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# Forschungsdaten in der Hochenergiephysik - Aufgaben der Bibliothek

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# Inhalt

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- DPHEP Aktivität
  - HEP Daten: Herausforderungen und Besonderheiten
  - Anforderungen an Dokumentation / Langzeitarchivierung
- Dokumentation und zusätzliche Daten
  - Verschiedene Arten von Dokumenten
  - Sekundäre Daten
  - Metadatenvergabe und Langzeitarchivierung in Inspire

# Forschungsdaten in HEP: Motivation

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- Teilchenbeschleuniger, Detektoren
  - Einmalige experimentelle Daten, meistens in neuen/anderen Einrichtungen nicht reproduzierbar
  - Viele Ressourcen und Investitionen um Detektoren zu bauen, manpower und Datenanalyse
  - Am Ende des Experiments noch viele Datensätze nicht ausgewertet / weitere Nutzung
  - Die Daten können mit Hilfe von neuen Modellen und modernen Datenanalysemethoden ausgewertet werden, neue Sichtweise
  - Fazit: die HEP Forschungsdaten sollen erhalten werden
-

# Efforts and models

- DPHEP Arbeitsgruppe seit 2009 aktiv: [www.dphep.org](http://www.dphep.org)
- 4 “levels” von HEP Forschungsdaten und deren Erhaltsstrategien identifiziert

The DPHEP study group defined 4 models of preservation:

Experiments	Preservation Model	Use Case	Cost, complexity and benefits ↓
	1 Provide additional documentation	Publication related info search	
	2 Preserve the data in a simplified format	Outreach, simple training analyses	
	3 Preserve the analysis level software and data format	Full scientific analysis, based on the existing reconstruction	
	4 Preserve the reconstruction and simulation software as well as the basic level data	Retain the full potential of the experimental data	

# Efforts and models

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- Die meisten Kollaborationen/Institute planen “Level 4 preservation” (Rohdaten) als Ziel
- Die Anforderungen von “Level 1” und teilweise “Level 2” entsprechen der Zuständigkeit und Möglichkeit eines Bibliographischen Systems, mit korrekter Metadatenvergabe usw.
- Hier kann die Bibliothek helfen, den kompletten Data Preservation Zyklus zu schließen

# INSPIRE & Data Preservation

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- Für nachhaltige Sicherung und Bereitstellung, potentielle Nachnutzung sind nicht nur die Daten und Auswerteprogramme zu erhalten, sondern auch vielfältige, vorhandene Dokumentation nötig („technical guides“, „Internal notes“)
  - ... die Grundlage der zugehörigen Veröffentlichungen - aber substantiell mehr zusätzliche Informationen, z.B.:
    - Details zu Datenanalysemethoden und Datenverarbeitung
    - Betrieb der Detektorkomponenten
    - uvm.
  - Sekundäre Daten (Tabellen, root scripts, codes, plots) erhalten (simplified Data aus Level 2)
-

# Langzeitarchivierung von Dokumentation

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- Beispiel HERA (DESY):
  - z.Zt. auf Experiment-eigenen IT-Strukturen gespeichert (Server von Experiment oder IT betreut)
  - Webseiten, AFS-Verzeichnisse, eigenentwickelte Infrastrukturen, usw.
  - Keine bibliographischen Systeme (Metadaten, usw.)
  - Diese Infrastrukturen werden nicht durch DESY/IT erhalten.
- Zusammenarbeit DESY Bibliothek (Inspire) mit DPHEP
  - HERMES, ZEUS, H1, ZEUS Experimente
  - International – DØ, CDF (Fermilab), KEK (Japan), BaBar (Stanford)

# Warum INSPIRE?

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- Durch die Speicherung (ingestion) von dieser Notes, werden sie ggf. mit veröffentlichtungen verknüpft
  - ...Dokumente bleiben unabhängig von der Lebenszeit der experimentellen Webserver erhalten
  - Viele Inspire Features wie Volltextsuche, data object citation, uvm.
  - Die sekundäre Daten (high-level data) ergänzen die vorhandene Veröffentlichungen und werden erhalten unabhängig von institutionelle/kollaborative Repositorien.
-

# INSPIRE Features

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- Leistungsstarke Suchmaschine
  - Google-ähnliche Geschwindigkeit bis zu 2M records
  - Kombinierte Suche über Metadaten, Referenzen, Volltext
- Sehr gute Skalierbarkeit
- Flexible Metadaten
- Multimedia, usw.
- Personalisierung, collaborative features
- Gruppen, Reviews, Kommentare, baskets, alerts
- User accounts
- Umfassende HEP-Informationsplattform
- Volltext-Repositorium
- Web2.0 Anwendungen
- Integration von Forschungsdaten

H1 Internal Notes – HEP

inspirebeta.net/collection/H1%20Internal%20Notes

 Welcome to INSPIRE β: the upgrade of SPIRES  
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## H1 Internal Notes

Use "find " for SPIRES-style search ([other tips](#))

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This collection is restricted. If you are authorized to access it, please click on the Search button.

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# Login

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**Password:**

Remember login on this computer.

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**Note:** You can use your nickname or your email address to login.

H1 Internal Notes      11 records found      Search took 0.15 seconds.

**1. Correction of detector effects: bin-by-bin and unfolding.**  
H1 Collaboration ([Stefan Schmitt](#) for the collaboration). H1-IN-633. Mar 2011.

[References](#) | [BibTeX](#) | [LaTeX\(US\)](#) | [LaTeX\(EU\)](#) | [Harvmac](#) | [EndNote](#)  
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**2. Addition to Radiative Corrections for Charged Current Process at HERA.**  
H1 Collaboration ([Zhiqing Zhang](#) for the collaboration). H1-IN-632. Dec 2010.

[References](#) | [BibTeX](#) | [LaTeX\(US\)](#) | [LaTeX\(EU\)](#) | [Harvmac](#) | [EndNote](#)  
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**3. The Low Pt HFS and Jet Energy Calibration.**  
H1 Collaboration ([S. Osman et al.](#)). H1-IN-631. Feb 2009.

[References](#) | [BibTeX](#) | [LaTeX\(US\)](#) | [LaTeX\(EU\)](#) | [Harvmac](#) | [EndNote](#)  
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**4. Energy loss measurement with the H1 Central Jet Chamber.**  
H1 Collaboration ([C. Kleinwort](#) for the collaboration). H1-IN-630. Aug 2008.

[References](#) | [BibTeX](#) | [LaTeX\(US\)](#) | [LaTeX\(EU\)](#) | [Harvmac](#) | [EndNote](#)  
[Detailed record](#) - [Similar records](#) - [Attribute this paper](#)

File Addition to Radiative Corrections for Charged Current Process at HERA

inspirebeta.net/record/899655/files/

Information References Citations Files Plots

Addition to Radiative Corrections for Charged Current Process at HERA  
- H1 Collaboration (Zhiqing Zhang for the collaboration) . H1-IN-632

file(s):

h1-1210-632  
version 1 [h1-1210-632.pdf](#) [75.18 KB] 16 May 2011, 16:09

Similar records

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# Search for direct chargino production in anomaly-mediated supersymmetry breaking models based on a disappearing-track signature in pp collisions at $\sqrt{s}=7$ TeV with the ATLAS detector.

ATLAS Collaboration.

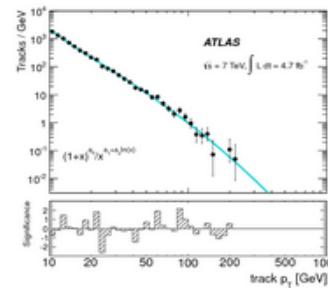
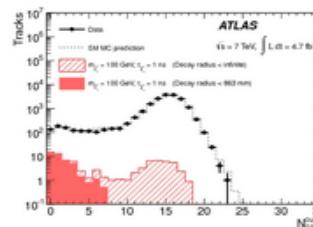
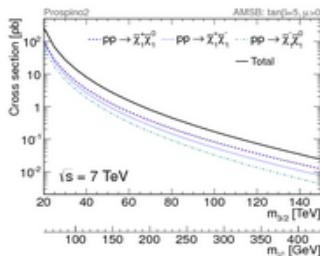
Oct 10, 2012

18 pp.

e-Print: [arXiv:1210.2852 \[hep-ex\]](https://arxiv.org/abs/1210.2852) [PDF](#)

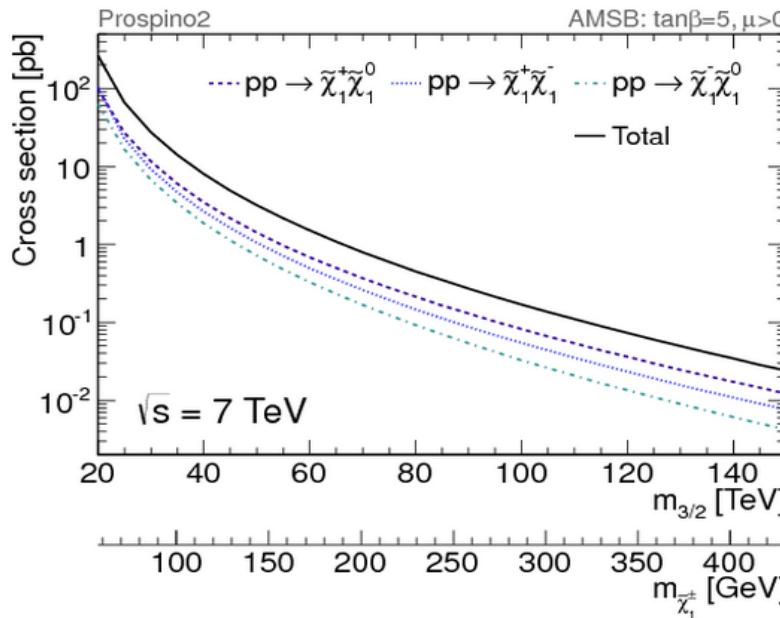
**Abstract:** A search for direct chargino production in anomaly-mediated supersymmetry breaking scenarios is performed in pp collisions at  $\sqrt{s} = 7$  TeV using  $4.7 \text{ fb}^{-1}$  of data collected with the ATLAS experiment at the LHC. In these models, the lightest chargino is predicted to have a lifetime long enough to be detected in the tracking detectors of collider experiments. This analysis explores such models by searching for chargino decays that result in tracks with few associated hits in the outer region of the tracking system. The transverse-momentum spectrum of candidate tracks is found to be consistent with the expectation from the Standard Model background processes and constraints on chargino properties are obtained.

Note: 18 pages plus author list (39 pages total), 7 figures, 2 tables, submitted to JHEP

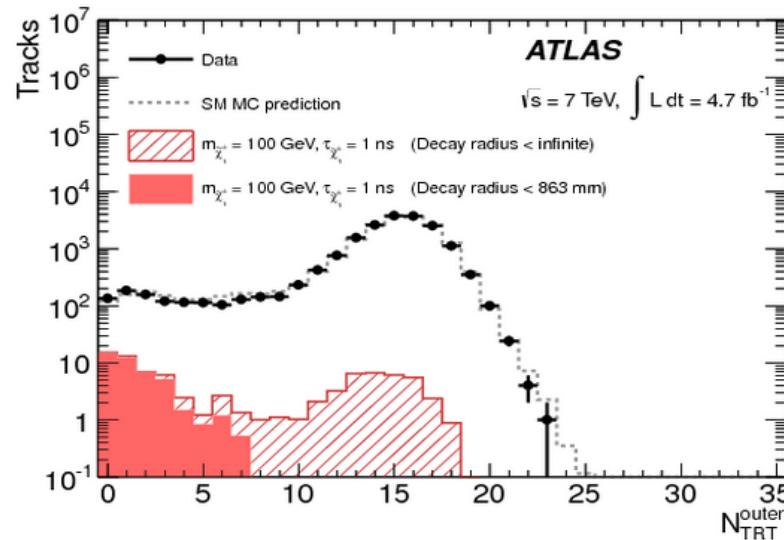


[Show more plots](#)

Search for direct chargino production in anomaly-mediated supersymmetry breaking models based on a disappearing-track signature in pp collisions at  $\sqrt{s}=7$  TeV with the ATLAS detector - ATLAS Collaboration  
arXiv:1210.2852 [hep-ex]



The cross-section for direct chargino production at  $\sqrt{s} = 7$  TeV as a function of  $m_{\text{chino}}$ . The corresponding  $m_{\text{chinoonepm}}$  values for each  $m_{\text{chino}}$  are also indicated.



The  $n_{\text{TRT}}$  distribution for data and signal events ( $m_{\text{chinoonepm}} = 100 \text{ GeV}, \tau_{\text{chinoonepm}} = 1 \text{ ns}$ ) with the high- $p_T$  isolated track selection. The expectation from SM MC events, normalized to the number of observed events, is also shown.

THIS DATASET HAS BEEN INCLUDED IN THE FOLLOWING

PUBLICATIONS:

[Measurement of  \$t\bar{t}\$  production with a veto on additional central jet activity in pp collisions at  \$\sqrt{s} = 7\$  TeV using the ATLAS detector](#)

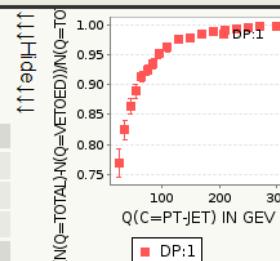
**Comments:** The measured fraction of events, surviving the veto cut of having no additional jets in the |rapidity| interval  $< 0.8$  having a transverse momentum greater than  $Q$ , as a function of  $Q$ .

Table

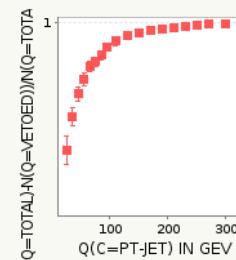
Plain

$ y_{jet}  < 0.8$	
$Q_{p_T-jet}$ (GeV)	$(N_{TOTAL} - N_{VETOED})/N_{TOTAL}$
25.0	$0.769 \pm 0.011$ (stat) $+0.020, -0.021$ (sys)
35.0	$0.8241 \pm 0.0094, -0.0098$ (stat) $+0.0122, -0.0121$ (sys)
45.0	$0.8639 \pm 0.0084, -0.0088$ (stat) $+0.0092, -0.0107$ (sys)
55.0	$0.8894 \pm 0.0077, -0.0082$ (stat) $+0.0084, -0.0086$ (sys)
65.0	$0.9135 \pm 0.0070, -0.0074$ (stat) $+0.0057, -0.0059$ (sys)
75.0	$0.9234 \pm 0.0066, -0.0071$ (stat) $+0.0052, -0.0055$ (sys)
85.0	$0.9353 \pm 0.0061, -0.0066$ (stat) $+0.0054, -0.0060$ (sys)
95.0	$0.9515 \pm 0.0053, -0.0059$ (stat) $+0.0056, -0.0054$ (sys)
110.0	$0.9625 \pm 0.0046, -0.0052$ (stat) $+0.0053, -0.0062$ (sys)
130.0	$0.9746 \pm 0.0039, -0.0044$ (stat) $+0.0036, -0.0035$ (sys)
150.0	$0.9783 \pm 0.0035, -0.0041$ (stat) $+0.0040, -0.0043$ (sys)
170.0	$0.9847 \pm 0.0030, -0.0036$ (stat) $+0.0021, -0.0022$ (sys)
190.0	$0.9875 \pm 0.0027, -0.0033$ (stat) $+0.0024, -0.0023$ (sys)
210.0	$0.9908 \pm 0.0023, -0.0029$ (stat) $\pm 0.0026$ (sys)
230.0	$0.9932 \pm 0.0020, -0.0026$ (stat) $+0.0028, -0.0027$ (sys)
250.0	$0.9955 \pm 0.0017, -0.0023$ (stat) $+0.0022, -0.0020$ (sys)
270.0	$0.9971 \pm 0.0013, -0.0020$ (stat) $+0.0023, -0.0021$ (sys)
300.0	$0.9973 \pm 0.0012, -0.0019$ (stat) $+0.0013, -0.0009$ (sys)

↑↑Collapse↑↑



ABS(YRAP(C=JET)) : < 0.8



Record created 2012-08-23, last modified 2012-08-31

# Langfristiger Zugang

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- Die Dokumenten (Notes) mit Access Control
  - Zusammenarbeit mit Kollaborationen und Instituten um Zugangsstrategien zu entwickeln
- Einfache Benutzerkontos live.
- Weitere Entwicklungen
  - Dynamic rights
  - Flexible Benutzerkonto (basiert auf authorenlisten, oder external auth. SSO), beispiel arXiv accounts

# Progress

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- **Erste Phase abgeschlossen:** alle HERA Exp. Interne Dokumenten sind in Inspire archiviert
- **Test-phase** Fermilab-D0 Notes abgeschlossen, werden hochgeladen und archiviert
- **Zweite Phase:** Kollab. Benutzerkonto mit Curator-Zugangsrechte um eigene Dokumente zu verwalten bzw. neue hochzuladen
- **Parallel:** andere Dokumententypen wie „preliminary notes“, publication/drafting history werden vorbereitet um in Inspire aufgenommen und archiviert zu werden
- **High-level Data in Inspire:** HEPData, Plots, usw. – Inspire bietet langfristige Archivierung.

find fulltext "quark-gluon pl" +

inspirebeta.net/search?ln=en&p=find+fulltext+"quark-gluon+plasma"&action\_search=Search

find fulltext "quark-gluon plasma"

Search Search Tips Advanced Search

find j "Phys.Rev.Lett.,105\*" :: more

Sort by: Display results: Output format:

latest first desc. - or rank by - 25 results single list HTML brief

Warning: full-text search is only available for a subset of papers mostly from 2006-2011.

**HEP** 2,320 records found 1 - 25 ►► jump to record: 1 Search took 0.49 seconds.

1. **Wilson loops in (p+1)-dimensional Yang-Mills theories using gravity/gauge theory correspondence.**  
Somdeb Chakraborty, Shibaji Roy. Mar 2011. 16 pp.  
e-Print: [arXiv:1103.1248 \[hep-th\]](https://arxiv.org/abs/1103.1248)

[References](#) | [BibTeX](#) | [LaTeX\(US\)](#) | [LaTeX\(EU\)](#) | [Harvmac](#) | [EndNote](#)  
[Abstract](#) and [Postscript](#) and [PDF](#) from arXiv.org

**Snippets courtesy of arXiv**

... 6, 7, 8]. In strongly coupled gauge theories of interacting **quark-gluon plasma** Wilson loops can be related to various measurable quantities in...

... to the static quark-antiquark potential [9] in a moving **quark-gluon plasma** On the other hand the expectation value of a particular...

... a dipole moving with an arbitrary velocity through the hot **quark-gluon plasma** including the screening length 11 12 13 14 as well...

... v . In this frame the dipole is static and the **quark-gluon plasma** is moving with velocity v in the negative xp direction...

# Bethke, S. (605 papers)

[This is me. Verify my publication list.](#)

## Name variants

- Bethke, S. (547)
- Bethke, Siegfried (53)
- Bethke, S (3)
- Bethke, S., (ed.) (1)
- Bethke, Sigfried (1)

## Affiliations

- [unknown affiliation](#) (458)
- [Heidelberg U.](#) (75)
- [Munich, Max Planck Inst.](#) (36)
- [Aachen, Tech. Hochsch.](#) (18)
- [Heidelberg, Max Planck Inst.](#) (13)
- [LBL, Berkeley](#) (4)
- [Muenchen MPI Phys.](#) (1)
- [CERN](#) (1)
- [UC, Berkeley](#) (1)

## Papers

- [All papers](#) (605)
- [Published](#) (539)
- [Conference](#) (44)
- [Review](#) (28)
- [Introductory](#) (2)
- [Thesis](#) (2)
- [Lectures](#) (1)
- [Book](#) (1)

## Frequent co-authors

- [Duerdoh, I.P.](#) (481)
- [Loebinger, F.K.](#) (481)
- [Kobayashi, T.](#) (462)
- [von Krogh, J.](#) (458)

# Attribute papers for: S.Bethke.1

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## Names variants:

Bethke, Sigfried (1); Bethke, Siegfried (53); Bethke, S. (551);

Papers (605)				Papers removed from this profile (0)
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	Paper Short Info	Author Name	Affiliation	Actions
<input type="checkbox"/>	<b>Measurement of Dijet Azimuthal Decorrelations in pp Collisions at <math>\sqrt{s}=7</math> TeV</b> ATLAS Collaboration (Georges Aad (Freiburg U.) et al.).	Bethke, Siegfried	Heidelberg, Max Planck Inst.	Yes, this paper is by this person. No, this paper is not by this person Assign to another person
<input type="checkbox"/>	<b>Measurements of underlying-event properties using neutral and charged particles in <math>\sqrt{s}=7</math> TeV collisions at 900 GeV and 7 TeV with the ATLAS detector at the LHC</b> ATLAS Collaboration (Georges Aad (Freiburg U.) et al.).	Bethke, Siegfried	Heidelberg, Max Planck Inst.	Yes, this paper is by this person. No, this paper is not by this person Assign to another person
<input type="checkbox"/>	<b>Search for high-mass states with one lepton plus missing transverse momentum in proton-proton collisions at <math>\sqrt{s} = 7</math> TeV with the ATLAS detector</b>	Bethke, Siegfried	Heidelberg, Max Planck Inst.	Yes, this paper is by this person. No, this paper is not by this person Assign to another person