat</span>	6.46	0.97
250 - 275	1	0.9 <span style="color:red">-0.26, 0.41 stat</span>	6.82	1.07
275 - 300	1	0.42 <span style="color:red">-0.19, 0.12 stat</span>	2.82	1.17
300 - 325	1	0.34 <span style="color:red">-0.15, 0.16 stat</span>	2.41	1.05
325 - 350	2	0.07 <span style="color:red">-0.16, 0.19 stat</span>	3.11	1.08
350 - 375	1	0.68 <span style="color:red">-0.55, 0.56 stat</span>	0.7	1.13
375 - 400	1	0.17 <span style="color:red">-0.15, 0.1 stat</span>	0.9	1.2
400 - 425	0	0.24 <span style="color:red">-0.1, 0.11 stat</span>	0.69	1.01
425 - 450	1	0.01 <span style="color:red">±0.08 stat</span>	0.72	0.94
450 - 475	0	0.0 <span style="color:red">-0.0, 0.0 stat</span>	0.0	0.0

### Visualize



Sum errors:

Deselect variables or hide error bars by clicking on

### Variables





## Data Providers

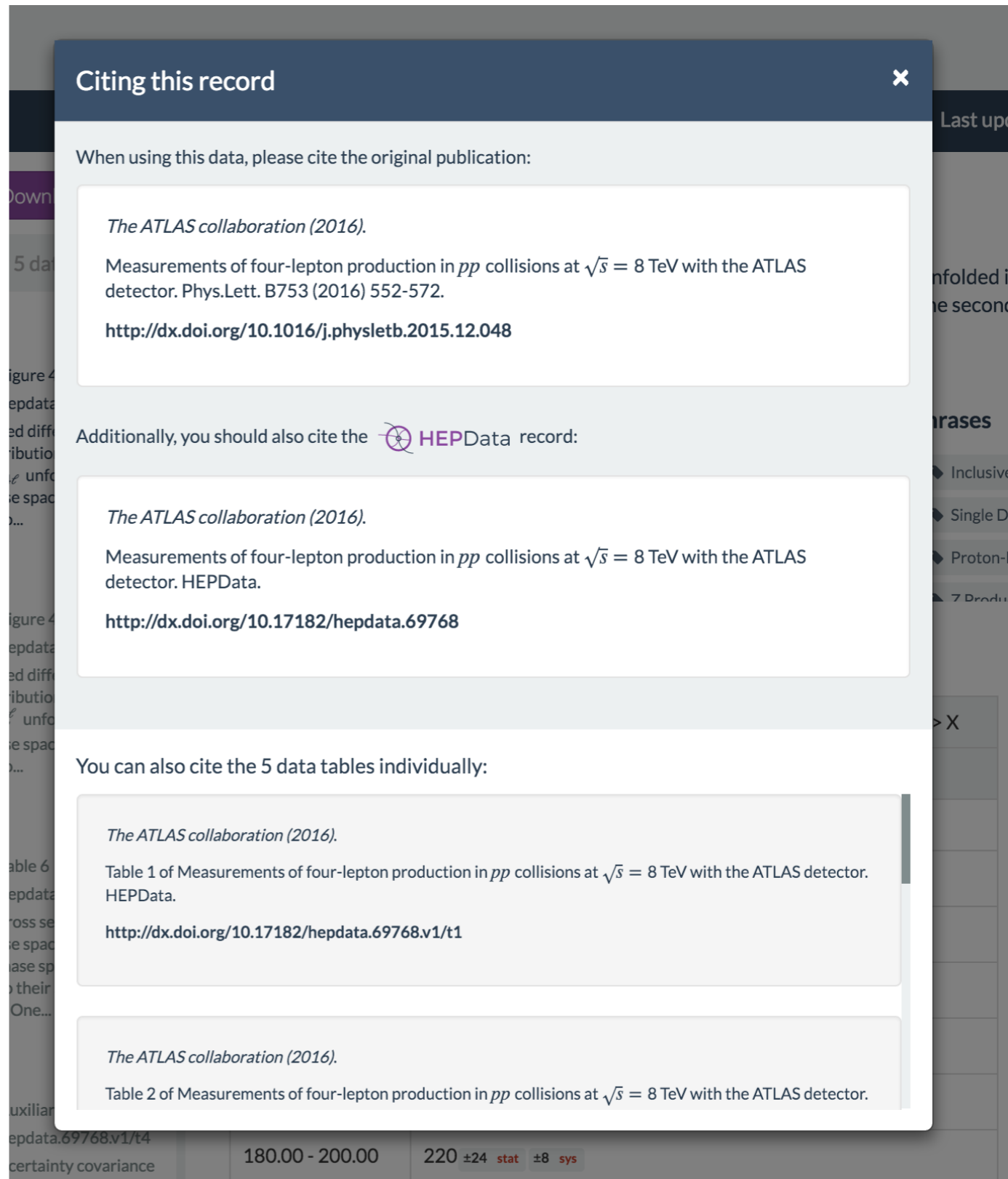
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## DOIs

All HEPData records get DOIs.

Each data table gets a versioned DOI.


The whole HEPData record is also given a DOI to encompass the whole collection.



**Citing this record** [X]

When using this data, please cite the original publication:

*The ATLAS collaboration (2016).*  
Measurements of four-lepton production in  $pp$  collisions at  $\sqrt{s} = 8$  TeV with the ATLAS detector. Phys.Lett. B753 (2016) 552-572.  
<http://dx.doi.org/10.1016/j.physletb.2015.12.048>

Additionally, you should also cite the  HEPData record:

*The ATLAS collaboration (2016).*  
Measurements of four-lepton production in  $pp$  collisions at  $\sqrt{s} = 8$  TeV with the ATLAS detector. HEPData.  
<http://dx.doi.org/10.17182/hepdata.69768>

You can also cite the 5 data tables individually:

*The ATLAS collaboration (2016).*  
Table 1 of Measurements of four-lepton production in  $pp$  collisions at  $\sqrt{s} = 8$  TeV with the ATLAS detector. HEPData.  
<http://dx.doi.org/10.17182/hepdata.69768.v1/t1>

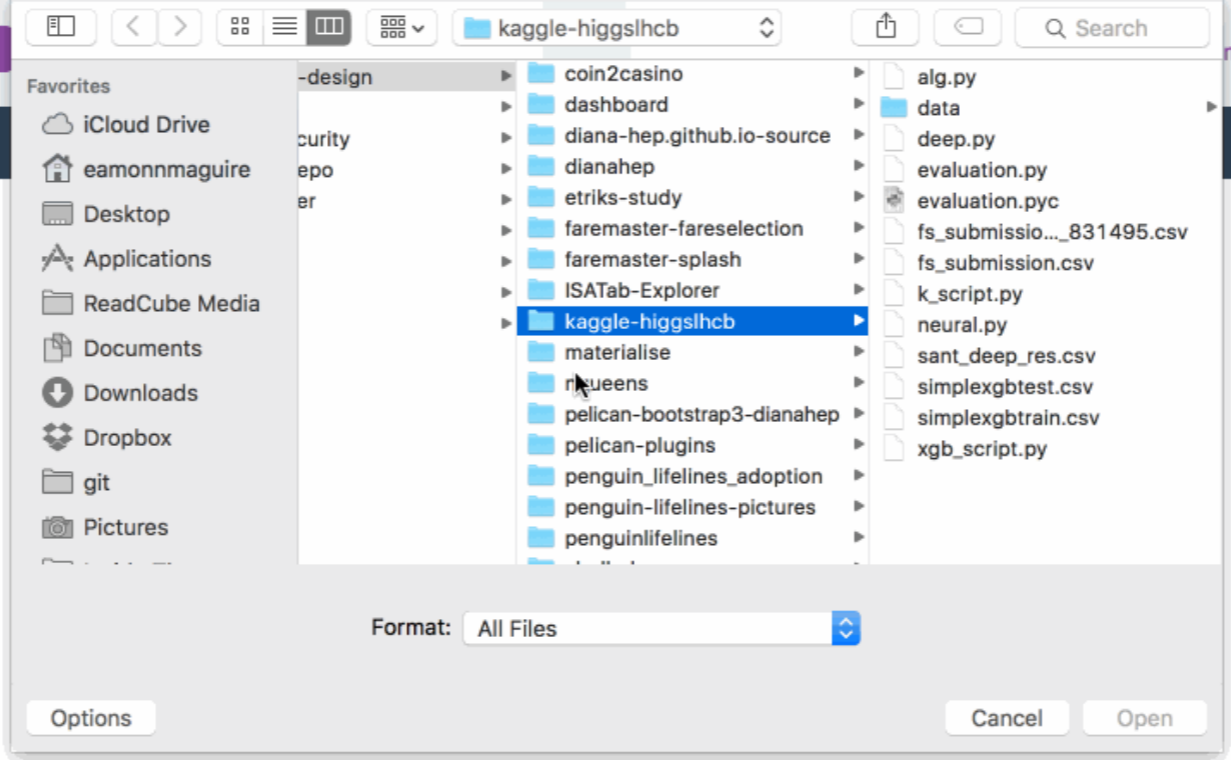
*The ATLAS collaboration (2016).*  
Table 2 of Measurements of four-lepton production in  $pp$  collisions at  $\sqrt{s} = 8$  TeV with the ATLAS detector.

epdata.69768.v1/t4      180.00 - 200.00      220 ±24 stat ±8 sys



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Your 2 sandbox submissions

- CERN-LHC. Measurements of the cross section for ZZ production using the 4l and 2l2nu decay channels in proton-...  
2016-04-21 16:49PM Delete
- CERN-LHC. Measurements of the cross section for ZZ production using the 4l and 2l2nu decay channels in proton-...  
2016-04-21 17:36PM Delete

# Sandbox



## Upload an archive to preview

Upload a **zip**, **tar.gz**, or **tar** archive containing files formatted per these [these guidelines](#).

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### Your 2 sandbox submissions

Measurements of hadron production in p+C interactions at 31 GeV/c are performed using the NA61/SHINE spectrometer a...  
2016-03-09 18:40:28.329715

CERN-LHC. Measurements of the cross section for ZZ production using the 4l and 2l2nu decay channels in proton-...  
2016-03-09 18:41:53.171272



[Hide Publication Information Information](#)




### Table 1

T 4

The double differential  $\pi^+$  production cross section in the laboratory system for p+C interactions at 31 GeV/c. The results are...

### Table 2

T 4

The double differential  $\pi^+$  production cross section in the laboratory system for p+C interactions at 31 GeV/c. The results are...

### Table 3

T 4

The double differential  $\pi^+$  production cross section in the laboratory system for p+C interactions at 31 GeV/c. The results are...

### Table 4

T 4

The double differential  $\pi^+$  production cross section in the laboratory system for p+C interactions at 31 GeV/c. The results are...

### Table 2

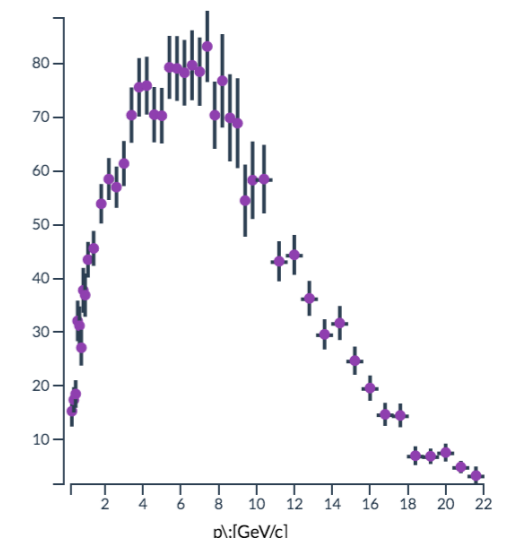
The double differential  $\pi^+$  production cross section in the laboratory system for p+C interactions at 31 GeV/c. The results are presented as a function of momentum,  $p$  (in [GeV/c]), in different angular intervals,  $\theta$  (in [mrad]). The statistical and systematic errors are quoted

#### observables

#### reactions

PLAB	31.0 GEV C^-1
RE	P C --> PI+ X
THETA	10.0 TO 20.0 MRAD
$p$ [GeV/c]	$d^2\sigma/dp/d\theta$ [[mb/rad/(GeV/c)]]
0.20 - 0.30	15.3 $\pm 2.4$ stat $\pm 1.6$ sys
0.30 - 0.40	17.4 $\pm 1.9$ stat $\pm 1.4$ sys
0.40 - 0.50	18.5 $\pm 2.1$ stat $\pm 1.5$ sys
0.50 - 0.60	32.1 $\pm 2.9$ stat $\pm 2.4$ sys
0.60 - 0.70	31.2 $\pm 2.7$ stat $\pm 2.4$ sys
0.70 - 0.80	27.1 $\pm 2.6$ stat $\pm 2.1$ sys
0.80 - 0.90	37.8 $\pm 3.0$ stat $\pm 2.9$ sys
0.90 - 1.00	36.9 $\pm 2.9$ stat $\pm 2.8$ sys

#### Visualize


 Sum errors  Log Scale (X)  Log Scale (Y) 

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5. Access in Analysis Environments



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**Collaboration**

ATLAS	246
CDF	205
ZEUS	167
CMS	162
H1	142

[Next 5](#) [Show All](#)

**Phrases**

Exclusive	4187
Cross Section	3843
Integrated Cross Section	3843
Inclusive	3833
Single Differential Cross Section	2773

[Next 5](#) [Show All](#)

**Reactions**

PP --> PP	314
-----------	-----

### Production of $K^*(892)^0$ and $\phi(1020)$ in p-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV

Adam, Jaroslav ; Adamova, Dagmar ; Aggarwal, Madan Mohan ; *et al.* [The ALICE collaboration.](#)

**No Journal Information, 2016.**

[Inspire Record 1418181](#)
[DOI 10.17182/hepdata.72807](#)

The production of  $K^*(892)^0$  and  $\phi(1020)$  mesons has been measured in p-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV.  $K^{*0}$  and  $\phi$  are reconstructed via their decay into charged hadrons with the ALICE detector in the rapidity range  $-0.5 < y < 0$ . The transverse momentum spectra, measured as a function of the multiplicity, have  $p_T$  range from 0 to 15 GeV/c for  $K^{*0}$  and from 0.3 to 21 GeV/c for  $\phi$ . Integrated yields, mean transverse momenta and particle...

**30 data tables**

- Table 1** Average charged particle pseudo-rapidity density,  $\langle dN_{ch}/d\eta_{lab} \rangle$ , measured at mid-rapidity in visible cross section event classes and average number of colliding nucleons,  $\langle N_{coll} \rangle$ . Multiplicity classes are defined using the VOA estimator; values for  $\langle dN_{ch}/d\eta_{lab} \rangle$  are corrected for vertexing and trigger efficiency. Since statistical uncertainties are negligible, only total systematic uncertainties are reported.
  - Table 2**  $p_T$ -differential yield of  $(K^{*0} + \overline{K^{*0}})/2$  in p-Pb collisions with centre-of-mass energy/nucleon=5.02 TeV (NSD). Additional systematic error: +- 3.1% (normalization).
  - Table 3**  $p_T$ -differential yield of  $(K^{*0} + \overline{K^{*0}})/2$  in p-Pb collisions with centre-of-mass energy/nucleon=5.02 TeV (0-20% multiplicity class).
- [More...](#)

### INVESTIGATION OF INCLUSIVE PROCESSES $\pi^- \rightarrow \pi^- X$ AND $\pi^- \rightarrow p$ (backwards) X AT 40-GeV/c

Abrosimov, A.T. ; Albini, E. ; Antipov, V.V. ; *et al.*

**Conference Paper, 2016.**

[Inspire Record 209961](#)
[DOI 10.17182/hepdata.39782](#)

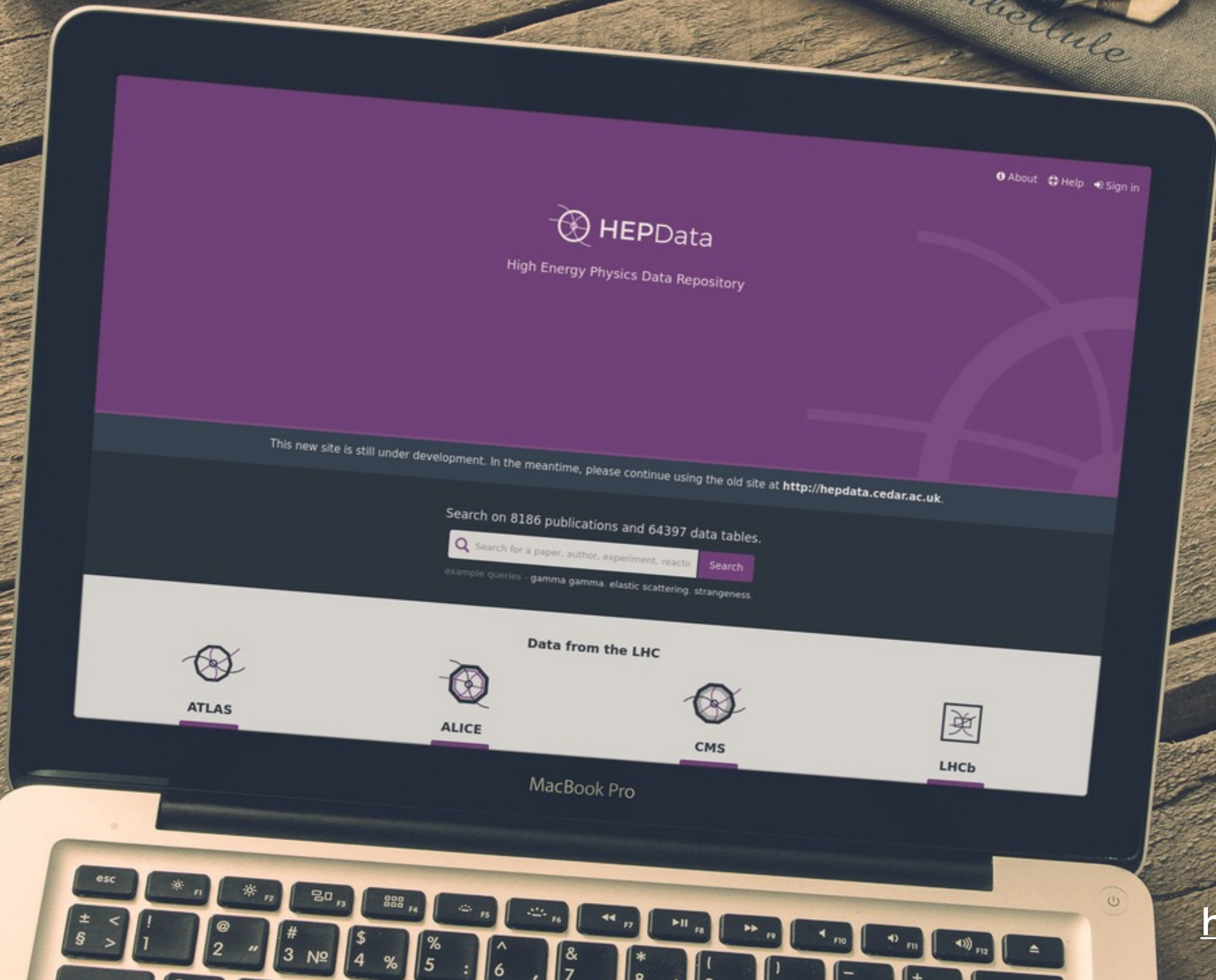
None

**3 data tables**

Table 1 No description provided.



# The System - Demo







## Data Consumers

Get access to the data in many environments

1. Publication Driven Search
- 2. Data Driven Search**
3. Semantic Publishing
4. Data Conversion
5. Access in Analysis Environments



Coming soon!

Masters Project of Juan Luis Boya Garcia,  
University of Salamanca, Spain.



**You'll be able to ask HEPData's API for all data matching some number of variables.**

Programmatically or through our interface

**Retrieve all relevant data, then run your analysis**

**No need to manually go through every publication.  
We do the hard work for you.**



Independent Variable: PT (GeV) [Delete]

OR

Phrase: elastic scattering [Delete]

AND

Independent Variable: COS(THETA) [Delete]

AND

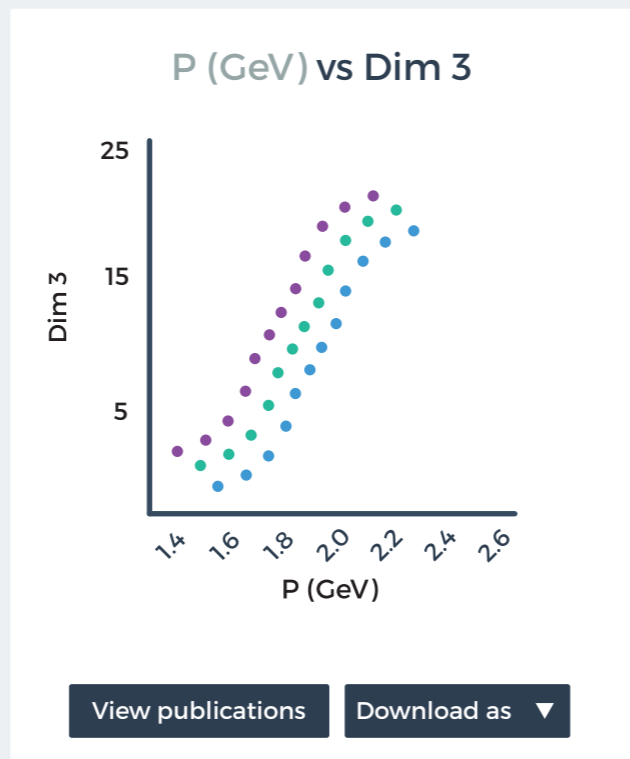
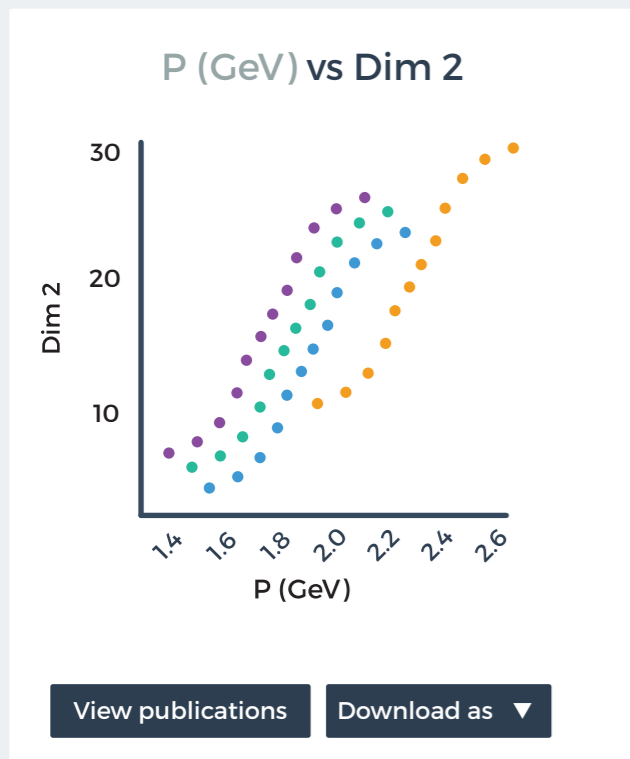
Phrase: cross section [Delete]

+ (Add new filter)

Found 3,400 matching data points in 36 publications

[View publications](#) [Download all as](#)

<p><b>cmenergies</b></p> <ul style="list-style-type: none"> <li>7000 GeV (12)</li> <li>3500 GeV (6)</li> <li>4.5 GeV (4)</li> <li>3.3 GeV (3)</li> </ul> <p><a href="#">23 more</a></p>	<p><b>reactions</b></p> <ul style="list-style-type: none"> <li>E+ E- --&gt; HADRONS (12)</li> <li>P P --&gt; X (6)</li> <li>P P --&gt; P P (4)</li> <li>PBAR P --&gt; X (3)</li> </ul> <p><a href="#">45 more</a></p>	<p><b>observables</b></p> <ul style="list-style-type: none"> <li>SIG (12)</li> <li>DSIG/DT (6)</li> <li>SLOPE (4)</li> <li>DSIG/DOMEGA (3)</li> </ul> <p><a href="#">34 more</a></p>	<p><b>phrases</b></p> <ul style="list-style-type: none"> <li>Exclusive (12)</li> <li>Inclusive (6)</li> <li>Single Differential (4)</li> <li>Strange production (3)</li> </ul> <p><a href="#">34 more</a></p>
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**The prototype**

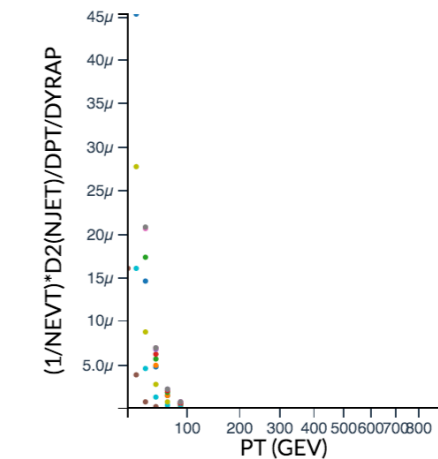
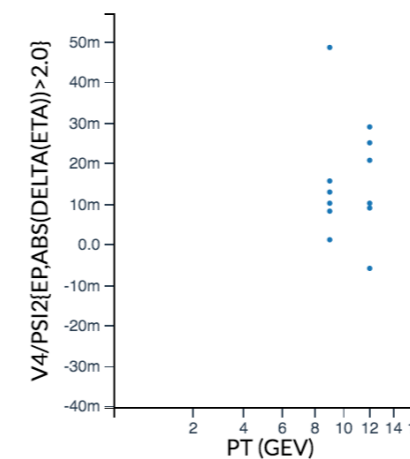
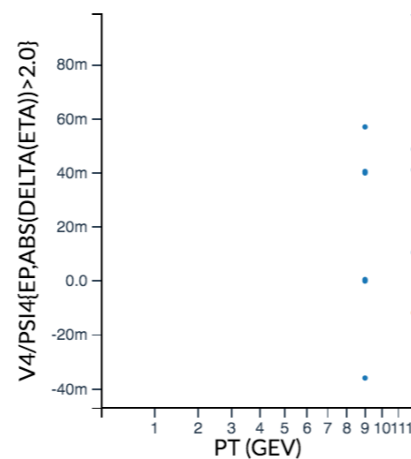
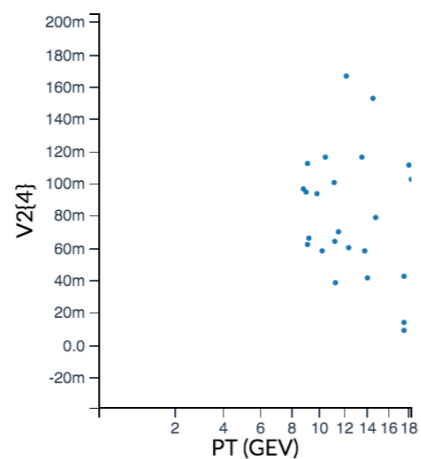
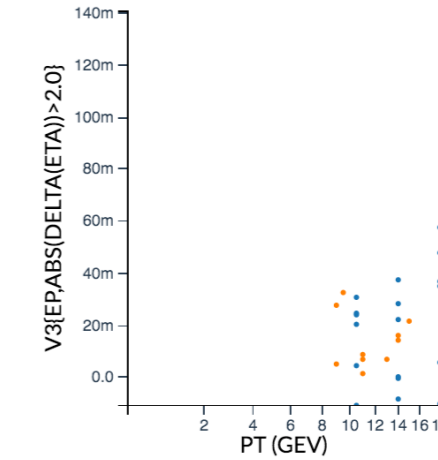
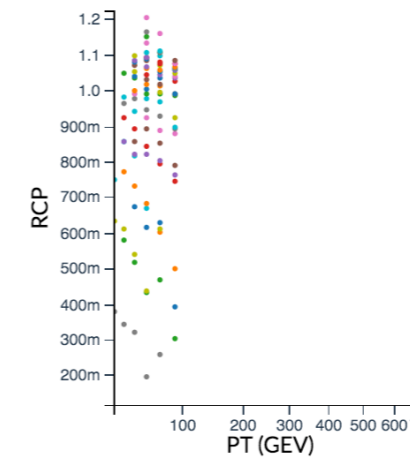
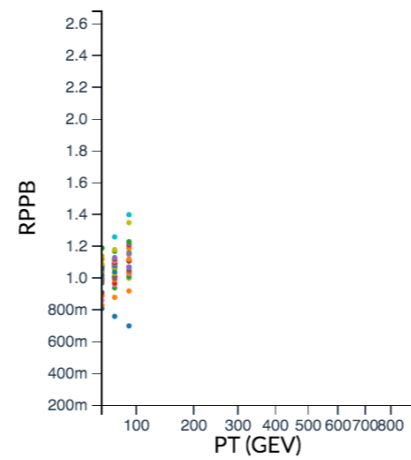
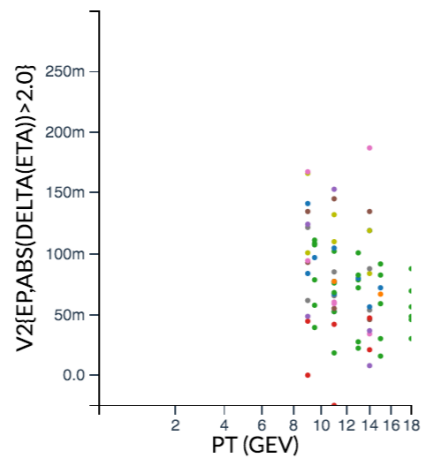
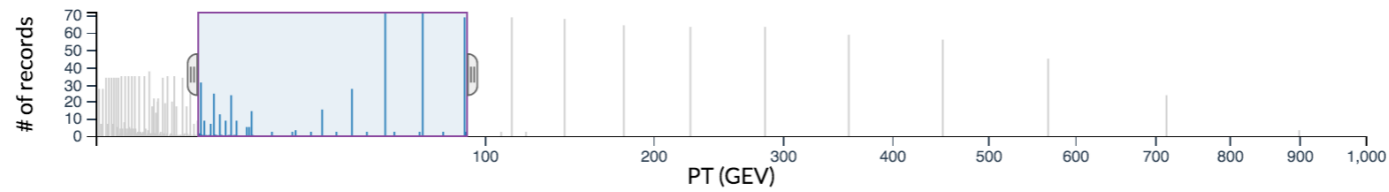
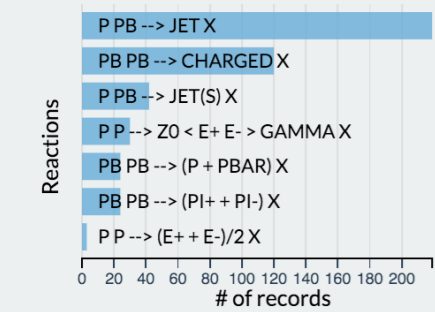
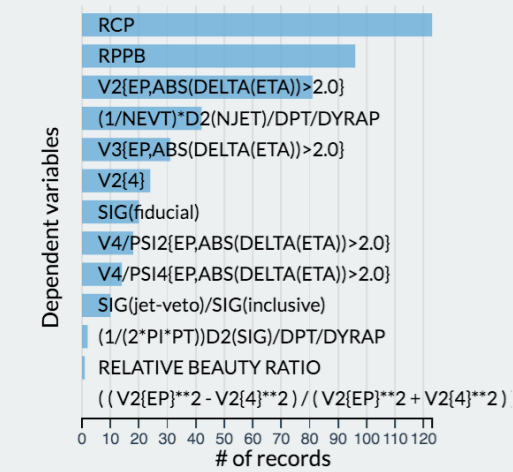
**Beta mode within the next month**

## Primary variable

Select an independent variable you're interested in

PT (GEV) [2.1k records]

## Dependent variables



HEPData Explore

HEPData Explore



## A new type of search

Data driven instead of publication driven

## Full data provenance captured

Every data point is recorded with its parent publication's inspire id and table number

## Fast data rendering

With WebGL, now capable of rendering 100s of 1000s of data points in the browser.

## API

Query HEPData directly from mathematica, ROOT, etc. and process our results as you need



**We're interested in more use cases....**  
Please get in touch with us to get early access!



## Data Consumers

Get access to the data in many environments

1. Publication Driven Search
2. Data Driven Search
3. **Semantic Publishing**
4. Data Conversion
5. Access in Analysis Environments



## Semantic Publishing

Every article is tagged with [schema.org](https://schema.org) vocabulary.

Makes it possible for Google and other search engines to understand your content.

<https://hepdata.net/search>

[Google's View](#)

<https://hepdata.net/record/ins1397180>

[Google's view](#)



## Data Consumers

Get access to the data in many environments

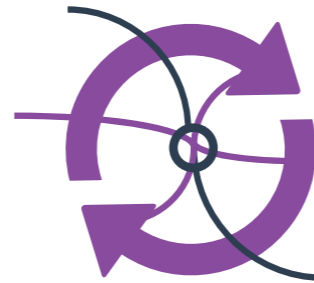
1. Publication Driven Search
2. Data Driven Search
3. Semantic Publishing
4. **Data Conversion**
5. Access in Analysis Environments





**Getting Data in, getting data out...**

Interoperability with other tools



## Converter

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

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

## Conversion to many formats

[↑ Submit](#)
[📦 Sandbox](#)
[🗺️ Help](#)
[👤 admin](#)

📊 Accessed 8 times (2.67/day)

Download Submission as ▾

YAML

CSV

YODA

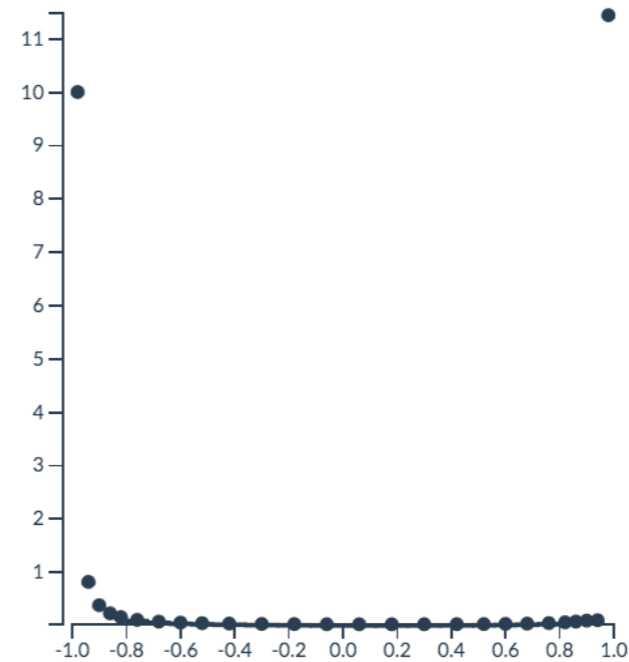
ROOT

Download data as ▾

energy correlation function (TEEC).

0.0342, 0.0334 sys,jes	±0.0094 sys,jer	±0.0374 sys,shower	
8 sys,unfolding			
0.004, 0.0044 sys,jes	±0.0011 sys,jer	±0.0044 sys,shower	
5 sys,unfolding			
0.0026, 0.0029 sys,jes	±0.0006 sys,jer	±0.0028 sys,shower	
2 sys,unfolding			
0.0022, 0.0024 sys,jes	±0.0004 sys,jer	±0.0023 sys,shower	
1 sys,unfolding			
0.0022 sys,jes	±0.0003 sys,jer	±0.0022 sys,shower	±0.0018 sys,pileup
0.002 sys,jes	±0.0002 sys,jer	±0.002 sys,shower	±0.0015 sys,pileup

### Visualize



COS PHI

Sum errors:



## Data Consumers

Get access to the data in many environments

1. Publication Driven Search
2. Data Driven Search
3. Semantic Publishing
4. Data Conversion
5. **Access in Analysis Environments**



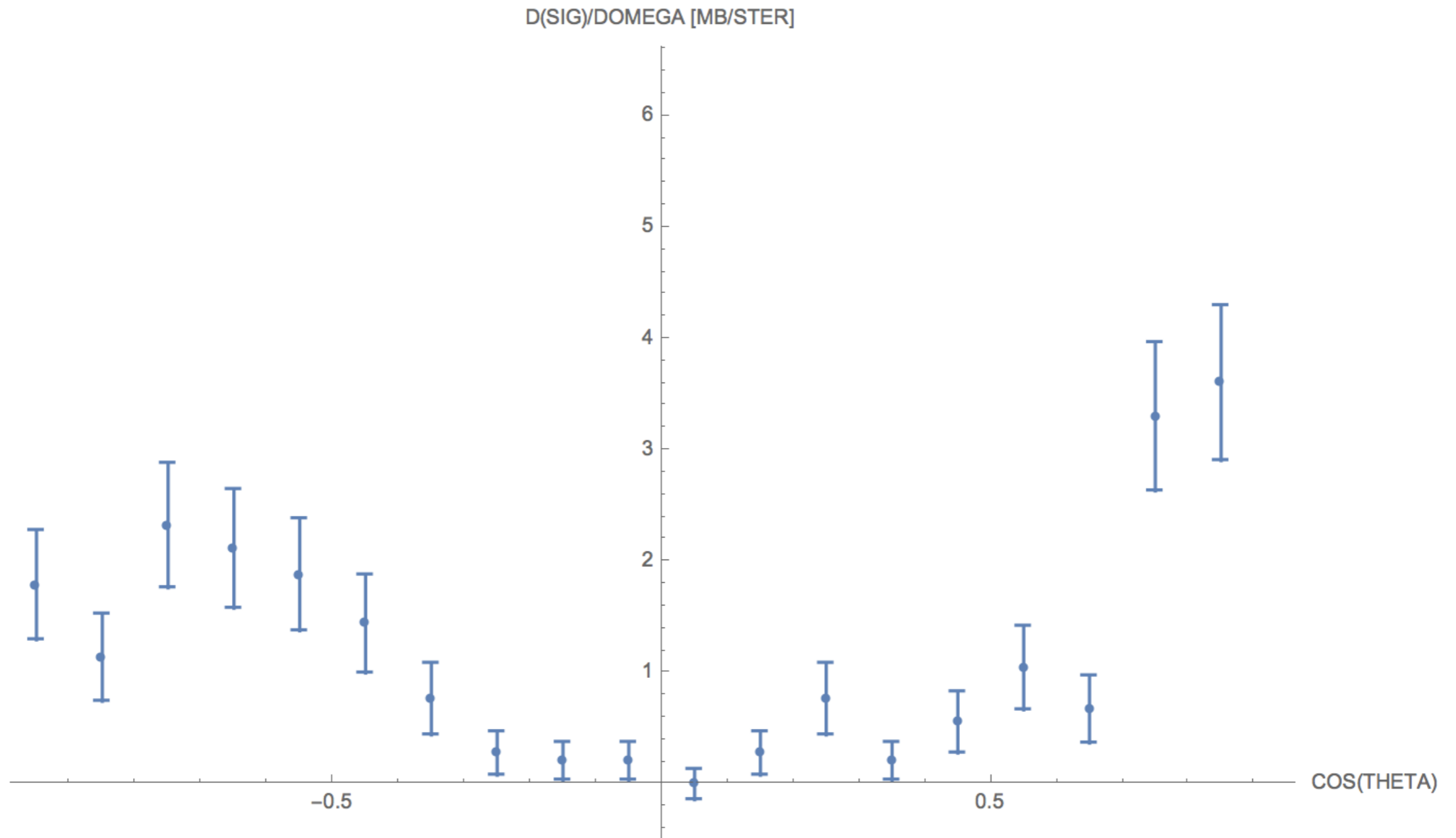
**e.g. use data directly in Mathematica**

No need to leave the software  
environment you like.

The same can be said for use in ROOT or any analysis platform with  
a file parser :)

```
In[111]:= ErrorPlot[errorPoints, AxesLabel -> headers]
```

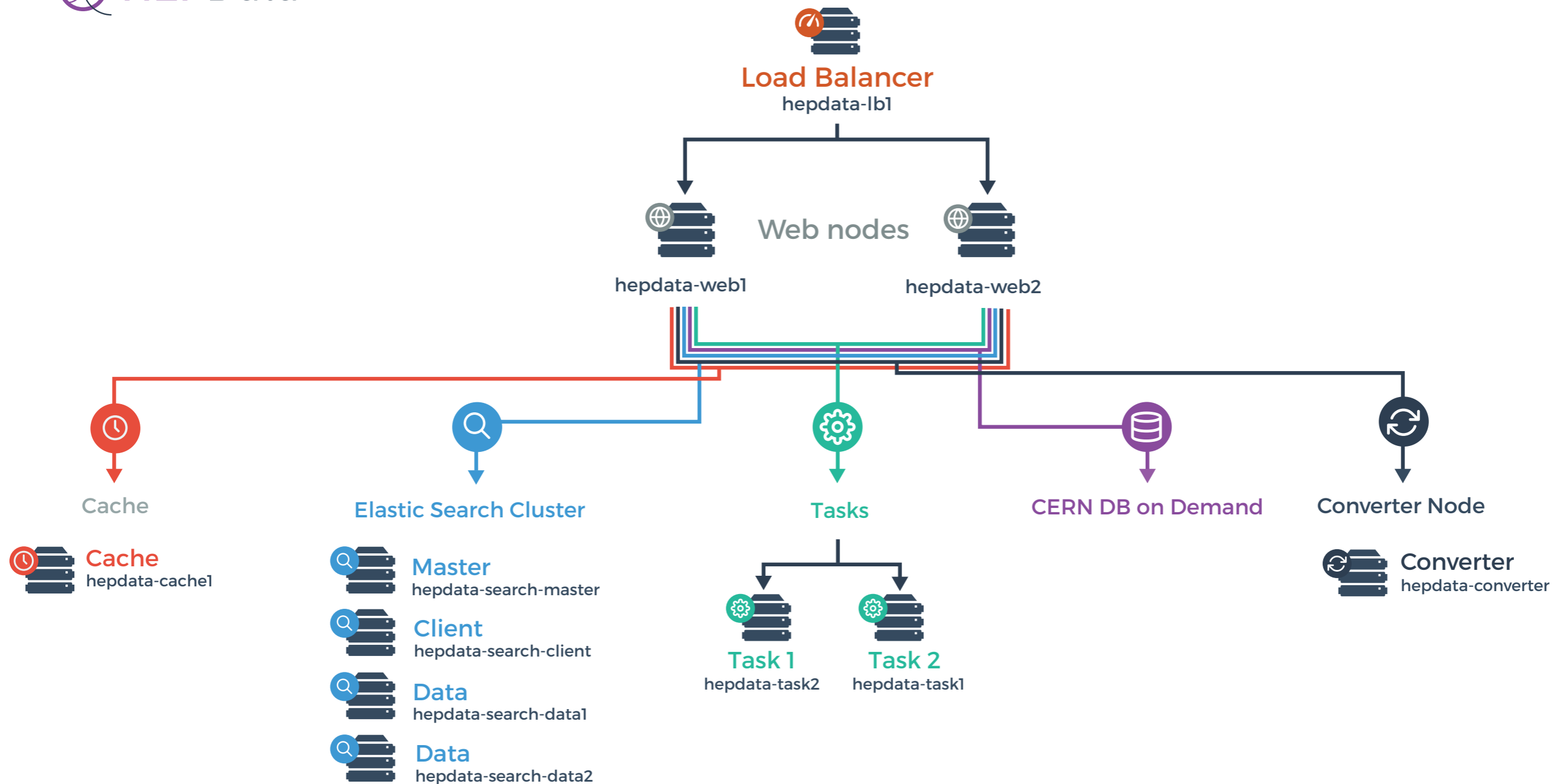
Out[111]=





## Sustainability

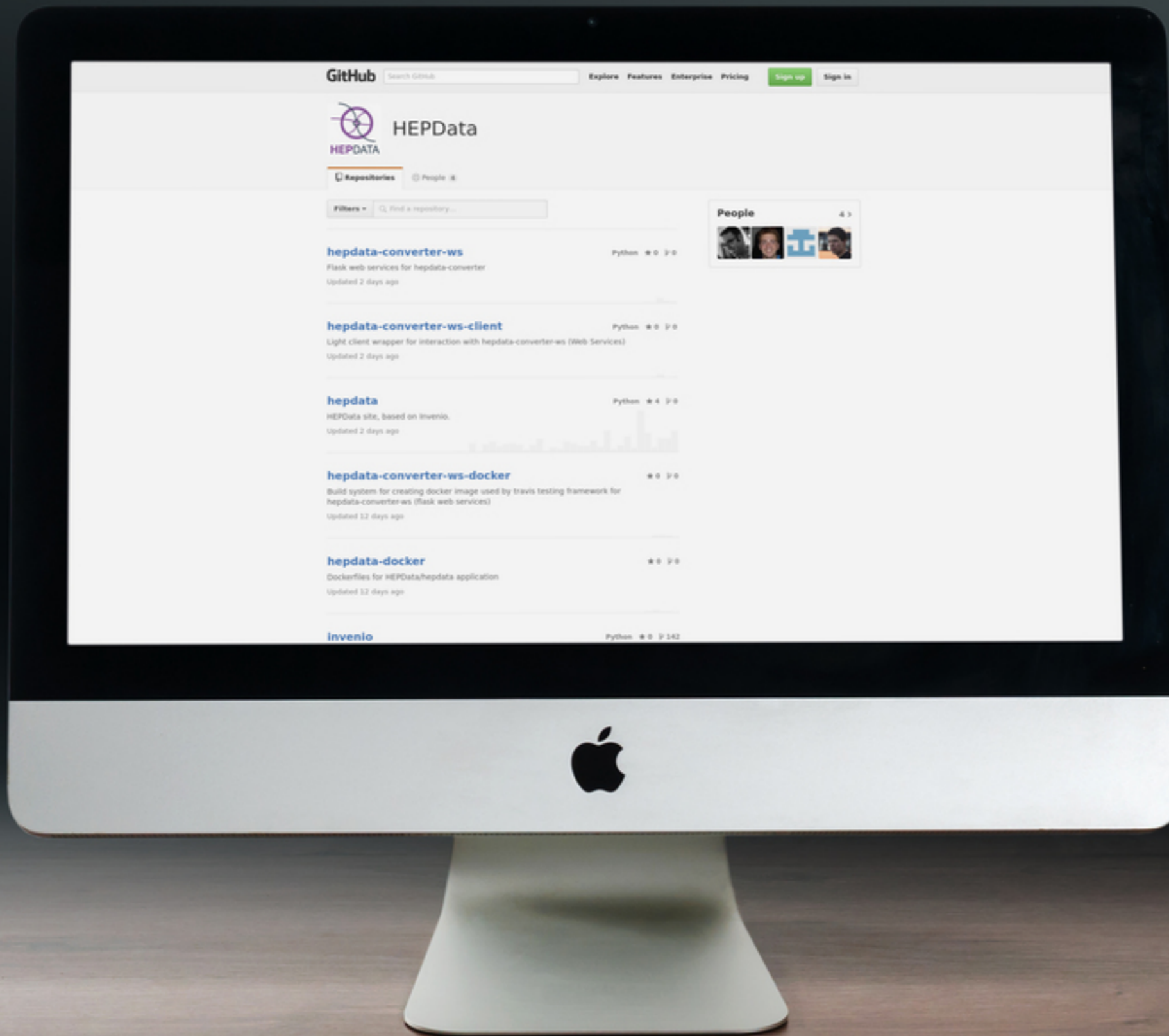
HEPData is now hosted at CERN and deployed by the RCS-SIS-OA team.



Hosted on **OpenStack**, managed with **Puppet**

Data hosted on the new **EOS** file system.

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







## Acknowledgements

### HEPData @ CERN

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Salvatore Mele

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Michael Whalley  
Frank Kraus

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Juan Luis Boya Garcia

### HEPData @ NYU

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Kyle Cramner

### Alumni

Laura Rueda-Garcia  
Michal Szoziak Summer Student

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Any questions?

