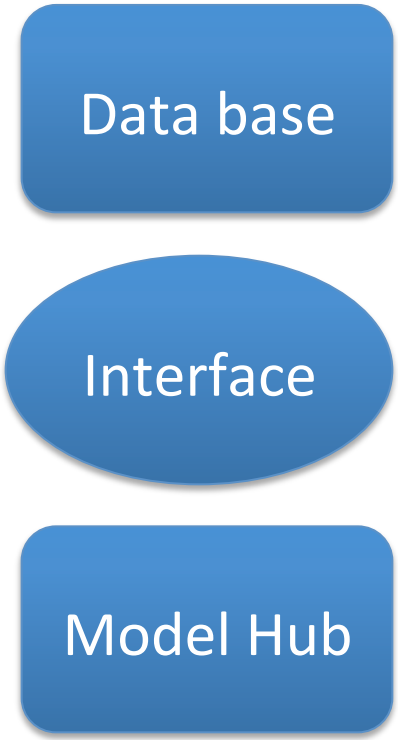
Common data base and model interface
(for FAIR and GSI energies)

open discussion

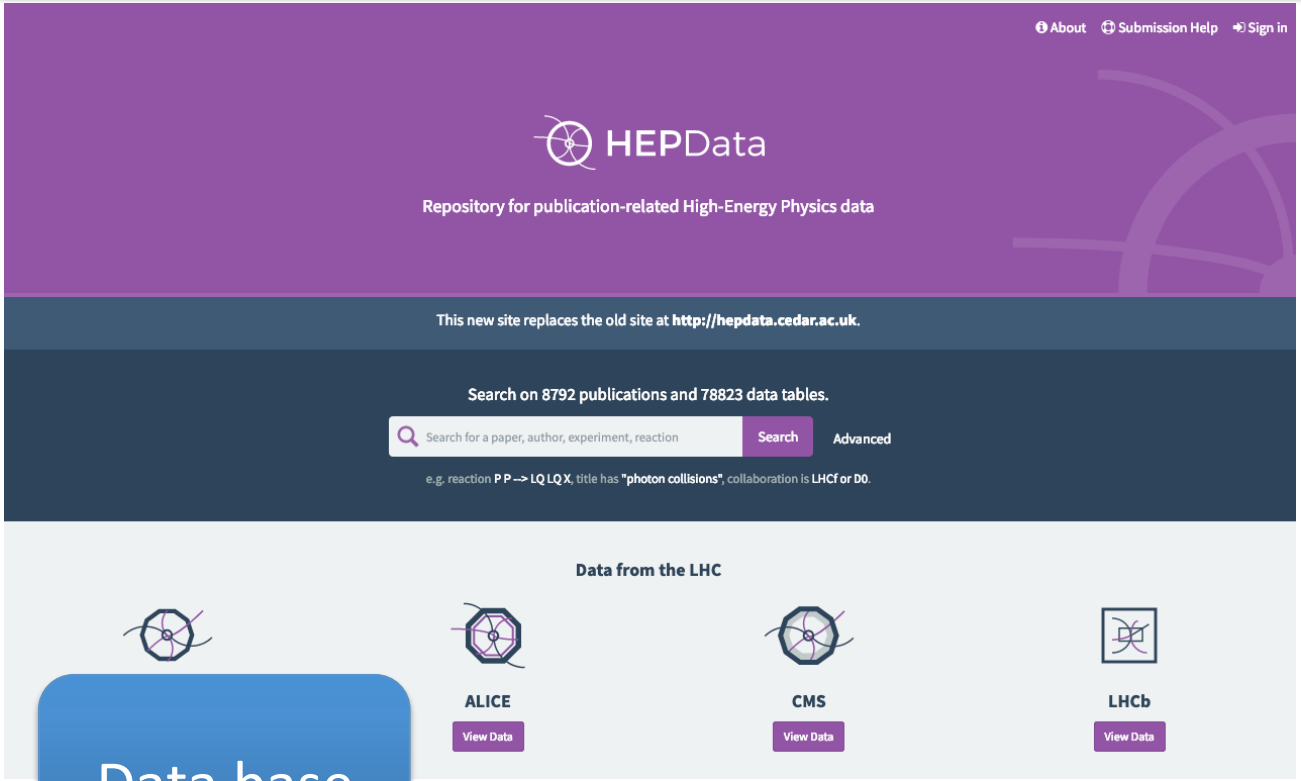
Goals:

Easy and fast comparison between:

- Different Experiments
- Theory and Experiment
- Benchmark for Models



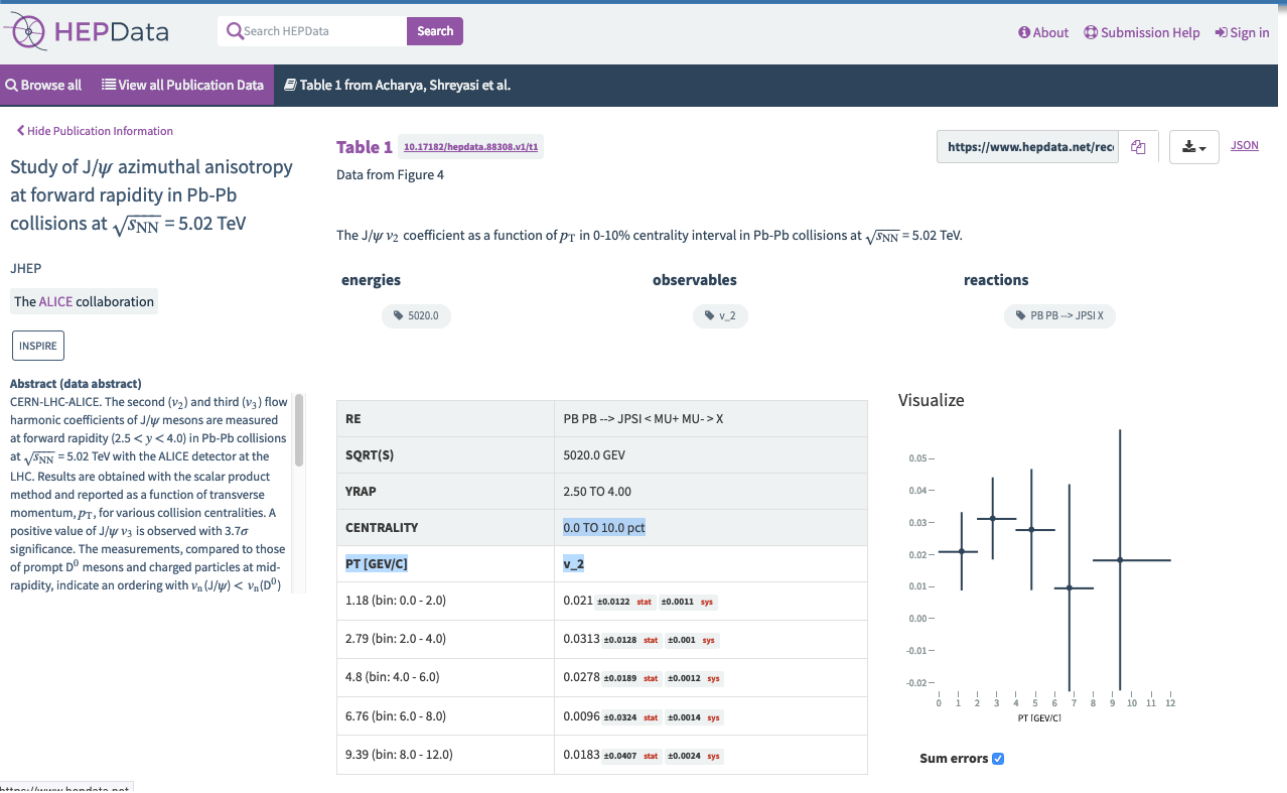
hepdata.net as common data base



Data base

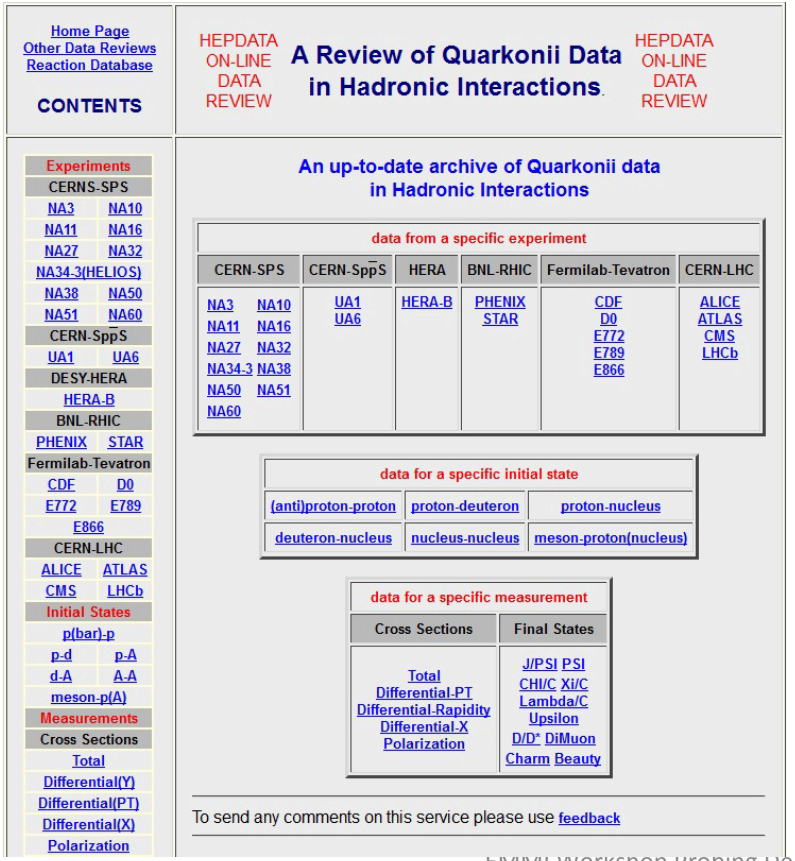
- Frequently used by LHC experiments
- Existing since more than 30 years
- Not many data points from FAIR and GSI energies included yet

hepdata.net as common data base



- What should be stored?
- Figures included in the paper
- Corrected data as function of pt,y in addition?

hepdata.net as common data base



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

Experiments
CERNS-SPS
NA3 NA10
NA11 NA16
NA27 NA32
NA34-3(HELIOS)
NA38 NA50
NA51 NA60
CERN-SppS
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

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

data from a specific experiment

CERN-SPS	CERN-SppS	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 initial state

(anti)proton-proton	proton-deuteron	proton-nucleus
deuteron-nucleus	nucleus-nucleus	meson-proton(nucleus)

data for a specific measurement

Cross Sections	Final States
Total Differential-PT Differential-Rapidity Differential-X Polarization	J/PSI PSI CHI/C Xi/C Lambda/C Upsilon D/D* DiMuon Charm Beauty

To send any comments on this service please use feedback

- Umbrella data base

e.g. on Quarkonii Data

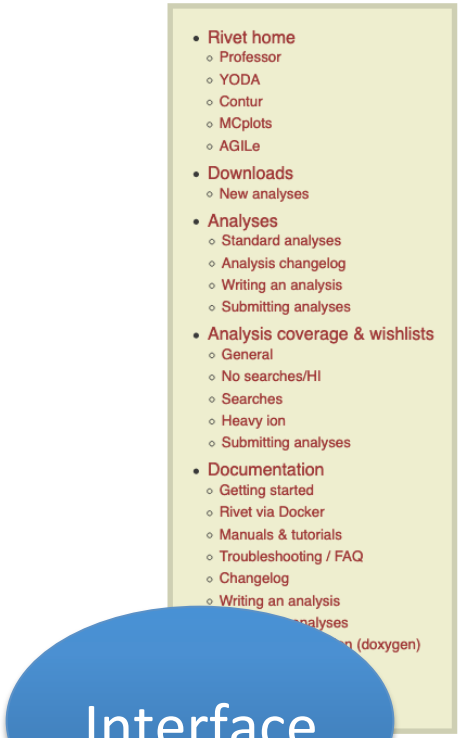
OSCAR (Open Standard Codes and Routines)

- Needs constant maintenance

Model Hub

RIVET (Robust Independent Validation of Experiment and Theory)

Input format for models:
hep mc format



Interface

Rivet

The Rivet toolkit (Robust Independent Validation of Experiment and Theory) is a system for validation of Monte Carlo event generators. It provides a large (and ever growing) set of experimental analyses useful for MC generator development, validation, and tuning, as well as a convenient infrastructure for adding your own analyses.

Rivet is the most widespread way by which analysis code from the LHC and other high-energy collider experiments is preserved for comparison to and development of future theory models. It is used by phenomenologists, MC generator developers, and experimentalists on the LHC and other facilities.

Features

- Object-oriented C++ framework for analysis algorithms
- Ever-increasing collection of analyses, more than 400 so far...
- Python interface and suite of user-friendly data handling scripts
- Large collection of generator-independent event analysis tools
- Automatic caching of expensive calculations, for efficiently running many analyses on each event
- Flexible system for fast detector effect simulation in BSM analyses
- Close matching of standard observables to experimental analysis definitions
- Reference data connection to HepData, avoid hard-coding

The Rivet user manual is kept up to date on the arXiv (1003.0694 [hep-ph]).

The C++ MC generators Herwig and Sherpa have convenient user interfaces for producing input events for Rivet analysis, as well as built-in Rivet support. Users may find the Sacrifice interface convenient for running Pythia 8, and the AGILe steering interface useful for older Fortran generators like PYTHIA6 and HERWIG6.

WANTED: Analysis code

We need your analyses! Preserving analysis logic in a re-runnable, re-interpretable form is a key part of scientific reproducibility and impact at the LHC and other HEP experiments. If you are member of an experimental collaboration, please have a look at our wishlist and help us by providing us with Rivet analyses for your publications. This will also ensure that your measurements get used (and cited)!

MCnet studentships!

Would you like to work on a short project involving Monte Carlo event generators?

MCnet offers 3-6 month fully funded studentships for current PhD students.

See montecarlonet.org for more information!

Docker container for Rivet

Benchmark for models, example: Analysis Suite SMASH

Analysis Suite for SMASH-1.5

Cross Sections

Collection of cross sections for different elementary scattering processes. Inclusive and exclusive cross sections are presentec

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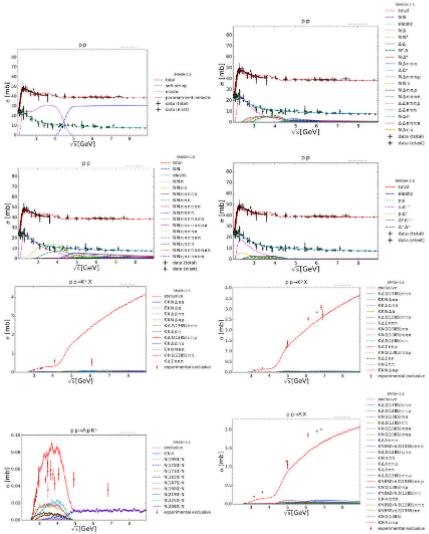
p + p

Comments: Double pion production is tricky and needs to be investigated (#5370).



- Python script machinery will be publicly available soon
- impossible to keep up within single groups, therefore create synergies
- join community effort (Rivet-HI) instead of island solution?