HepData short introduction

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Likelihoods for the LHC Searches workshop
CERN - 23rd January 2013

What is HepData:

Aim: primarily to compile published 'cross sections'

and to make these available in a computer searchable database

differential and total cross sections
event shape distributions,
structure functions,
polarization measurements

Publication based to preserve the original origin of the data.

PDG particle properties is particle based - difficult to do with reaction data on a large scale

Small group, based at Durham U. (UK)

database manager + non-physicist assistant

STFC(UK) funded – just received funding to October 2016

>30 years – began in collaboration with PDG

The new HepData & CEDAR

In 2005, in preparation for the LHC:
JetWeb (UCL) + HepData (Durham)
3 year collaboration - CEDAR (e-science STFC funded)

UCL: Jon Butterworth, Ben Waugh +
Durham: James Stirling, Andy Buckley, + MW

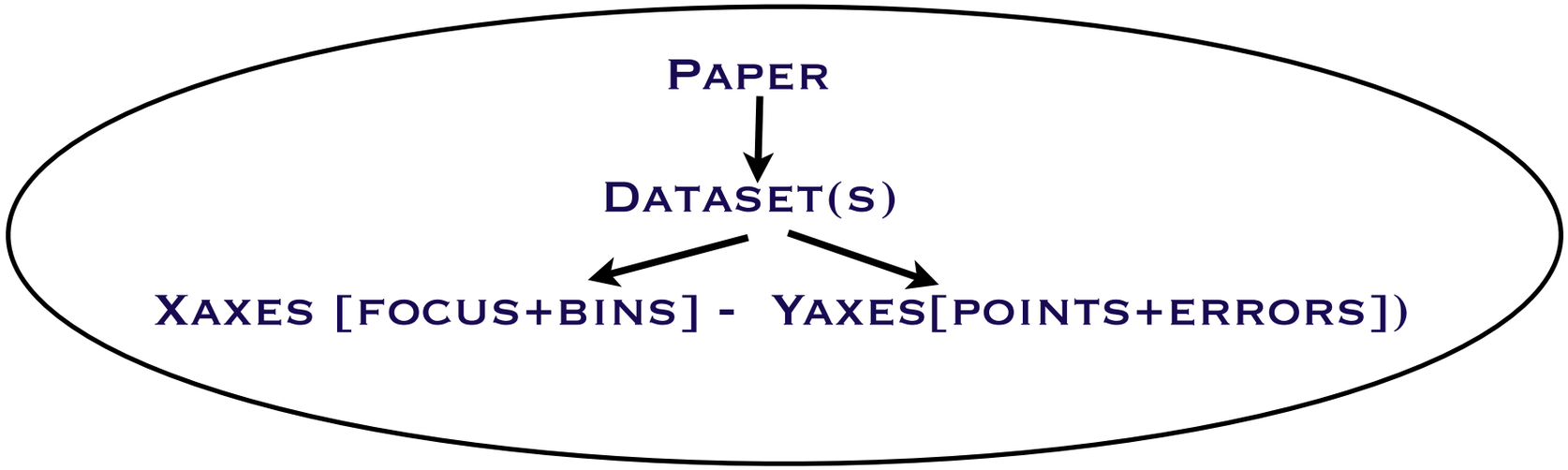
Produced: Rivet - new HepData - Hepforge

old HepData - in the long-term was unmaintainable
- BDMS - Fortan + cgi scripts

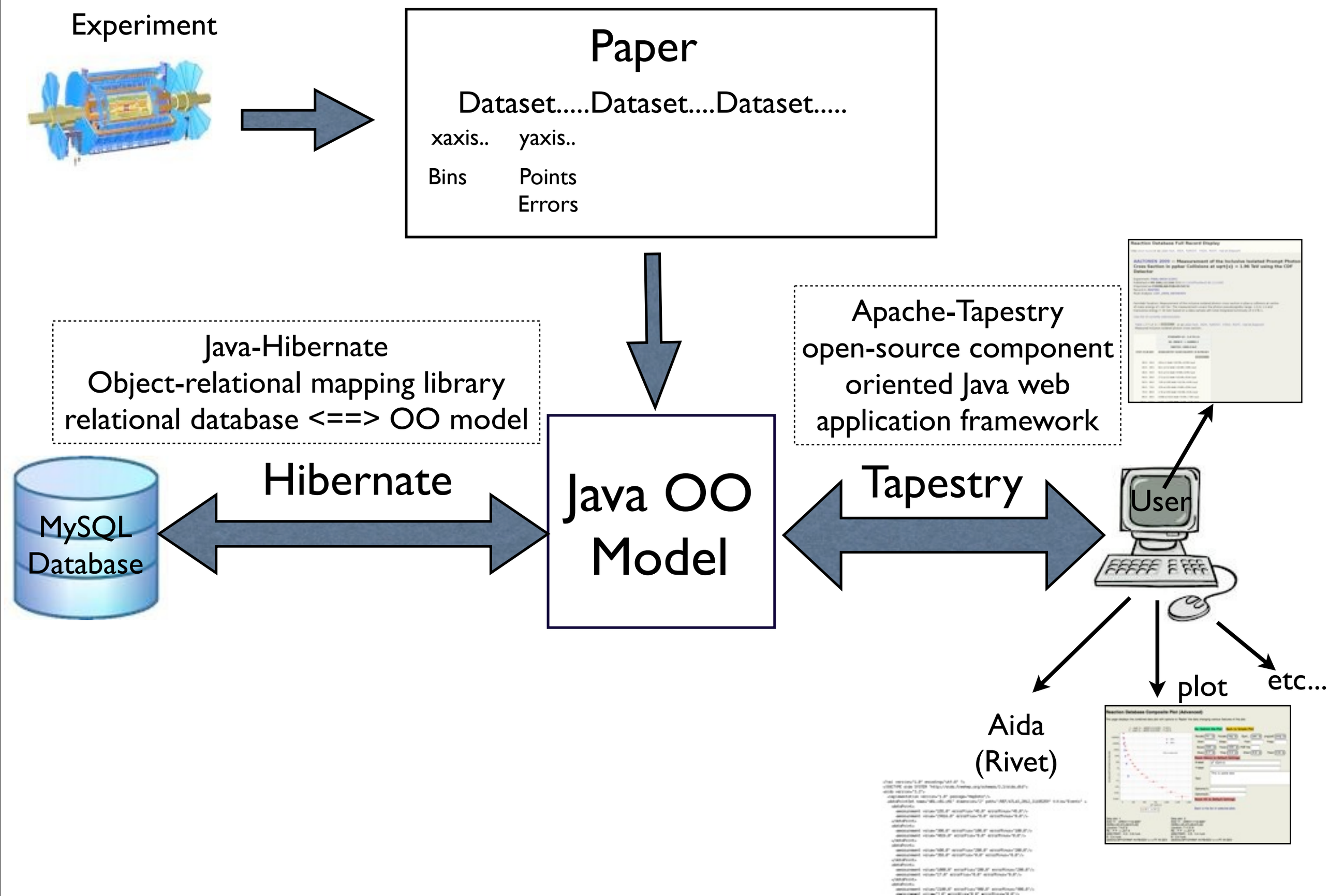
new HepData - to use a standard software (Java+MySQL)
- to provide data for Rivet analyses

HepData - new software

- MySQL database + JAVA coded OO data model.



- Hibernate for Model-Database persistence.
- Tapestry for Model-Web interface.
- Standard software = long term maintainability.


Experiment
Paper
Dataset.....Dataset....Dataset.....
xaxis..
yaxis..
Bins
Points
Errors
Java-Hibernate
Object-relational mapping library
relational database <==> OO model
Apache-Tapestry
open-source component
oriented Java web
application framework
MySQL
Database
Hibernate
Java OO
Model
Tapestry
User
Aida
(Rivet)
plot
etc...

OLD → NEW

HEPDATA: REACTION DATA Database

...containing numerical values of HEP scattering data such as total and differential cross sections, fragmentation functions, structure functions, and polarisation measurements, from a wide range of experiments. It is compiled by the **Durham Database Group (UK)** with help from the COMPAS group (Russia,) and is updated at regular intervals.

Reaction Database HELP · Full User Guide · Use register to tell us who you are, or feedback to send us any comments, suggestions or complaints.

Standard (Keyword) Search Method

You are using the OLD HepData Reaction database
If you wish to use the NEW one, click here

Enter search command:

then: Submit Search or Clear or ask for HELP

Search syntax: keyword {op} value {boolean keyword {op} value} {...
where "op" is =, >, <, >=, <=, (the default is =).
and "boolean" is AND, OR, and NOT.
{} indicates optional elements.

Example searches

Note(1): the "/" at the end of values performs a right truncated search.
Note(2): searches are case insensitive.
Note(3): even identical keywords must be repeated in complex searches.

Keywords to use (select for specific help):
[AUTH] [REF] [YEAR] [REAC] [FSP] [BEAM] [TARG]
[OBS] [PLAB] [DE] [EXP]

Particle vocabulary: *for help select first letter of name from below:*
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Other Methods of Search the Database

- Form Interface
  A fill-in form for making simple queries of the data base.
- Easy search method
  Step-by-step through a search using a series of menus from initial states to final states and observables.

Data Reviews
Compilations of selected sub-sets of data organized in an easy to locate format.
- Structure Functions in DIS
- Single Photon Productiianin 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 Section (R) in e+e- Interactions
- Low Energy Neutrino Cross Sections

These Data Reviews are published in the IoP's, Journal of Physics G - Nuclear and Particle Physics. Electronic versions of the reviews can be obtained through the relevant links above.

Pre-defined Event Shape/Jet Searches:
- Event Shapes (Thrust, Oblateness etc...)
- Event Shapes in E+ E- collisions
- Event Shapes in non-E+ E- collisions
- Jet production (in any process)
- Jet production in E+E- collisions
- Jet production in non-E+E- collisions

to the HEPDATA home page

Other Related Databases | SPIRES-HEP | Experiments | Email-ids | Particle Properties

1) AALTONEN 09 - 9 0 Experiment FNAL-0830 - Detector/Collaboration: CDF
Preprinted as **FERMILAB-PUB-09-507-E** (OCT 2009)

Display the Full Data Record **Display the Table Index** Show SLAC/HEP Entry

Fermilab-Tevatron. Measurement of the inclusive isolated photon cross section in pbar-p collisions at centre-of-mass energy of 1.96 TeV. The measurement covers the photon pseudorapidity range -1.0 to 1.0 and transverse energy > 30 GeV based on a data sample with total integrated luminosity of 2.5 fb-1.
(RED 4792) (all kumacs) (all numbers)

Systematic Errors and Corrections

For the measurement of DSIG/DET/DETARAP
the quoted systematic error is 6 PCT
Additional uncertainty from the luminosity measurement.

Table 1 - T 1,F 3 (in paper/preprint)

Measured inclusive isolated photon cross section.

REAC: PBAR P --> GAMMA X
OBS: DSIG/DET/DETARAP
PLAB: 2047761.000 GeV/c

	PBAR P --> GAMMA X
	ETARAP(P=3) = -1.0 TO 1.0
	SQRT(S) = 1960 GEV
ET(P=3) (GEV)	D(SIG)/DET(P=3)/DETARAP(P=3) (PB/GEV)
30 TO 34	123 +- 1 (DSYS=+15.5 PCT,-14.5 PCT)
34 TO 39	62.1 +- 0.3 (DSYS=+10.8 PCT,-9.8 PCT)
39 TO 44	31.0 +- 0.2 (DSYS=+9.8 PCT,-8.4 PCT)
44 TO 50	17.2 +- 0.2 (DSYS=+10.2 PCT,-8.1 PCT)
50 TO 60	7.93 +- 0.08 (DSYS=+10.1 PCT,-8.4 PCT)
60 TO 70	3.54 +- 0.05 (DSYS=+9.8 PCT,-8.5 PCT)
70 TO 80	1.76 +- 0.03 (DSYS=+10.0 PCT,-9.1 PCT)
80 TO 90	0.908 +- 0.014 (DSYS=+9.3 PCT,-7.9 PCT)
90 TO 110	0.441 +- 0.005 (DSYS=+8.8 PCT,-8.7 PCT)

The Durham HepData Project

Durham University

Reaction Database · Data Reviews · Parton Distribution Function Server · Other HEP Resources

Reaction Database Standard Search Interface

Database of Numerical HEP scattering cross sections

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.
The basic keywords are:
reac - the reaction (eg. p p --> charged x) also **beam** and **fsp**.
obs - the observable (eg. SIG, DSIG/DX, DN/DPT).
sqrts - lower bound of the centre-of-mass energy in GeV.
exp - the experiment/laboratory name (eg. ZEUS, CERN, LHC).
date - the year of the publication/preprint.
auth - the first author name on the paper.
ref - the publication/preprint reference.
Use % as the right or left trunction character to search for values beginning or ending with the value. All searches are **case-insensitive**. More details are in the Search Help

Quick link to HepData data reviews
- 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

Predefined event shape / jet searches
- Event shapes (thrust, etc...)
- Event shapes in e+e- collisions
- Event shapes in non-e+e- collisions
- Jet production (in any process)
- Jet production in e+e- collisions
- Jet production in non-e+e- collisions

About HepData — Submitting your data to HepData

HepData also maintains the UK mirror of the PDG | Contact Us

HepData is funded by the UK STFC and hosted at the Durham IPPP
Please send questions and comments to hepdata@projects.hepforge.org

Science & Technology Facilities Council

Reaction Database Full Record Display

View short record or as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhepwork

AALTONEN 2009 — Measurement of the Inclusive Isolated Prompt Photon Cross Section in ppbar Collisions at sqrt{s} = 1.96 TeV using the CDF Detector

Experiment: FNAL-0830 (CDF)
Published in **PR D80,111106** (DOI:10.1103/PhysRevD.80.111106)
Preprinted as **FERMILAB-PUB-09-507-E**
Record in: INSPIRE
Rivet Analysis: CDF_2009_S8436959

Fermilab-Tevatron. Measurement of the inclusive isolated photon cross section in pbar-p collisions at centre-of-mass energy of 1.96 TeV. The measurement covers the photon pseudorapidity range -1.0 to 1.0 and transverse energy > 30 GeV based on a data sample with total integrated luminosity of 2.5 fb-1..

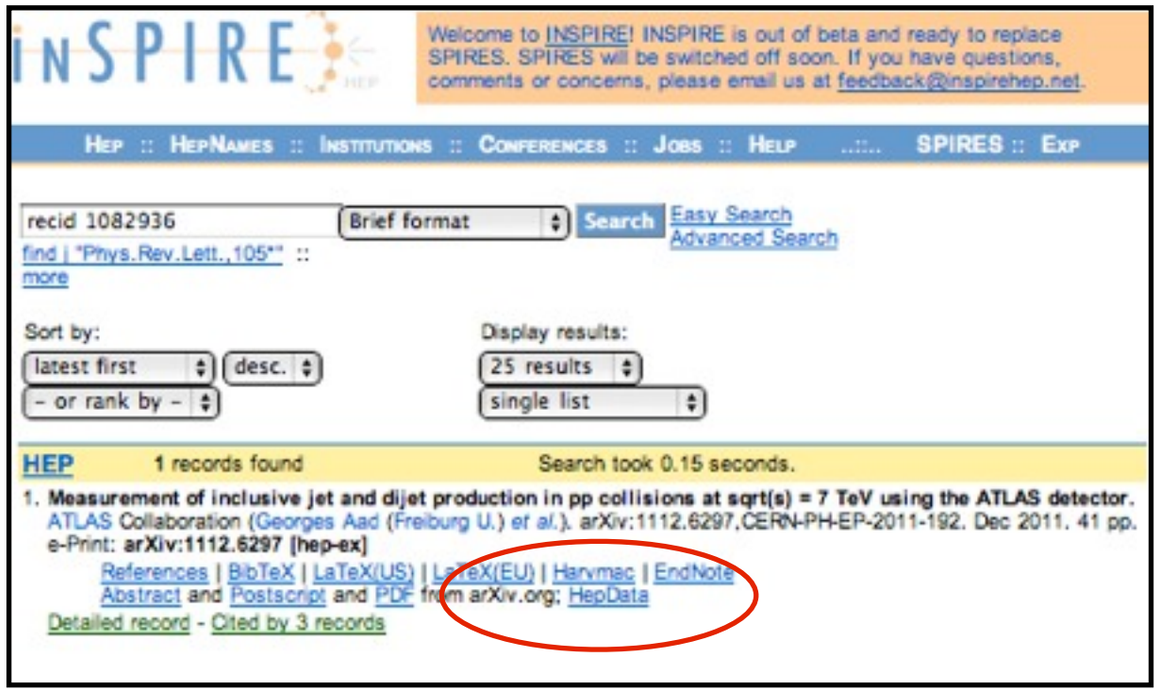
View list of currently selected plots

Table 1 (T 1,F 3.) or as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhepwork
Measured inclusive isolated photon cross section..

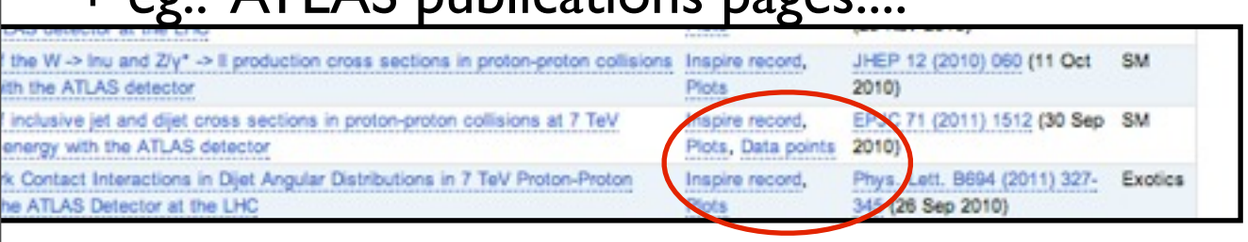
	ETARAP(P=3) : -1.0 TO 1.0
	RE : PBAR P --> GAMMA X
	SQRT(S) : 1960.0 GeV
ET(P=3) IN GEV	D(SIG)/DET(P=3)/DETARAP(P=3) IN PB/GEV
30.0 - 34.0	123 ± 1 (stat) +15.5%,-14.5% (sys)
34.0 - 39.0	62.1 ± 0.3 (stat) +10.8%,-9.8% (sys)
39.0 - 44.0	31.0 ± 0.2 (stat) +9.8%,-8.4% (sys)
44.0 - 50.0	17.2 ± 0.2 (stat) +10.2%,-8.1% (sys)
50.0 - 60.0	7.93 ± 0.08 (stat) +10.1%,-8.4% (sys)
60.0 - 70.0	3.54 ± 0.05 (stat) +9.8%,-8.5% (sys)
70.0 - 80.0	1.76 ± 0.03 (stat) +10.0%,-9.1% (sys)
80.0 - 90.0	0.908 ± 0.014 (stat) +9.3%,-7.9% (sys)

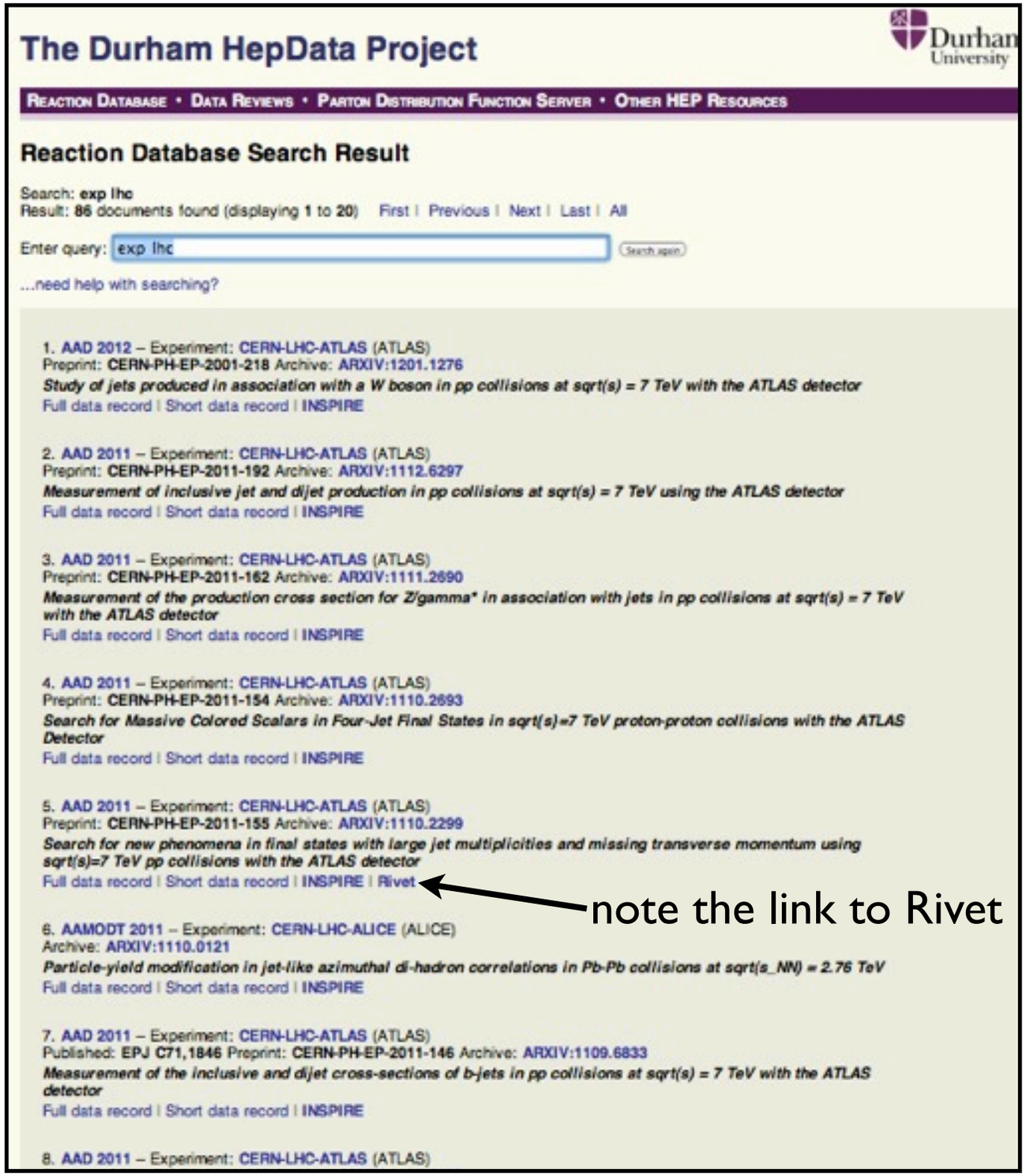
HepData - finding the record

HepData has basic search facilities
- EXP, RE, OBS, FSP, REF etc...
+ Inspire type searches (eg. title:xxx)
+ individual records linked from Inspire....



+ eg.. ATLAS publications pages....





note the link to Rivet

+ working with Elsevier to place banner flag on their web page when paper has HepData record.

HepData – 'standard' record type

Reaction Database Full Record Display

View short record or as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhepwork

AAD 2011 — Measurement of inclusive jet and dijet production in pp collisions at sqrt(s) = 7 TeV using the ATLAS detector

Experiment: CERN-LHC-ATLAS (ATLAS)
Preprinted as CERN-PH-EP-2011-192
Archived as: ARXIV:1112.6297
Record in: INSPIRE

CERN-LHC. Measurements of the inclusive jet and di-jet cross sections in proton-proton collisions at a centre-of-mass energy of 7 TeV. The analysis is based on the 2010 data sample with a total integrated luminosity of 37 pb-1. The anti-KT algorithm is used for jet clustering with data given using both the parameters R=0.4 and R=0.6. Double-differential cross sections are given as a function of the inclusive jet PT in rapidity (y) bins and of the di-jet invariant mass in bins of half of the rapidity separation of the two jets (y*). Details of the systematic errors and their correlations are given in the link below. In the tables the first (sys) error is the correlated (in PT) systematic error and the second is the uncorrelated systematic error, both produced by combining the relevant errors in quadrature.

Details of systematic errors and their correlations

View list of currently selected plots

Total number of tables: **32**. Displaying: **1** to **10**. First | Previous | Next | Last

Table 1
as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhepwork

Inclusive jet PT distribution for the |y| range 0.0-0.3 and R=0.4.
Location: T 5,F 9
Additional systematic error: ± 3.4% (luminosity uncertainty)

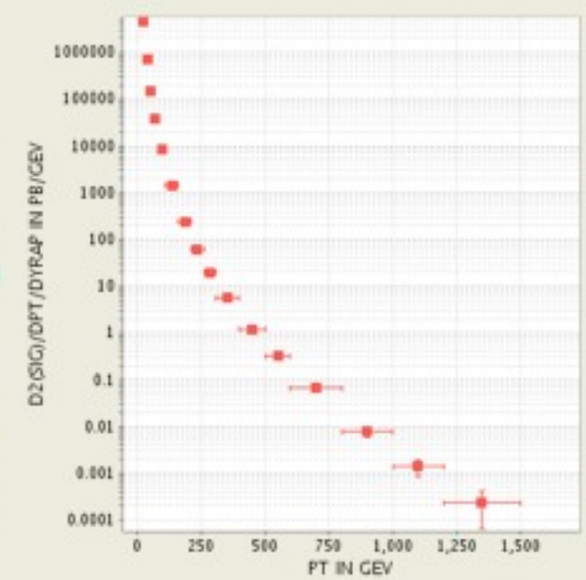
	ABS(YRAP) : 0.0-0.3
	R : 0.4
	RE : P P –> JET X
	SQRT(S) : 7000.0 GeV
PT IN GEV	D2(SIG)/DPT/DYRAP IN PB/GEV
20. – 30.	4700000 ± 0.86% (stat) +20.1%,-20.3% (sys) ± 1.3% (sys)
30. – 45.	717000 ± 1.33% (stat) +17.0%,-16.3% (sys) ± 1.1% (sys)
45. – 60.	148000 ± 3.03% (stat) +12.8%,-11.5% (sys) ± 1.1% (sys)
60. – 80.	38100 ± 1.1% (stat) +10.4%,-10.1% (sys) ± 1.0% (sys)
80. – 110.	8520 ± 0.68% (stat) +10.5%,-11.5% (sys) ± 1.1% (sys)
110. – 160.	1480 ± 0.62% (stat) +9.9%,-9.3% (sys) ± 1.1% (sys)

Output formats:

- html
- plain text
- AIDA - for RIVET
- PyRoot
- YODA
- mpl
- jhepwork
- plot (simple & advanced)

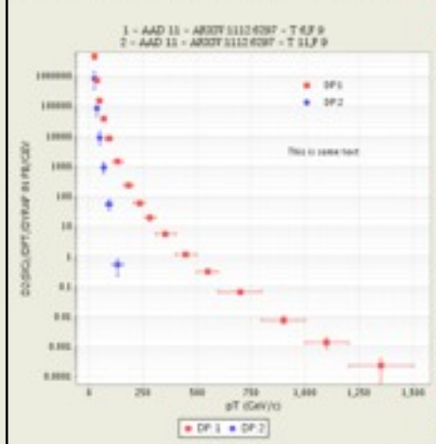
Reaction Database Single Dataset Plot

First Author: AAD11
Published as: Not Published
Preprinted as: ARXIV:1112.6297



Reaction Database Composite Plot (Advanced)

This page displays the combined data plot with options to 'Replot' the data changing various features of the plot.



Re-Submit the Plot | Back to Simple Plot

Xscale lin | Yscale log | Syst... yes | png/pdf png
Xmin | Xmax | Ymin | Ymax
Xsize 500 | Ysize 500 | PDF file
Xkey 0.7 | Ykey 0.9 | Xtext 0.6 | Ytext 0.8

Reset Above to Default Settings

X-label: pT (GeV/c)
Y-label:
Text: This is some text
Options(1):
Options(2):

Reset All to Default Settings

Back to the list of selected plots

Data plot: 1
AAD 11 - ARXIV:1112.6297
CERN-LHC-ATLAS/ATLAS
Location: T 6,F 9
RE : P P –> JET X
ABS(YRAP) : 0.3 - 0.8 num
R : 0.4 num
D2(SIG)/DPT/DYRAP IN PB/GEV <-> PT IN GEV

Data plot: 2
AAD 11 - ARXIV:1112.6297
CERN-LHC-ATLAS/ATLAS
Location: T 11,F 9
RE : P P –> JET X
ABS(YRAP) : 3.6 - 4.4 num
R : 0.4 num
D2(SIG)/DPT/DYRAP IN PB/GEV <-> PT IN GEV

SUSY/Exotics 'non-standard' record types

At the beginning of 2011 we were asked (by the ATLAS SUSY group) if HepData could handle data sets other than the standard (2-D) 'cross section' type data.

Things like:

- SLHA files
- Tables of Acceptances & Efficiencies
- 3-D tables of signal cross sections

We agreed to do this by creating a 'resource' area on the main HepData server which was linked to the specific HepData main record.

Thus between the 'resource' area+HepData standard record just about anything can be included.

Paper

Dataset.....Dataset....Dataset.....

xaxis.. yaxis..

Bins Points
Errors

MySQL Database

Hibernate

Java OO Model

Tapestry

linked using InspireId to record

Resource Area

SLHA
Acc.
Eff.
etc..

Aida etc.....
(Rivet)

Addition of 'resource' file system on HepData server - linked into the specific data record

Contents of HepData

7843 records (=papers)

158 LHC ATLAS:80
CMS: 42
ALICE: 23
LHCB: 10
TOTEM: 3

ATLAS:
36 STDM
32 SUSY
5 EXOT
5 HION
1 TOPQ
1 BPHYS

Reaction Database Search Result

Search: **all records**
Result: **7842** documents found (displaying **1** to **20**) First | Previous | Next | Last | All

Enter query: all records Search again

...need help with searching?

1. **AAD 2012** – Experiment: **CERN-LHC-ATLAS** (ATLAS)
Preprint: **CERN-PH-EP-2001-218** Archive: **ARXIV:1201.1276**
Study of jets produced in association with a W boson in pp collisions at sqrt(s) = 7 TeV with the ATLAS detector
Full data record | Short data record | **INSPIRE** | **Rivet**

Reaction Database Search Result

Search: **exp lhc**
Result: **157** documents found (displaying **1** to **20**) First | Previous | Next | Last | All

Enter query: exp lhc Search again

...need help with searching?

1. **AAD 2012** – Experiment: **CERN-LHC-ATLAS** (ATLAS)
Preprint: **CERN-PH-EP-2012-190** Archive: **ARXIV:1209.2535**
Search for high-mass resonances decaying to dilepton final states in pp collisions at a center-of-mass energy of 7 TeV with the ATLAS detector
Full data record | Short data record | **INSPIRE**

Reaction Database Search Result

Search: **de atlas**
Result: **79** documents found (displaying **1** to **20**) First | Previous | Next | Last | All

Enter query: de atlas Search again

...need help with searching?

1. **AAD 2012** – Experiment: **CERN-LHC-ATLAS** (ATLAS)
Preprint: **CERN-PH-EP-2012-190** Archive: **ARXIV:1209.2535**
Search for high-mass resonances decaying to dilepton final states in pp collisions at a center-of-mass energy of 7 TeV with the ATLAS detector
Full data record | Short data record | **INSPIRE**

What kind of things do the SUSY records in HepData contain?

Distributions - DN/DPT, DN/DMeff etc
both (Observed and MC predictions)
CLs 95% limits
Exclusion Contours
+
Acceptances
Efficiencies
Number of generated MC events
Uncertainties
Signal Cross sections
etc..
+
SLHA files

AAD 2012 — Hunt for new phenomena using large jet multiplicities a transverse momentum with ATLAS in 4.7 fb^-1 of sqrt(s) = 7 TeV pro collisions

Experiment: CERN-LHC-ATLAS (ATLAS)
Published in **JHEP 1207,167** (DOI:10.1007/JHEP07(2012)167)
Preprinted as **CERN-PH-EP-2012-141**
Archived as: ARXIV:1206.1760
Record in: INSPIRE

CERN-LHC. Study of final states from proton-proton interactions at a centre-of-mass energy of 7 TeV having >=6 in association with missing transverse momentum and no isolated electrons or muons. The data sample, collect has a total integrated luminsoity of 4.7 pb-1. The results are interpretated in the context of a MSUGRA/CMSSM and also a simplified model containing only a gluino octet and a neutralino. Distributions of Missing-ET/sqrt(HT), the scalar sum of the transverse momentum of the jets, are given here for 6 signal regions from minimum 6 to 9 minimum PT > 55 and 80 GeV. Tables of acceptances, efficiencies, errors and CLs value for each signal region SUSY models are also provided in the link below.

Link to the files of: acceptances, efficiences, errors and CLs values

View list of currently selected plots

Table 1 (F 5a.) HIDE DATA or as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhepwork
Distribution of the variable ETmiss/sqrt(HT) for events with >= 7 jets each having transverse mome gives the number of observed data events, the expected standard model backgroud prediction and t SUSY signal process.

	ABS(ETARAP(C=JET)) : < 2.8		
	PT(C=JET) : > 55 GeV		
	RE : P P --> .GE.7JET MM X		
	SQRT(S) : 7000.0 GeV		
	signal region : 7j55		
	DATA	SM BACKGROUND	SUSY SIGNAL
ET(C=MISSING)/SQRT(HT) IN GEV**0.5	EVENTS/2 GEV**0.5		
			HIDE DATA
0.0 – 0.25	13256	13196	1.806
0.25 – 0.5	37312	36595	8.803
0.5 – 0.75	52006	50940	16.43
6.0 – 8.0	19	18.19	28.99
8.0 – 10.0	7	7.613	14.21
10.0 – 12.0	3	1.755	6.397
12.0 – 14.0	1	0.4701	2.710
14.0 – 16.0	0.0	0.07597	0.6844
	Plot SelectPlot	Plot SelectPlot	Plot SelectPlot

The following extra information is available for the paper:

Acceptances, efficiencies, errors and CLs values

mSUGRA interpretation	gluino–>ttbar+chi0 interpretation
6j80 signal region	6j80 signal region
7j55 signal region	7j55 signal region
7j80 signal region	7j80 signal region
8j55 signal region	8j55 signal region
8j80 signal region	8j80 signal region
9j55 signal region	9j55 signal region

** 7j80 Signal Region **

** Note: The following numbers are at detector level. No unfolding for detector resolution has taken place. **
******** They correspond to an integrated luminosity of 4.7/fb. **********

m0	m12	CLs_exp	CLs_obs	NSig	Acc (%)	Acc x Eff (%)	Exp Unc (%)	MCStat Unc (%)	Th_Unc (%)
260	180	0.064	0.082	47.0	0.053	0.053	34.0	39.0	8.2
260	210	0.0021	0.0028	74.0	0.089	0.18	13.0	28.0	9.1
260	240	0.24	0.25	35.0	0.099	0.16	62.0	31.0	15.0
260	270	0.0031	0.0083	43.0	0.31	0.39	27.0	19.0	9.0
260	300	0.012	0.031	31.0	0.28	0.52	32.0	17.0	10.0
260	330	0.0016	0.0073	36.0	0.75	1.1	22.0	12.0	11.0
260	360	0.058	0.18	15.0	0.6	0.7	32.0	15.0	14.0
260	390	0.018	0.11	16.0	1.1	1.4	23.0	12.0	16.0
260	420	0.039	0.21	12.0	1.4	1.5	18.0	10.0	16.0
260	450	0.19	0.53	6.6	1.2	1.4	27.0	11.0	16.0
260	510	0.46	0.83	3.1	1.9	1.9	21.0	10.0	19.0
260	540	0.6	0.9	2.1	1.9	2.1	15.0	10.0	20.0
340	180	0.0064	0.015	170.0	0.18	0.25	27.0	18.0	8.2
340	210	0.11	0.1	76.0	0.19	0.24	52.0	23.0	10.0
340	240	0.13	0.14	45.0	0.24	0.26	54.0	22.0	9.2
340	270	0.0029	0.01	42.0	0.34	0.44	26.0	18.0	11.0
340	300	0.023	0.039	39.0	0.56	0.8	33.0	14.0	13.0
340	330	0.0014	0.01	29.0	0.8	1.1	23.0	12.0	11.0
340	360	0.0048	0.037	22.0	1.1	1.2	32.0	11.0	13.0
340	390	0.026	0.16	13.0	1.2	1.4	23.0	11.0	14.0
340	420	0.09	0.38	9.0	1.5	1.5	31.0	11.0	15.0
340	450	0.12	0.46	7.7	1.8	2.1	22.0	9.3	16.0
340	480	0.23	0.61	5.6	2.1	2.5	24.0	8.7	17.0
340	510	0.46	0.83	3.1	2.3	2.2	20.0	9.5	19.0
340	540	0.49	0.84	2.8	2.8	3.2	17.0	8.3	21.0
420	180	0.042	0.035	160.0	0.25	0.32	37.0	15.0	7.0
420	210	0.0026	0.006	130.0	0.45	0.53	30.0	14.0	8.0
420	240	<0.0001	0.0002	94.0	0.64	0.7	22.0	13.0	8.7
420	270	0.021	0.024	69.0	0.89	0.94	35.0	12.0	11.0
420	300	0.018	0.034	34.0	0.47	0.87	34.0	13.0	10.0
420	330	0.0035	0.016	29.0	1.0	1.3	27.0	11.0	13.0
420	360	0.001	0.019	23.0	1.5	1.6	28.0	9.7	13.0
420	420	0.03	0.2	12.0	1.9	2.4	20.0	8.7	16.0
420	450	0.15	0.48	7.2	1.9	2.4	25.0	9.4	18.0
420	480	0.29	0.69	4.7	2.0	2.3	22.0	8.8	18.0
420	510	0.35	0.74	4.0	2.7	3.4	17.0	8.3	21.0
420	540	0.52	0.86	2.6	3.0	3.5	18.0	8.8	21.0

ATLAS SUSY data in HepData (2011 7 TeV)

			Dist	SLHA	Acc/Eff	CLs	Sig	Excl	
2011 Data 7 Tev									
Muon + displaced vertex [RPV]	1210.7451	Coding							
>=4 leptons + Etmiss [RPV]	1210.4457	Done	IN	OUT	OUT	OUT	OUT	OUT	
2 leptons + jets + Etmiss [Medium stop]	1209.4186	Coding							
1-2 leptons + >=2-4 jets [Light stop]	1209.4688	Coding							
2 leptons + >=1 jet + Etmiss [Very light stop]	1208.4305	Done	IN	-	IN	IN	IN	IN	
3 leptons + Etmiss [Direct gauginos]	1208.3144	Done	IN	OUT	IN	IN	IN	-	
1 lepton + >=4 jets (>=1 b-jet) +Etmiss [Heavy stop]	1208.2590	Done	IN	-	OUT	IN	IN	IN	
0 lepton +1-2 b-jet + 5-4 jets + Etmiss [Heavy stop]	1208.1447	Done	-	-	IN	-	IN	-	
0 lepton + >=(6-9) jets + Etmiss	1206.1760	Done	IN	-	OUT	OUT	OUT	-	
Electron-muon continuum [RPV]	1205.0725	Done	IN	-	IN	-	IN	-	
Z->ll + b-jet + jets + Etmiss [Direct stop in natural GMSB]	1204.6736	Done	IN	-	IN	IN	IN	IN	
3 leptons + Etmiss [Direct gauginos]	1204.5638	Done	IN	OUT	IN	IN	IN	-	
>=1 tau + jets + Etmiss [GMSB]	1204.3852	Done	IN	-	IN	IN	IN	IN	
>= 2 tau + jets + Etmiss [GMSB]	1203.6580	Done	IN	-	IN	IN	IN	IN	
b-jet(s) + 0-1 lepton + jets + Etmiss [Gluino med. stop/sb]	1203.6193	Done	-	-	IN	-	IN	IN	
2 same-sign leptons + jets +Etmiss	1203.5763	Done	IN	-	OUT	-	OUT	IN	
2 b-jets + Etmiss [Direct sbottom]	1112.3832	Done	-	-	-	-	-	IN	
Disappearing track + jets + Etmiss [ASMB Strong Prod.]	1202.4847	Done	IN	-	IN	-	-	-	
2 leptons + jets + Etmiss	1110.6189	Done	IN	-	-	-	-	-	
0 lepton + >=(6-8) jets + Etmiss	1110.2299	Done	IN	-	OUT	OUT	OUT	-	
1 lepton + jets + Etmiss	1109.6606	Done	IN	-	-	-	-	IN	
0 lepton + >=(2-4) jets + Etmiss	1109.6572	Done	IN	OUT	OUT	OUT	OUT	IN	
Electron-muon resonance [RPV]	1109.3089	Done	IN	-	IN	-	IN	-	
Add. >=4 leptons + Etmiss interpretation [RPV] - conf	2012-035	Done	IN	OUT	IN	IN	-	IN	
>=4 leptons + Etmiss - conf	2012-001	Done	IN	-	-	-	-	-	
	2011-155	same os 1109.6572							

IN = mainstream HepData table
OUT = file in 'resource area'

ATLAS SUSY data in HepData (2010 7 TeV)

2010 Data 7 Tev			Dist	SLHA	Acc/Eff	CLs	Sig	Excl
2 jet-pair resonances [N=1/2 scalar gluons]	1110.2693	Done	IN	-	-	-	IN	-
Displaced vertices	1109.2242	Done	IN	-	IN	-	IN	-
2 photons + Etmiss [GGM]	1107.0561	Done	-	OUT	OUT	-	-	-
Heavy long lived particles	1106.4495	Done	IN	-	-	-	IN	-
Electron-muon resonance [RPV]	1103.5559	Done	IN	-	-	-	IN	-
b-jet(s) + 0-1 lepton + jets + Etmiss [Gluino med. stop/sb]	1103.4344	Done	IN	-	-	-	IN	IN
Stable hadronising squarks and gluinos	1103.1984	Done	IN	-	-	-	-	-
0 lepton + jets + Etmiss	1102.5290	Done	IN	OUT	OUT	-	-	IN
1 lepton + jets + Etmiss	1102.2357	Done	IN	OUT	OUT	-	IN	-
Combined 0-1 lepton + jets + Etmiss - conf	2011.064	Done	-	-	-	-	-	IN

IN = mainstream HepData table
OUT = file in ‘resource area’

AAD 2011 — Search for supersymmetry using final states with one lepton, jets, and missing transverse momentum with the ATLAS detector in sqrt{s} = 7 TeV pp

Experiment: CERN-LHC-ATLAS (ATLAS)
Published in **PRL 106,131802**
Preprinted as **CERN-PH-EP-2011-013**
Archived as: ARXIV:1102.2357
Record in: INSPIRE

CERN-LHC. Search for SUSY in final states containing one isolated lepton (electron or muon), jets and missing transverse momentum in proton-proton collisions at a centre-of-mass energy of 7 TeV. The data sample, collected during 2010, has a total integrated luminosity of 35 pb-1. No excess above the standard model is found. This record contains the distributions in missin ET, the transverse mass (MT) between the lepton and the missing transver momentum vector, and the effective mass defined as the scalar sum of the the three leading jets, the pT of the lepton and the missing ET. Also tabulated are the 95 PCT exclusion limits on m_0 and m_(1/2) for the MSUGRA/CMSSM model.

Link to the tables of MSUGRA/CMSSM SLHA parameters
Link to the combined 0 and 1 lepton analysis

View list of currently selected plots

Table 1

as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhepwork

Distribution of ET(C=MISSING) IN GEV for data and background MC calcu
Location: F 1

	. : DATA	. : BACKGROUND
	ABS(ETARAP(C=ELECTRON)) : < 2.47 - (1.37 TO 1.52)	
	ABS(ETARAP(C=JET)) : < 2.50	
	ABS(ETARAP(C=MUON)) : < 2.40	
	PT(C=JET) : > 30 GeV	
	PT(C=LEADING JET) : > 60 GeV	
	PT(C=LEPTON) : > 20 GeV	
	RE : P P --> LEPTON .GE.3JETS MM	
	SQRT(S) : 7000.0 GeV	
ET(C=MISSING) IN GEV	N	
0. – 10.	332 +19.1,-18.1 (stat)	238 ± 63.2 (stat) +39.9,-36.3 (sys)
10. – 20.	730 +27.9,-26.9 (stat)	712.9 ± 146.0 (stat) +156.2,-0.0 (sys)
20. – 30.	716.0 +27.6,-26.6 (stat)	878.7 ± 166.3 (stat) +0.0,-201.7 (sys)
30. – 40.	635.0 +26.1,-25.1 (stat)	604.9 ± 116.1 (stat) +95.8,-25.5 (sys)

ATLAS MSSM_sqgl Spring 2011 shla data files

MSSM_sqgl	g-mass															
s-mass	0050	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1200	1400	1600	1800	2000
0050	y	y	y	y	y	y	y	y	y	y						
0100	y	y	y	y	y	y	y	y	y	y						
0200	y	y	y	y	y	y	y	y	y	y						
0300	y	y	y	y	y	y	y	y	y	y						
0400	y	y	y	y	y	y	y	y	y	y						
0500	y	y	y	y	y	y	y	y	y	y						
0600	y	y	y	y	y	y	y	y	y	y						
0700	y	y	y	y	y	y	y	y	y	y						
0800	y	y	y	y	y	y	y	y	y	y						
0900	y	y	y	y	y	y	y	y	y	y						
1000	y	y	y	y	y	y	y	y	y	y						
1200		y	y	y	y		y		y							
1400	y	y	y	y	y		y									
1600		y	y	y	y		y		y							
1800		y	y	y	y		y		y							
2000	y	y	y	y	y		y									

efficiency*acceptance information: sqgl_0lgrid_HEPdata.txt
gzipped tar file of all data files: MSSM_sqgl.tar.gz
uuencoded version of above: MSSM_sqgl.uu

```
#  ISAJET SUSY parameters in SUSY Les Houches Accord 2 format
#  Created by ISALHA 2.0 Last revision: C. Balazs 21 Apr 2009
Block SPINFO   # Program information
     1   ISASUGRA from ISAJET              # Spectrum Calculator
     2   7.80   29-OCT-2009 12:50:36       # Version number
Block MODSEL   # Model selection
     1    13   # Non-universal supergravity model
Block SMINPUTS   # Standard Model inputs
     1      1.27836243E+02   # alpha_em^(-1)
     2      1.16570000E-05   # G_Fermi
     3      1.17200002E-01   # alpha_s(M_Z)
     4      9.11699982E+01   # m_{Z}(pole)
     5      4.19999981E+00   # m_{b}(m_{b})
     6      1.72500000E+02   # m_{top}(pole)
     7      1.77699995E+00   # m_{tau}(pole)
Block MINPAR   # SUSY breaking input parameters
     1      5.00000000E+03   # m_0
     2      5.00000000E+03   # m_{1/2}
     3      1.04999995E+00   # tan(beta)
     4      1.00000000E+00   # sign(mu)
     5      0.00000000E+00   # A_0
Block EXTPAR   # Non-universal SUGRA breaking parameters
     0      1.00000000E+03   # input scale
    21     -1.21530960E+07   # Down type Higgs mass squared
    22     -1.21524730E+07   #  Up  type Higgs mass squared
     1      0.00000000E+00   #  U(1)_Y gaugino (Bino) mass
     2      5.00000000E+03   # SU(2)_L gaugino (Wino) mass
     3      5.00000000E+02   # SU(3)_C gaugino (gluino) mass
    34      5.00000000E+03   # Right scalar electron mass
    31      5.00000000E+03   # Left 1st gen. slepton mass
    47      5.00000000E+02   # Right scalar down mass
    44      5.00000000E+02   # Right scalar  up  mass
    41      5.00000000E+02   # Left 1st gen. squark mass
    36      5.00000000E+03   # Right scalar tau mass
    33      5.00000000E+03   # Left 3rd gen. slepton mass
    49      5.00000000E+03   # Right scalar bottom mass
    46      5.00000000E+03   # Right scalar top mass
    43      5.00000000E+03   # Left 3rd gen. squark mass
Block MASS   # Scalar and gaugino mass spectrum
#  PDG code   mass                 particle
        24     8.04229965E+01   #  W^+
        25     5.00000000e+03   #  h^0
        35     5.00000000e+03   #  H^0
        36     5.00000000e+03   #  A^0
```

SLHA file

mgl	msq	Expected # signal events (A,B,C,D)	Acceptance * efficiency (A,B,C,D)	Excluded (A,B,C,D)
100	100	1.07e+03,0.00e+00,1.[illegible]e+03,0.00e+00	6.26e-04,0.00e+00,8.25e-04,0.00e+00	y,n,n,n
100	200	2.78e+02,0.00e+00,4.62e+02,0.00e+00	2.98e-04,0.00e+00,4.96e-04,0.00e+00	n,n,y,n
100	300	2.74e+02,0.00e+00,5.23e+02,0.00e+00	3.42e-04,0.00e+00,6.53e-04,0.00e+00	n,n,y,n
100	400	3.13e+02,7.89e+01,7.05e+02,0.00e+00	4.11e-04,1.04e-04,9.26e-04,0.00e+00	n,n,n,n
100	500	2.01e+02,0.00e+00,2.38e+02,0.00e+00	2.69e-04,0.00e+00,3.18e-04,0.00e+00	n,n,n,n
100	600	9.30e+01,0.00e+00,3.34e+02,0.00e+00	1.25e-04,0.00e+00,4.50e-04,0.00e+00	n,n,y,n
100	700	2.26e+02,0.00e+00,3.00e+02,0.00e+00	3.06e-04,0.00e+00,4.06e-04,0.00e+00	n,n,n,n
100	800	3.39e+02,0.00e+00,4.12e+02,0.00e+00	4.60e-04,0.00e+00,5.59e-04,0.00e+00	n,n,y,n
100	[illegible]	[illegible]	1.00e-04,0.00e+00,[illegible]	[illegible]
100	1000	7.36e+01,0.00e+00,2.21e+02,0.00e+00	1.00e-04,0.00e+00,3.00e-04,0.00e+00	n,n,n,n
100	1400	0.00e+00,0.00e+00,1.47e+02,0.00e+00	0.00e+00,0.00e+00,2.00e-04,0.00e+00	n,n,n,n
100	2000	7.36e+01,0.00e+00,2.94e+02,0.00e+00	1.00e-04,0.00e+00,4.00e-04,0.00e+00	n,n,n,n
200	100	1.21e+03,3.03e+01,1.53e+03,0.00e+00	3.77e-03,9.45e-05,4.77e-03,0.00e+00	y,n,n,n
200	200	1.71e+03,7.42e+01,2.01e+03,2.18e+01	2.61e-02,1.13e-03,3.06e-02,3.32e-04	y,y,n,n
200	300	5.08e+02,2.50e+01,1.02e+03,1.09e+01	1.38e-02,6.80e-04,2.77e-02,2.96e-04	y,y,y,n
200	400	4.35e+02,3.41e+01,9.31e+02,1.01e+01	1.56e-02,1.22e-03,3.33e-02,3.61e-04	y,n,y,n
200	500	4.44e+02,2.62e+01,7.75e+02,0.00e+00	1.81e-02,1.07e-03,3.16e-02,0.00e+00	y,n,y,n
200	600	3.54e+02,2.25e+01,6.09e+02,4.62e+00	1.54e-02,9.77e-04,2.64e-02,2.01e-04	y,y,y,n
200	700	2.41e+02,3.16e+01,4.95e+02,1.43e+01	1.08e-02,1.42e-03,2.22e-02,6.40e-04	y,y,y,n
200	800	2.20e+02,2.62e+01,4.30e+02,8.05e+00	1.00e-02,1.19e-03,1.96e-02,3.67e-04	y,y,y,n
200	900	1.87e+02,1.71e+01,3.76e+02,1.27e+01	8.59e-03,7.85e-04,1.73e-02,5.83e-04	y,n,y,n
200	1000	1.73e+02,1.13e+01,3.72e+02,7.42e+00	7.98e-03,5.21e-04,1.72e-02,3.42e-04	y,n,y,n
200	1400	1.51e+02,1.08e+01,3.33e+02,6.48e+00	6.99e-03,5.00e-04,1.54e-02,3.00e-04	y,n,y,n
200	2000	1.62e+02,8.66e+00,3.59e+02,0.00e+00	7.49e-03,4.00e-04,1.66e-02,0.00e+00	y,n,y,n
300	100	9.94e+02,5.56e+01,1.41e+03,3.71e+01	5.28e-03,2.95e-04,7.49e-03,1.97e-04	y,n,n,n
300	200	1.35e+03,7.76e+01,1.82e+03,2.69e+01	6.30e-02,3.62e-03,8.50e-02,1.26e-03	y,y,n,y
300	300	1.60e+03,9.04e+01,1.49e+03,4.64e+01	1.99e-01,1.12e-02,1.85e-01,5.77e-03	y,y,n,y
300	400	4.86e+02,3.94e+01,8.35e+02,1.13e+01	1.05e-01,8.48e-03,1.80e-01,2.43e-03	y,y,y,n
300	500	3.49e+02,3.58e+01,5.83e+02,1.12e+01	1.05e-01,1.08e-02,1.75e-01,3.37e-03	y,y,y,y
300	600	3.13e+02,2.59e+01,4.87e+02,1.14e+01	1.15e-01,9.49e-03,1.78e-01,4.18e-03	y,y,y,y
300	700	2.32e+02,2.42e+01,3.94e+02,1.03e+01	9.49e-02,9.90e-03,1.61e-01,4.21e-03	y,y,y,y
300	800	2.01e+02,2.03e+01,3.41e+02,1.09e+01	8.74e-02,8.83e-03,1.48e-01,4.74e-03	y,y,y,y
300	900	1.84e+02,1.87e+01,3.21e+02,1.23e+01	8.31e-02,8.44e-03,1.45e-01,5.55e-03	y,n,y,y
300	1000	1.66e+02,1.38e+01,3.11e+02,9.44e+00	7.65e-02,6.36e-03,1.43e-01,4.35e-03	y,n,y,y
300	1400	1.61e+02,1.30e+01,2.93e+02,3.86e+00	7.57e-02,6.11e-03,1.38e-01,1.81e-03	y,n,y,n
300	2000	1.54e+02,9.67e+00,2.96e+02,3.25e+00	7.21e-02,4.53e-03,1.39e-01,1.52e-03	y,n,y,n
400	100	8.25e+02,6.55e+01,9.87e+02,3.21e+01	5.43e-03,4.31e-04,6.50e-03,2.11e-04	y,n,y,n

Expected # signal events Acceptance * efficiency

AAD 2011 — Search for squarks and gluinos using final states with jets and missing transverse momentum with the ATLAS detector in sqrt(s) = 7 TeV proton-proton collisions

Experiment: CERN-LHC-ATLAS (ATLAS)
Preprinted as CERN-PH-EP-2011-145
Archived as: ARXIV:1109.6572
Conference paper ATLAS-CONF-2011-155
Record in: INSPIRE
Rivet Analysis: ATLAS_2011_S9212183

CERN-LHC. Study of events having final states with no leptons, jets and missing transverse momentum, and with no reconstructed electrons or muons, in proton-proton collisions at a centre-of-mass energy of 7 TeV. Data are selected with various cuts and criteria to enhance different physics regions as described in the text of the paper. Exclusion limits on gluino and squark masses in SUSY models are presented for a simplified model (described in the paper) together with limits on m_0 and m_1/2 in MSUGRA/CMSSM models. The data sample has a total integrated luminosity of 1.04 FB-1 and shows no excess above the Standard Model background. Additional model interpretations are given in the Conference Note.

Extra data files (exclusion limits, acceptance*efficiency, slha files)

View list of currently selected plots

Table 1

as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhepwork

The distribution in Meff (scalar sum of the missing transverse moment pT jets) for events with at least 2 jets after the application of all selec shows the number of observed data points per 100 GeV bin plus the b Carlo and its upper and lower 1-sigma error limits uncertainty band.
Location: F 1

	. : DATA	. : BACKGROUND
	ET(C=MM) : > 130 GeV	
	ET(C=MM)/M(C=EFFECTIVE) : 0.3	
	M(C=EFFECTIVE) : > 1000 GeV	
	PT(C=JET) : > 40 GeV	
	PT(C=LEADING JET) : > 130 GeV	
	RE : P P --> 0LEPTON .GE.2JETS MM	
	SQRT(S) : 7000.0 GeV	
M(C=EFF) IN GEV	N/100 GEV	
300. – 400.	4605	5214 +1051,-845
400. – 500.	5159	5725 +1426,-759
500. – 600.	1905	2198 +516,-320
600. – 700.	739	888 +199,-104

Extra resource relating to the paper arxiv:1109.6572 - CERN-PH-2011-145

Experimental acceptance/efficiency and excluded cross section*branching ratios:
- Signal expectations and experimental acceptance/efficiency for M_gluino vs M_squark grid (massless LSP)
- Signal expectations and experimental acceptance/efficiency for CMSSM/MSUGRA grid

SLHA files:
- susy sqgl slha files
- susy CMSSM/MSUGRA slha files

Extra resource relating ot the ATLAS NOTE ATLAS-CONF

Experimental acceptance/efficiency and excluded cross section*branchi
- (direct decays) - SHLA files
- (one-step cascade decays, x=1/4) - SHLA files
- (one-step cascade decays, x=1/2) - SHLA files
- (one-step cascade decays, x=3/4) - SHLA files

Experimental acceptance/efficiency and excluded cross section*branchi
- (direct decays) - SHLA files
- (one-step cascade decays, x=1/4) - SHLA files
- (one-step cascade decays, x=1/2) - SHLA files
- (one-step cascade decays, x=3/4) - SHLA files

Table 5

as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhepwork

95% CL exclusion limit in the (Mgluino,Msquark) plane for the simplified model described in the paper. The gluino mass and the masses of the squarks of the first two generations are set to the values shown. The lightest neutralino is assigned mass of zero. All other supersymmetric particles, including the squarks of the third generation, are decoupled by being given masses of 5 TeV.
Location: F 2

	M(C=NEUTRALIN0) : 0.0 GeV
	RE : P P --> 0LEPTON JETS MM
	SQRT(S) : 7000.0 GeV
M(C=GLUINO) IN GEV	M(C=SQUARK) GEV
715.5	1976.2
716.5	1928.7
717.3	1881.2
717.5	1874.2

ATLAS M_gluino vs M_squark vs M_lsp SLHA data files
file name: susy_MSSM_Msq_Mgl_Mlsp.txt

neutralino mass = 0 GeV

MSSM_sqgl	gluino-mass (GeV)													
squark-mass (GeV)	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000
200	x	x	x	x	x	x	x	x	x	x	x	x	x	x
300	x	x	x	x	x	x	x	x	x	x	x	x	x	x
400	x	x	x	x	x	x	x	x	x	x	x	x	x	x
500	x	x	x	x	x	x	x	x	x	x	x	x	x	x
600	x	x	x	x	x	x	x	x	x	x	x	x	x	x
700	x	x	x	x	x	x	x	x	x	x	x	x	x	x
800	x	x	x	x	x	x	x	x	x	x	x	x	x	x
900	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1000	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1200	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1400	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1600	x	x	x	x	x	x	x	x	x	x	x	x	x	x
1800	x	x	x	x	x	x	x	x	x	x	x	x	x	x
2000	x	x	x	x	x	x	x	x	x	x	x	x	x	x

neutralino mass = 95 GeV

MSSM_sqgl	gluino-mass (GeV)															
squark-mass (GeV)	100	150	200	300	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000
100	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
150	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

mgl	msq	Expected # signal events (A,B,C,D,E)	Acceptance * efficiency (
200	200	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	300	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	400	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	500	1.13e+02,2.24e+02,1.79e+04,4.99e+02,1.74e+02	1.54e-04,3.05e-04
200	600	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	700	1.17e+02,1.17e+02,1.24e+04,0.00e+00,1.17e+02	1.75e-04,1.75e-04
200	800	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	900	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	1000	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	1200	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	1400	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	1600	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	1800	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
200	2000	0.00e+00,0.00e+00,0.00e+00,0.00e+00,0.00e+00	0.00e+00,0.00e+00
300	200	1.86e+02,5.52e+02,2.61e+04,4.86e+02,2.55e+02	2.91e-04,8.62e-04
300	300	3.33e+02,8.17e+02,1.90e+04,8.42e+02,2.79e+02	1.39e-03,3.40e-03
300	400	1.94e+02,4.61e+02,1.71e+04,5.32e+02,7.11e+02	1.40e-03,3.32e-03
300	500	2.17e+02,7.46e+02,1.29e+04,7.24e+02,8.64e+02	2.19e-03,7.52e-03
300	600	1.51e+02,4.79e+02,9.28e+03,4.95e+02,5.47e+02	1.85e-03,5.87e-03
300	700	6.47e+01,2.17e+02,7.94e+03,2.41e+02,4.01e+02	8.87e-04,2.98e-03
300	800	1.18e+02,3.86e+02,6.73e+03,4.87e+02,5.64e+02	1.72e-03,5.62e-03
300	900	1.69e+02,3.61e+02,6.44e+03,3.85e+02,3.34e+02	2.55e-03,5.46e-03
300	1000	5.58e+01,1.93e+02,6.47e+03,3.11e+02,2.71e+02	8.60e-04,2.98e-03
300	1200	4.28e+01,1.31e+02,6.16e+03,1.32e+02,1.45e+02	6.71e-04,2.05e-03
300	1400	1.05e+01,1.61e+02,5.54e+03,1.15e+02,1.27e+02	1.65e-04,2.53e-03
300	1600	2.04e+00,4.44e+01,6.25e+03,5.88e+01,2.03e+01	3.21e-05,6.99e-04
300	1800	3.20e+01,3.28e+01,5.71e+03,6.31e+01,2.67e+01	5.03e-04,5.15e-04
300	2000	3.28e+01,1.14e+02,5.81e+03,8.09e+01,1.70e+02	5.14e-04,1.79e-03
400	200	6.69e+02,8.48e+02,1.68e+04,1.27e+03,6.12e+01	1.83e-03,2.32e-03
400	300	4.17e+02,5.53e+02,1.23e+04,6.81e+02,3.99e+02	3.98e-03,5.28e-03
400	400	9.41e+02,1.64e+03,7.37e+03,1.24e+03,6.28e+02	1.95e-02,3.41e-02
400	500	2.41e+02,5.40e+02,6.97e+03,7.20e+02,7.50e+02	8.47e-03,1.90e-02
400	600	1.47e+02,3.44e+02,4.47e+03,5.78e+02,6.93e+02	7.47e-03,1.75e-02
400	700	1.52e+02,4.37e+02,3.46e+03,5.43e+02,6.04e+02	9.87e-03,2.84e-02
400	800	1.15e+02,3.25e+02,2.87e+03,4.31e+02,5.30e+02	8.71e-03,2.46e-02

Reaction Database Full Record Display

View short record or as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhep

AAD 2012 — Study of jets produced in associat
collisions at sqrt(s) = 7 TeV with the ATLAS det

Experiment: CERN-LHC-ATLAS (ATLAS)
Preprinted as CERN-PH-EP-2001-218
Archived as: ARXIV:1201.1276
Record in: INSPIRE

CERN-LHC. Measurements of cross sections for final states containing a W b
and hadronic jets in proton-proton collisions at a centre-of-mass energy of 7
TeV. The data is from the full 2010 sample with a total integrated luminosity
of 36 pb-1. Cross sections are measured in both the electron and muon decay
modes of the W and are presented as a function of inclusive jet multiplicity
up to five jets. For each multiplicity, cross sections are determined as a
function of (1) each jet PT, (2) the scalar sum (HT) of the PT of the charged
lepton, missing PT and all jets, (3) the invariant mass of the jets and (4)
rapidity distributions of various combinations of leptons and jets. The
results are corrected for all detector effects and all known backgrounds.
Comparative results are also shown for particle-level predicitions from ALPGE
SHERPA and BLACKHAT-SHERPA. A separate link gives the Non-Perturbati
correction for each table.

Link to the corrections tables

View list of currently selected plots

Total number of tables: **100**. Displaying: **1** to **10**. First | Previous | Next | La

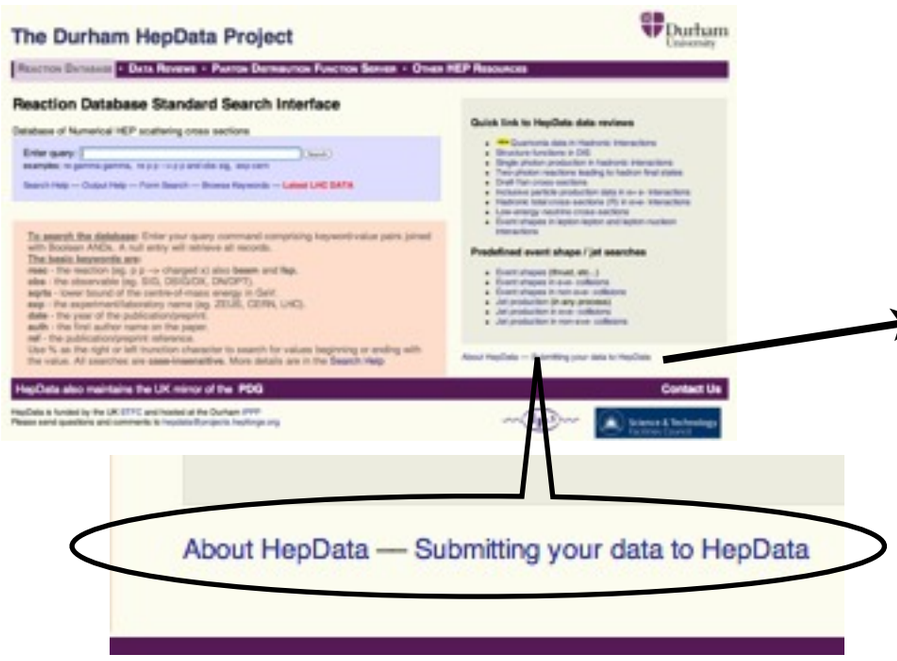
REACTION DATABASE | DATA REVIEWS | PARTON DISTRIBUTION FUNCTION SERVER

plain text version of these correction value tables

Corrections for inclusive jet multiplicity at >20 GeV			
	Non-perturbative		QED
Bin	C_{UE} ±(stat.) ±(sys.)	C_{Had} ±(stat.) ±(sys.)	C_{QED} ±(stat.)
>=0 jets	1.000 ± 0.000 ± 0.000	1.000 ± 0.000 ± 0.000	0.992535 ± 7.21761e-05
>=1 jets	1.140 ± 0.001 ± 0.063	0.927 ± 0.000 ± 0.010	0.990344 ± 0.000196006
>=2 jets	1.200 ± 0.002 ± 0.080	0.900 ± 0.000 ± 0.005	0.991606 ± 0.000217624
>=3 jets	1.240 ± 0.003 ± 0.084	0.853 ± 0.001 ± 0.005	0.992753 ± 0.000344954
>=4 jets	1.289 ± 0.006 ± 0.092	0.803 ± 0.002 ± 0.004	0.991881 ± 0.000767215
>=5 jets	1.334 ± 0.012 ± 0.107	0.754 ± 0.003 ± 0.002	0.993659 ± 0.0013716
Corrections for jet multiplicity ratio at >20 GeV			
	Non-perturbative		QED
Bin	C_{UE} ±(stat.) ±(sys.)	C_{Had} ±(stat.) ±(sys.)	C_{QED} ±(stat.)
>= 1 / >= 0	1.140 ± 0.001 ± 0.063	0.927 ± 0.000 ± 0.010	N/A
>= 2 / >= 1	1.052 ± 0.002 ± 0.012	0.970 ± 0.000 ± 0.005	N/A
>= 3 / >= 2	1.034 ± 0.003 ± 0.001	0.948 ± 0.001 ± 0.000	N/A
>= 4 / >= 3	1.039 ± 0.006 ± 0.004	0.942 ± 0.002 ± 0.001	N/A
>= 5 / >= 4	1.000 ± 0.000 ± 0.000	1.000 ± 0.000 ± 0.000	N/A
>= 6 / >= 5	1.000 ± 0.000 ± 0.000	1.000 ± 0.000 ± 0.000	N/A
Corrections for first jet pT distribution for Njet >= 1 at >20 GeV			
	Non-perturbative		QED
Bin	C_{UE} ±(stat.) ±(sys.)	C_{Had} ±(stat.) ±(sys.)	C_{QED} ±(stat.)
20- 30	1.244 ± 0.002 ± 0.111	0.910 ± 0.001 ± 0.013	0.990473 ± 0.000246803
30- 40	1.107 ± 0.001 ± 0.043	0.926 ± 0.001 ± 0.009	0.990323 ± 0.000341429
40- 50	1.065 ± 0.001 ± 0.031	0.939 ± 0.001 ± 0.006	0.990538 ± 0.000407446
50- 70	1.044 ± 0.001 ± 0.022	0.948 ± 0.001 ± 0.006	0.990939 ± 0.000390236
70- 90	1.027 ± 0.001 ± 0.017	0.957 ± 0.001 ± 0.002	0.991828 ± 0.000515569
90- 120	1.017 ± 0.000 ± 0.015	0.965 ± 0.001 ± 0.004	0.993094 ± 0.000588361
120- 155	1.015 ± 0.001 ± 0.013	0.969 ± 0.001 ± 0.005	0.994201 ± 0.000643332
155- 195	1.010 ± 0.002 ± 0.019	0.971 ± 0.002 ± 0.001	0.994386 ± 0.00113205

Getting the data into HepData

HepData home page has a link which describes the main requirements and ideal data format for data to be sent to HepData



Submitting Data to the Reactions Database

The compilers of the Reaction Database regularly scan the archives and literature to locate suitable new data sets for inclusion in the database, often contacting the experiments directly to obtain the exact numerical data.

If you have, or know of, data which you think should be in the database, then please email Mike Whalley about this.

The criteria for data to be included is that it be data of a publishable form and not preliminary data. Data from conferences often fall into the latter catagory.

The format we accept data in is very wide and generally we require only a flat file containing the numerical values. Postscript and pdf figures are not suitable.

Ideally the format should be:

xlow xhigh y +stat -stat +sys1 -sys1 +sys2 -sys2 .....

where:
xlow and **xhigh** are the xbin edges
y is the measured quantity
+stat and **-stat** are the positive and negative statistical errors (could also be **+-stat**)
+sysn and **-sysn** are any number of positive and negative systematic errors (again could be **+-sysn**)

You can also include other things like **xfocus** (mean of the distribution within the bin) just specify the column definitions when submitting the data.

Getting the data into HepData

1) Files (+tar files) of numbers are sent to us either following our request or (increasingly) proactively by yourselves.

2) We then prepare the record from the files plus information in the paper.

3) You check the record for errors and omissions (&typos) on our test server

4) We make the corrections then (after a further check by yourselves) put into public DB

In future hope to have (some) data records prepared and tested by yourselves.... but finally added by us to public DB.

Test scenario is ready.

HepData - entering the data D.I.Y.

We have been developing a web entry form
+ simplified entry language

REACTION DATABASE DATA REVIEWS PARTON DISTRIBUTION FUNCTION SERVER OTHER HEP RESOURCES

DATA INPUT FORM

1 → Please specifiy a file to upload
Choose File no file selected

2 → Upload

Uploading the file 6011.input

3 → Process the Input Data - then -[Display] the Final Record

4

(getstarted with arXiv:)

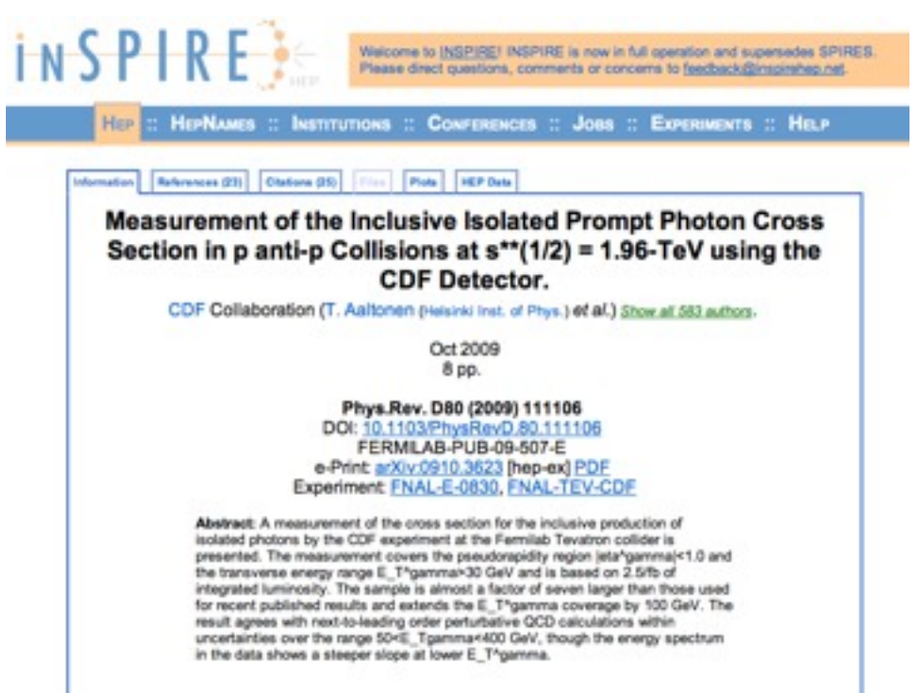
Extracts the 'bibliographic' metadata from arXiv to get started

```
*author: AAD
*reference: CERN-PH-EP-2012-197 : 2012
*reference: ARXIV:1208.2880 : 2012
*status:  Encoded 17 AUG 2012 by MRW
*title: Search for new phenomena in the WW to l nu lprime nuprime final state in pp collisions at sqrt(s) = 7 TeV with the ATLAS detector
*comment: CERN-LHC
*spiresId: 8888888
*durhamId: 6011
*inspireId: 1127504
*detector: ATLAS
*experiment: CERN-LHC-ATLAS
*dataset:
*location: T 2,F 2
*dscomment: Execpected and observer 95% upperlimits on cross section time branching ration for pp --> G < W W >
*reackey: P P -->
*obskey: SIG
*qual: RE : P P --> G X
*qual: SQRT(S) IN GEV : 7000
*yheader: ACCEPTANCE*EFFICIENCY : SIG(C=EXPECTED) IN PB : SIG(C=OBSERVED) IN PB
*xheader: MT(C=GRAVITON(RS)) IN GEV
*data: x : y : y : y
 200 ; 3.0 +- 0.1; 17.6;  20.3;
 350 ; 16.8 +- 0.5; 4.68;  5.51;
 500 ; 24.4 +- 0.7; 1.30;  1.46;
 750 ; 30.7 +- 0.9; 0.315;  0.264;
```

Inspire & HepData

There are Inspire<==>HepData links in the records
Plus, now: (thanks to Piotr Praczyk - Inspire Group)

* HepData data within and displayable in Inspire
* Inspire search terms in HepData (eg keyword:supersymmetry)



Inspire & HepData

This data comes from the Durham HEPData project

SUMMARY:

Comments:

Table

Plain

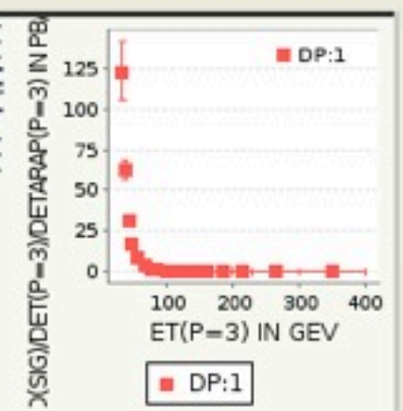
$ETARAP_3 \in (-1.0, 1.0)$

$\bar{p}\,p \rightarrow GAMMA\,X$

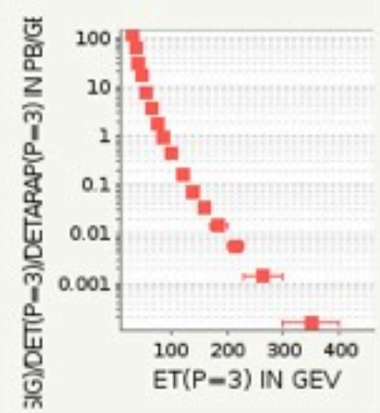
$\sqrt{s} = 1960.0\,GeV$

↑↑↑Hide↑↑↑

$ET_3\ (GeV)$	$d(\sigma)/dET_3/dETARAP_3\ (Pb/GeV)$
	↑↑↑Collapse↑↑↑
30.0 – 34.0	123 ± 1 (stat) +15.5%,-14.5% (sys)
34.0 – 39.0	62.1 ± 0.3 (stat) +10.8%,-9.8% (sys)
39.0 – 44.0	31.0 ± 0.2 (stat) +9.8%,-8.4% (sys)
44.0 – 50.0	17.2 ± 0.2 (stat) +10.2%,-8.1% (sys)
50.0 – 60.0	7.93 ± 0.08 (stat) +10.1%,-8.4% (sys)
60.0 – 70.0	3.54 ± 0.05 (stat) +9.8%,-8.5% (sys)
70.0 – 80.0	1.76 ± 0.03 (stat) +10.0%,-9.1% (sys)
80.0 – 90.0	0.908 ± 0.014 (stat) +9.3%,-7.9% (sys)
90.0 – 110.0	0.441 ± 0.005 (stat) +8.8%,-8.7% (sys)
110.0 – 130.0	0.168 ± 0.003 (stat) +8.6%,-8.7% (sys)
130.0 – 150.0	0.0725 ± 0.0016 (stat) +7.8%,-8.0% (sys)
150.0 – 170.0	0.0341 ± 0.0008 (stat) +8.8%,-10.0% (sys)
170.0 – 200.0	0.0146 ± 0.0004 (stat) +8.8%,-9.1% (sys)
200.0 – 230.0	0.00566 ± 0.00024 (stat) +9.0%,-10.6% (sys)
230.0 – 300.0	0.00138 ± 0.00008 (stat) +10.0%,-10.7% (sys)
300.0 – 400.0	0.000149 ± 0.000021 (stat) +15.2%,-13.4% (sys)



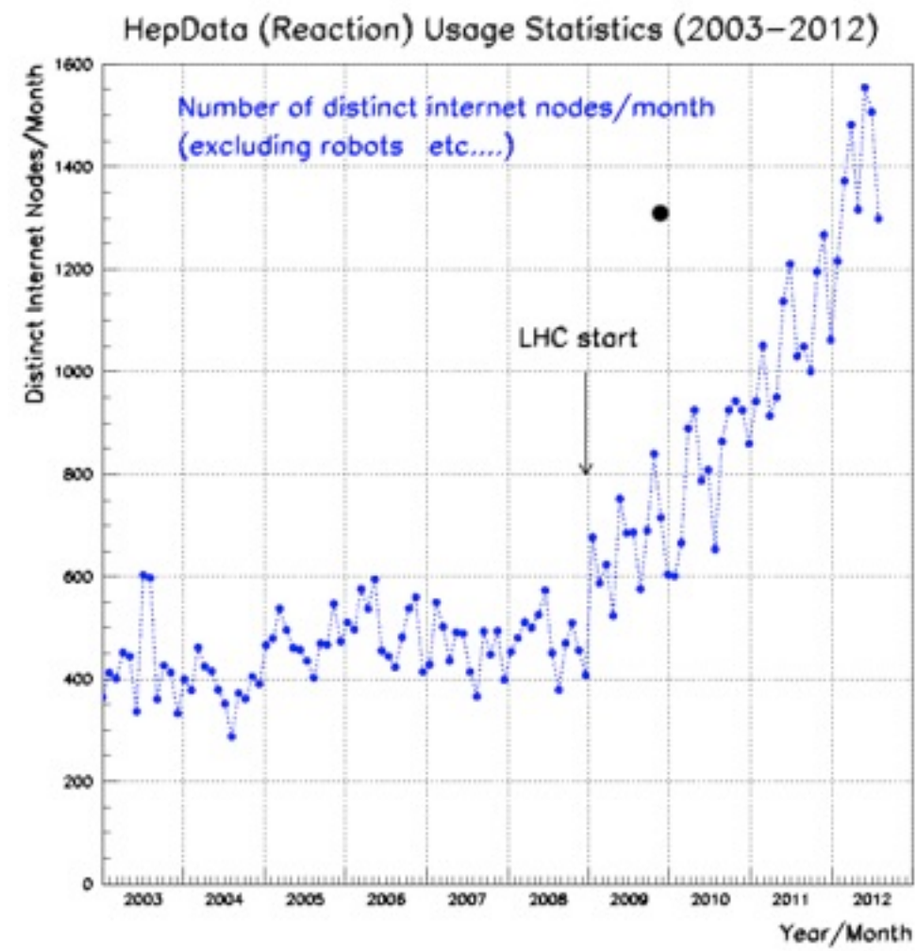
ETARAP(P=3) : -1.0 TO 1.0



HepData Usage

As a metric to measure the use of HepData we have continued to count the number of distinct internet nodes, excluding robots etc., accessing per month.

This remained steady from ~500 up to 2009, the start of the LHC, then has increased three-fold to the present.



Suggestions for future features

1) direct coding by experimenters - already discussed

2) linking direct to individual figures (at present only link to whole record)

In fact can already link direct to 'Table' number in the record
eg ... http://hepdata.cedar.ac.uk/view/1234567/d2
but .... the Table number could change for a given dataset if the record was modified.
better to use something else .... DOI of the dataset as proposed by Inspire?
or ... "Figure" number in HepData ?
work ongoing...

3) displaying (thumbnail) plots alongside the table

scheme to do this using "Figure" number in HepData and store the figures (thumbnails and full size) from the ATLAS web site ... see next slide

AAD 2012 — Search for supersymmetry in final states with jets, missing transverse momentum and one isolated lepton in sqrt{s} = 7 TeV pp collisions using 1 fb^{-1} of ATLAS data

Experiment: **CERN-LHC-ATLAS (ATLAS)**
Published in **PR D85,012006** (DOI:)
Preprinted as **CERN**
Archived as: **ARXIV:1109.6606**
Record in: **INSPIRE**

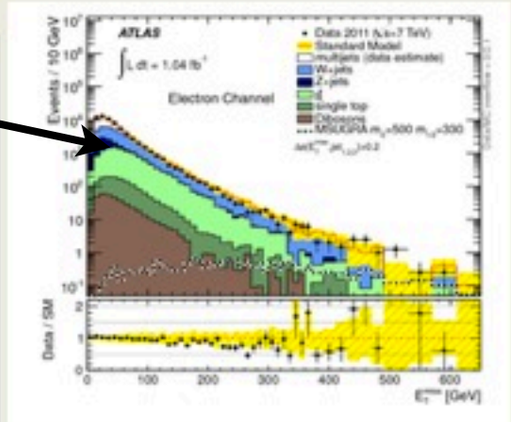
CERN-LHC. Study of final states containing jets, missing transverse momentum and one isolated electron or muon in proton-proton collisions at a centre-of-mass energy of 7 TeV. The data sample used, with an integrated lumninosity of 1.04 fb-1 was collected in the first half of 2011. The analysis uses four distinct signal regions with either a minimum of 3 or 4 jets and variations on the missing transverse momentum cuts designed to optimize searches for various SUSY models.

View list of currently selected plots

Total number of tables: **32**. Displaying: **1** to **10**. First | Previous | Next | Last

Table 1 (F 1A.) HIDE DATA or as: plain text, AIDA, PyROOT, YODA, ROOT, mpl or jhepwork
Missing transverse energy after requiring one electron with pT>25 GeV, at least three jets with pT>60,25,25 GeV and dphi(jets,Etmiss)>0.2.

	DELTA(PHI(JET,ET(C=MISSING) : > 0.2	
	PT(C=E) : > 25 GeV	
	PT(C=JET) : > 25 GeV	
	PT(C=JET1) : > 60 GeV	
	RE : P P --> (E+ + E-) .GE.3JET MM	
	SQRT(S) : 7000.0 GeV	
	DATA	EXPECTED
ET(C=MISSING) IN GEV	Events / 10 GeV	
		HIDE DATA
0. – 10.	5033.0 +71.95,-70.94	4838.0 ± 34.35 (stat) +224.4,-310.6 (sys)



(more) Suggestions for future features

4) 'genuine' 3-D plots in HepData

The core HepData is at present set only for basic 2-D plots

Could be expanded to take 3-D plots, correlation matrices etc...
This needs modification/additions to the Java data model

5) adding links to 'extra' data files into Inspire

Further discussion with Inspire

Data Reviews

Home Page
Other Data Reviews
Reaction Database

CONTENTS

HEPDATA ON-LINE DATA REVIEW

A Review of Quarkonii Data in Hadronic Interactions

HEPDATA ON-LINE DATA REVIEW

An up-to-date archive of Quarkonii data in Hadronic Interactions

data from a specific experiment

CERN-SPS	CERN-Sp$\bar{p}$S	HERA	BNL-RHIC	Fermilab-Tevatron	CERN-LHC
NA3 NA10 NA11 NA16 NA27 NA32 NA34-3 NA38 NA50 NA51 NA60	UA1 UA6	HERA-B	PHENIX STAR	CDF D0 E772 E789 E866	ALICE ATLAS CMS LHCb

data for a specific i

(anti)proton-proton	proton-deuterc
deuteron-nucleus	nucleus-nuclei

data for a specific m

Cross Sections
Total Differential-PT Differential-Rapidity Differential-X Polarization

To send any comments on this service please

Experiments
CERNS-SPS
NA3 NA10 NA11 NA16 NA27 NA32 NA34-3(HELIOS) NA38 NA50 NA51 NA60
CERN-Sp$\bar{p}$S
UA1 UA6
DESY-HERA
HERA-B
BNL-RHIC
PHENIX STAR
Fermilab-Tevatron
CDF D0 E772 E789 E866
CERN-LHC
ALICE ATLAS CMS LHCb
Initial States
p(bar)-p p-d p-A d-A A-A meson-p(A)
Measurements
Cross Sections
Total Differential(Y) Differential(PT) Differential(X) Polarization
Final States
J/PSI PSI CHI/C Upsilon D/D* DiMuon Charm Beauty Lambda/C Xi/C

Data from the ALICE Collaboration

The individual links display the specific datasets.
The publication reference link displays the SPIRES hep database entry.
The [R] link displays the complete entry for that paper from the HepData Reaction database.

- Aamodt et al. CERN-PH-EP-2011-057 [R] - 9050507
  Rapidity and transverse momentum dependence of inclusive J/psi production in pp collisions at sqrt(s) = 7 TeV
  - - p p --> J/PSI.... 7000 GeV D2SIG/DPT/DYRAP
    D2SIG/DPT/DYRAP v PT (1) (Double differential J/PSI cross
    D2SIG/DPT/DYRAP v PT (2) (Differential J/PSI cross section
  - - p p --> J/PSI.... 7000 GeV DSIG/DYRAP
    DSIG/DYRAP v YRAP (3) (Differential J/PSI cross section fr
  - - p p --> J/PSI.... 7000 GeV SIG
    SIG v Ecm (4) (Total J/PSI cross section from the di-electro
    SIG v Ecm (5) (Total J/PSI cross section from the di-muon c
- Aamodt et al. JHEP 1201(2011)128 [R] - 9258736
  Measurement of charm production at central rapidity in proton-prot
  - - p p --> D... 7000 GeV DSIG/DPT
    DSIG/DPT v PT (1) (Differential cross section for prompt D0
    DSIG/DPT v PT (2) (Differential cross section for prompt D+
    DSIG/DPT v PT (3) (Differential cross section for prompt D*
  - - p p --> D... 7000 GeV DSIG/DYRAP
    DSIG/DYRAP v RE (4) (Integrated cross sections for prompt
- Aamodt et al. PRL 108(2012)082001 - 9259007
  J/psi polarization in pp collisions at sqrt(s)=7 TeV
  - - p p --> J/PSI.... 7000 GeV POL
  - - p p --> J/PSI.... 7000 GeV D2N/DCOS(THETA)
- Aamodt et al. PL B706(2012)265 [R] - 9340173
  Heavy flavour decay muon production at forward rapidity in proton-
  - - p p --> MU.... 7000 GeV DSIG/DPT
    DSIG/DPT v PT (1) (pT-differential production cross section
    DSIG/DPT v PT (3) (pT-differential production cross section
    DSIG/DPT v PT (4) (pT-differential production cross section
    DSIG/DPT v PT (5) (pT-differential production cross section
    DSIG/DPT v PT (6) (pT-differential production cross section
    DSIG/DPT v PT (7) (... -)

AAMODT 2011

Rapidity and transverse momentum dependence of inclusive J/psi production in pp collisions at sqrt(s) = 7 TeV

Experiment: CERN-LHC-ALICE (ALICE)
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Table 1

Double differential J/PSI cross section from the di-electron channel as a function of transverse momentum, the first error is statistical, the first systematic error is the correlated one, the second is the non-correlated one. The last four columns are the errors considering a +1 polarization in the Collins-Soper frame, a -1 polarization in the Collins-Soper frame, a +1 polarization in the Helicity frame and a -1 polarization in the Helicity frame, respectively.
Location: T 2, P 14

ABS(YRAP) : <0.9
RE : P P --> J/PSI X
SQRT(S) : 7000.0 GeV

PT IN GEV	D2(SIG)/DPT/DYRAP IN MUB/GEV	SYS(+1,CS)	SYS(-1,CS)	SYS(+1,SH)	SYS(-1,SH)
0.5 (bin: 0.00–1.0)	0.59 ± 0.21 (stat) ± 0.02 (sys) ± 0.18 (sys)	0.14	-0.16	0.07	-0.1
1.5 (bin: 1.0–2.0)	1.62 ± 0.32 (stat) ± 0.06 (sys) ± 0.27 (sys)	0.36	-0.43	0.24	-0.34
2.5 (bin: 2.0–3.0)	1.64 ± 0.27 (stat) ± 0.07 (sys) ± 0.20 (sys)	0.29	-0.37	0.3	-0.38
4.0 (bin: 3.0–5.0)	0.62 ± 0.11 (stat) ± 0.02 (sys) ± 0.08 (sys)	0.05	-0.07	0.14	-0.11
6.0 (bin: 5.0–7.0)	0.35 ± 0.06 (stat) ± 0.01 (sys) ± 0.04 (sys)	0.001	-0.004	0.05	-0.07

Quick link to 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

SUSY review ?

Exotics review ?

Conclusions/Future

- HepData continues to compile scattering data and data reviews.
- Since 2009 HepData has used its new, maintainable, software developed with the CEDAR collaboration.
- HepData has expanded to provide a 'resource' area for non-standard type distributions and information from the LHC.
- Begun to explore the possibilities of direct user data entry
- Use of HepData has increased 3-fold since the start of the LHC.
- HepData has strong connections with Inspire, with mutual linking of records, searching and data records.