

# Digital Library and Conferencing update

HEPiX at Cornell

Tim Smith – CERN/IT Department

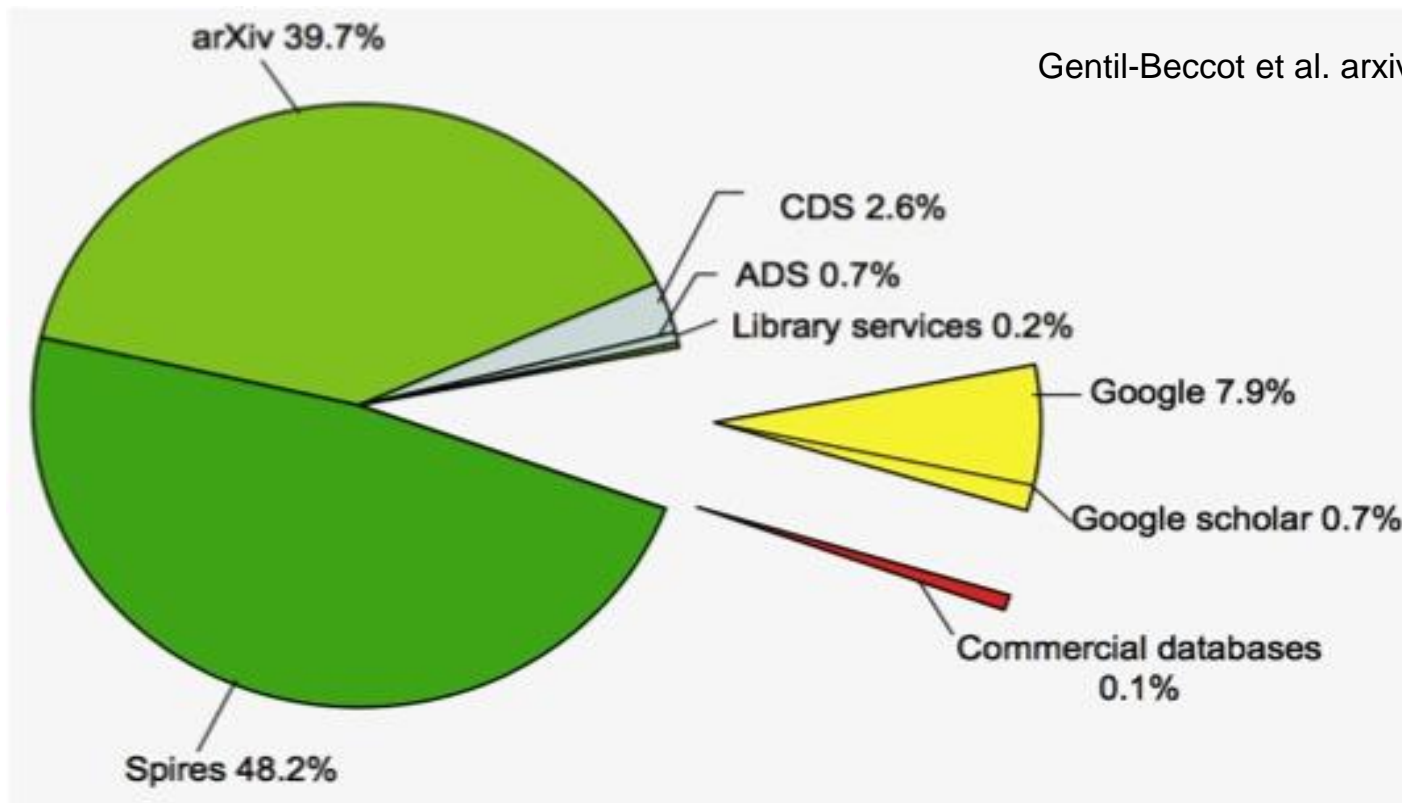


- INSPIRE – Information System for HEP
  - Creation, Launch
  - Functionality
- Indico
  - Recent and planned developments
- Previous HEPiX presentations
  - INSPIRE: May 2008
  - Indico: May 2004, Oct 2005

# Where do HEP scientists look for info?



Gentil-Beccot et al. arxiv:0804.2701



- Survey of 2'000+ scientists (10% of community)
- OA tools answer scientists' information needs
- Google as proxy of arXiv, SPIRES, publishers

- SPIRES

- 1974 Birth of SPIRES HEP DataBase
  - IBM mainframe at SLAC run with DESY
- 1980s email interface
- 1991 Web interface to SPIRES
  - First US web server
- 1994 Citation services
- 2000 summary formats



- Invenio

- 1993 CERN preprint server on web
- 1996 CERN Library on Web
- 2000 CERN Document server
- 2002 CDSWare released GPL
  - Python, Apache application server, MySQL
- 2006 CDSWare became Invenio
- 2010 <http://invenio-software.org/>



# INSPIRE: A Recipe for Collaboration



- Meta-data from SPIRES
  - Noise free, high quality
  - Manually validated affiliation and citation data
- Technology from Invenio
  - Modern Open Source digital library SW
  - Good performance, scalability and feature set
- Feeds from information sources
  - arXiv, Publishers
  - Institutional repositories
- Digital Librarians from the labs



# INSPIRE Launched



HEP - HEP

<http://inspirebeta.net/>

Google

**INSPIRE**

Welcome to **INSPIRE  $\beta$** : the upgrade of SPIRES  
We now recommend that you use this site instead of SPIRES  
Please send feedback on INSPIRE to [feedback@inspirebeta.net](mailto:feedback@inspirebeta.net)

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- Corrections
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**INSPIRE**

- About INSPIRE
- Recent topcites
- HEP Reviews
- symmetry breaking*

**RESOURCES**

- arXiv
- HEPDAT
- PDG

- Flexible search syntax
  - SPIRES:
    - find a richter, b and t quark and date > 1984
  - Google generation:
    - 1985 richter quark multiplicity
  - Complex:
    - (symmetry or asymmetry) author:gell-mann -quark



Search for the standard model Higgs boson at LEP - HEP

http://inspirebeta.net/record/619171?n=en

Search for the standard model Hig...

Information References (34) Citations (1052) Plots

## Search for the standard model Higgs boson at LEP.

LEP Working Group for Higgs boson searches and ALEPH and DELPHI and L3 and OPAL Collaborations (R. Barate *et al.*)  
[Show all 1314 authors.](#)  
Mar 2003

**Phys.Lett. B565 (2003) 61-75**  
e-Print: [hep-ex/0306033](#)

**Abstract:** The four LEP collaborations, ALEPH, DELPHI, L3 and OPAL, have collected a total of 2461 pb-1 of e+e- collision data at centre-of-mass energies between 189 and 209 GeV. The data are used to search for the Standard Model Higgs boson. The search results of the four collaborations are combined and examined in a likelihood test for their consistency with two hypotheses: the background hypothesis and the signal plus background hypothesis. The corresponding confidences have been computed as functions of the hypothetical Higgs boson mass. A lower bound of 114.4 GeV/c2 is established, at the 95% confidence level, on the mass of the Standard Model Higgs boson. The LEP data are also used to set upper bounds on the HZZ coupling for various assumptions concerning the decay of the Higgs boson.

**Keyword(s):** INSPIRE: [review: experimental results](#) | [electron positron: colliding beams](#) | [electron positron: annihilation](#) | [Higgs particle: search for](#) | [Higgs particle: neutral particle](#) | [Higgs particle: electroproduction](#) | [Z0: associated production](#) | [coupling: \(Higgs particle 2Z0\)](#) | [Higgs particle: decay modes](#) | [background](#) | [Higgs particle: mass](#) | [lower limit](#) | [experimental results](#) | [CERN LEP Stor](#) | [electron positron --> Higgs particle Z0](#) | [Higgs particle --> 2beauty](#) | [Higgs particle --> tau+ tau-](#) | [189-209 GeV-cms](#)

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Search for the standard model Higgs boson at LEP - HEP

http://inspirebeta.net/record/619171/references

Search for the standard model Hig... +

Information References (34) Citations (1052) Plots

**Search for the standard model Higgs boson at LEP** - LEP Working Group for Higgs boson searches and ALEPH and DELPHI and L3 and OPAL Collaborations (Barate, R. *et al.*) Phys.Lett. B565 (2003) 61-75 . hep-ex/0306033 . CERN-EP-2003-011

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- [Broken Symmetries and the Masses of Gauge Bosons](#) - Higgs, Peter W. Phys.Rev.Lett. 13 (1964) 508-509
- [Spontaneous Symmetry Breakdown without Massless Bosons](#) - Higgs, Peter W. Phys.Rev. 145 (1966) 1156-1163
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- [Global Conservation Laws and Massless Particles](#) - Guralnik, G.S. *et al.* Phys.Rev.Lett. 13 (1964) 585-587
- [A Model of Leptons](#) - Weinberg, Steven Phys.Rev.Lett. 19 (1967) 1264-1266
- [A Combination of preliminary electroweak measurements and constraints on the standard model](#) - ALEPH and DELPHI and L3 and OPAL and LEP Electroweak Working Group and SLD Heavy Flavor Group Collaborations . hep-ex/0212036 . SLAC-R-643, CERN-EP-2002-091, LEPEWWG-2002-02, ALEPH-2002-042-PHYSIC-2002-018, DELPHI-2002-098-PHYS-927, CERN-L3-NOTE-2788, OPAL-PR-370
- [Observation of an excess in the search for the standard model Higgs boson at ALEPH](#) - ALEPH Collaboration (Barate, R. *et al.*) Phys.Lett. B495 (2000) 1-17 . hep-ex/0011045 . CERN-EP-2000-138
- [Higgs candidates in  \$e^+e^-\$  interactions at  \$s^{1/2} = 206.6\$ -GeV](#) - L3 Collaboration (Acciarri, M. *et al.*) Phys.Lett. B495 (2000) 18-25 . hep-ex/0011043 . CERN-EP-2000-140
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- [Search for the standard model Higgs boson at LEP in the year 2000](#) - DELPHI Collaboration (Abreu, P. *et al.*) Phys.Lett. B499 (2001) 23-37 . hep-ex/0102036 . CERN-EP-2001-004
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- [What Can Be Expected from Experiments on Colliding  \$e^+e^-\$  Beams with  \$e\$  Approximately Equal to 100-GeV?](#) - Ioffe, B.L. *et al.* Sov.J.Part.Nucl. 9 (1978) 60 . FERMILAB-PUB-78-074

Done



A Model of Leptons – HEP

http://inspirebeta.net/record/51188/citations

A Model of Leptons – HEP

**Cited by: 7265 records**

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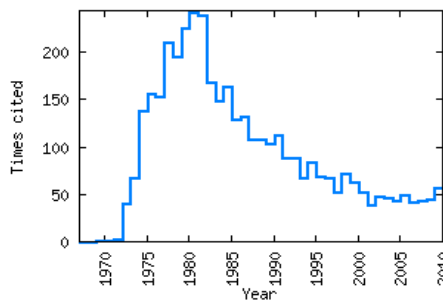
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**Co-cited with: 61796 records**

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[more](#)

**Citation history:**



Year	Times cited
1970	0
1975	150
1980	220
1985	150
1990	100
1995	70
2000	50
2005	45
2010	50

Done

## Weinberg, Steven

### Papers:

[All papers \(220\)](#)  
[Published \(156\)](#)  
[Review \(23\)](#)  
[Conference \(20\)](#)  
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[Book \(11\)](#)  
[Lectures \(8\)](#)

### Affiliations:

[Texas U. \(100\)](#)  
[Harvard U. \(51\)](#)  
[MIT, LNS \(26\)](#)  
[UC, Berkeley \(20\)](#)  
[unknown \(12\)](#)  
[Harvard-Smithsonian Ctr. Astrophys. \(8\)](#)  
[Columbia U. \(4\)](#)  
[Stanford U., Phys. Dept. \(3\)](#)  
[Princeton U. \(2\)](#)  
[Imperial Coll., London \(2\)](#)  
[LLNL, Livermore \(1\)](#)  
[Stanford U., ITP \(1\)](#)  
[MIT \(1\)](#)

### Frequent keywords:

[spontaneous symmetry breaking \(31\)](#)  
[gravitation \(21\)](#)  
[renormalization \(21\)](#)  
[unified field theory \(20\)](#)  
[quantum chromodynamics \(17\)](#)  
[S-matrix \(16\)](#)  
[FIELD THEORY: HIGHER-DIMENSIONAL \(15\)](#)  
[strong interaction \(15\)](#)  
[electroweak interaction \(14\)](#)  
[field theory: scalar \(14\)](#)

### Frequent co-authors:

[Glashow, S.L. \(3\)](#)  
[Schnitzer, Howard J. \(3\)](#)  
[Bjorken, J.D. \(2\)](#)  
[Flauger, Raphael \(2\)](#)  
[Gerstein, I.S. \(2\)](#)  
[Hall, Lawrence J. \(2\)](#)  
[Jackiw, R. \(2\)](#)  
[Lane, Kenneth D. \(2\)](#)  
[Lee, Benjamin W. \(2\)](#)

### Citations:

#### Citation summary results

Total number of citable papers analyzed:

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Total number of citations:

47,121

46,594

Average citations per paper:

277.2

298.7

Breakdown of papers by citations:

Renowned papers (500+)

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**HEP** 5,704 records found 1 - 25 ►► jump to record: 1 Search took 0.02 seconds.

1. **Broken Symmetry as a Stabilizing Remnant.**  
Sandy S.C. Law (Taiwan, Chung Yuan Christian U.), Kristian L. McDonald (TRIUMF & Heidelberg, Max Planck Inst.). Aug 2010. 24 pp.  
e-Print: [arXiv:1008.4336 \[hep-ph\]](#)  
[References](#) | [BibTeX](#) | [LaTeX\(US\)](#) | [LaTeX\(EU\)](#) | [EndNote](#)  
[Abstract](#) and [Postscript](#) and [PDF](#) from arXiv.org (mirrors: [au](#) [br](#) [cn](#) [de](#) [es](#) [fr](#) [il](#) [in](#) [it](#) [jp](#) [kr](#) [ru](#) [tw](#) [uk](#) [za](#) [aps](#) [lanl](#))

**Snippets courtesy of arXiv**  
... Z3 symmetry. 1 Introduction The ultraviolet (UV) sensitivity of the **Higgs** mass in the standard model (SM) makes it difficult to...  
... understand how the **Higgs** can remain light in the presence of heavy new physics....  
... Mass corrections resulting from top quark loops can dominate the **Higgs** mass, dragging it up to the cutoff scale and thereby...  
... necessitating a fine tuning to preserve a light **Higgs**. This "hierarchy problem" provides perhaps our best indication that new...  
... at the TeV scale and it is hoped that the LHC will soon shed light on this matter. The Randall-Sundrum (RS)...

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2. **Dark Matter Signature from the Sky and at Colliders.**  
Shou-hua Zhu. Aug 2010. 4 pp.  
e-Print: [arXiv:1008.3963 \[hep-ph\]](#)  
[References](#) | [BibTeX](#) | [LaTeX\(US\)](#) | [LaTeX\(EU\)](#) | [EndNote](#)  
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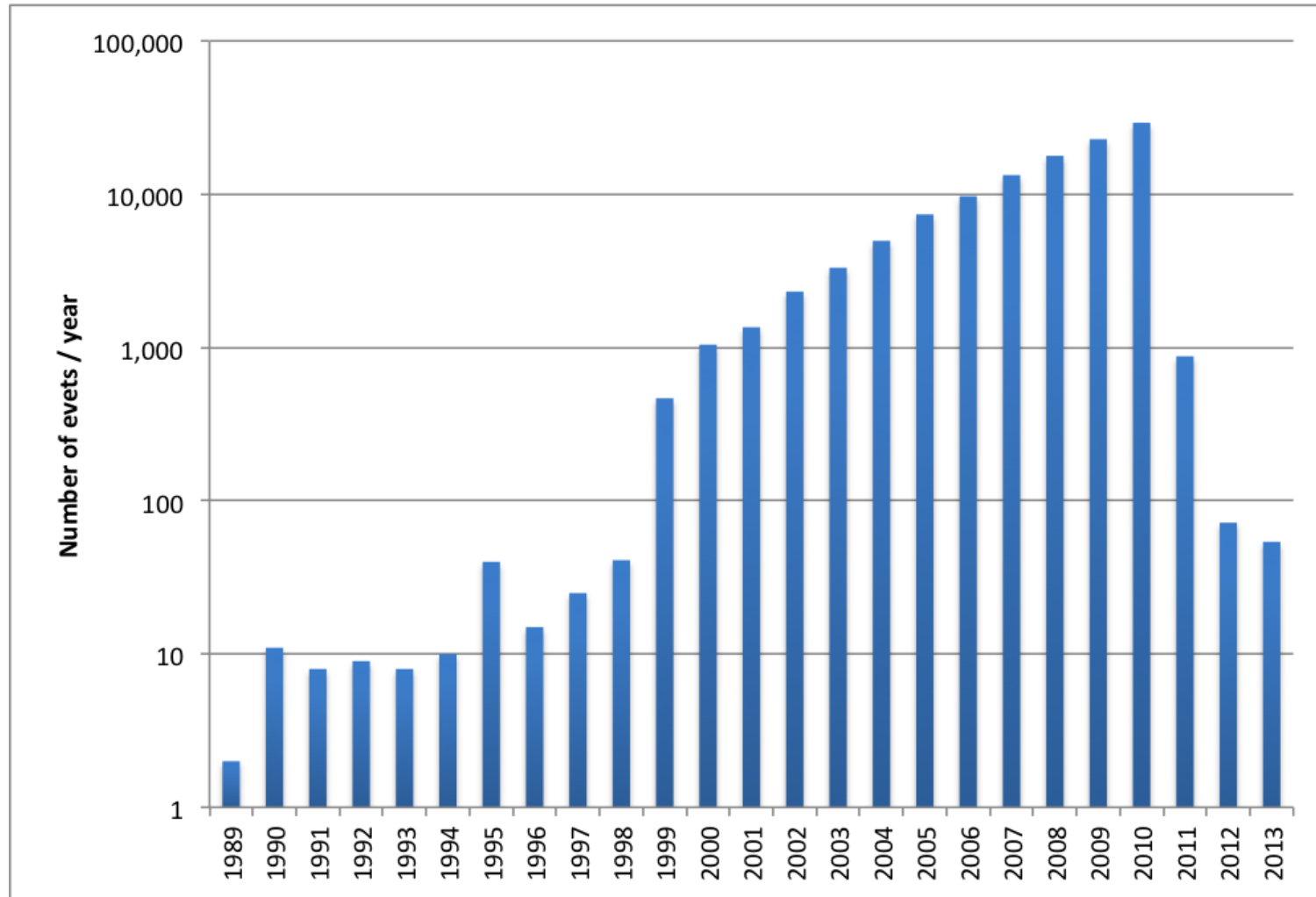
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- Parallelization and dispatching of intensive tasks
- Data Mining
- EU D4Sciencell project
  - OCR processing
    - Ocropus (open source)
    - De-skewing, text recognition, hOCR production (html), PDF
  - Fulltext indexing
    - Solr/Lucene, Hadoop, Process Execution Engine
    - Extension to semantic indexing with HEP ontology
  - Bibliometrics
    - Scientific impact e.g. H-Index

- Personal libraries, alerts
- Claim-my-papers (with arXiv and ORCID)
- Submit theses and old non-arXiv material
- Attach non-text material (high level data files)
- OCR of library holdings (with D4Science-II)
- Advanced feeds (with ADS, arXiv, Publishers)
- Then
  - Crowdsourcing of keywording (tagging)
  - Semantic layer (did-you-mean and classification)
  - (Semantic) image search
  - Platform for high-level data preservation



# Indico: A Quick Recap



- Scale at CERN: 115k events; 699k files

- New interface (summer 2008)
  - From REST to AJAX
- mod\_python migration to mod\_wsgi
  - Had to
    - Development stopped for 2 years
    - Officially discontinued June 2010
  - Wanted to
    - Improvements in performance and flexibility
      - Robustness and scalability
    - URL mapping (e.g. <http://indico.cern.ch/event/BigEvent>)
- Conversion server
  - Home grown to Neevia professional

- Timezone aware (FNAL)
- ePayment
- Room booking
- Collaboration tools – plugin framework
  - Integration (create / modify / delete / start)
    - Video conference: EVO, H.323/CERN MCU
    - Web Lectures
  - Requests
    - Lecture recording and Webcast
- Chat Rooms
  - Booked, launched and archived with event
- Eagerly anticipated: Drag and drop



# Indico: Map of Rooms



**INDICO**  
Integrated Digital Conference

Home Create event

View Rooms

Search rooms

**Map of rooms**

My rooms

View Bookings

Book a Room

Search bookings

Calendar

My bookings

My PRE-bookings

Bookings in my rooms

PRE-bookings in my rooms

**Building 513**

513/1-021 - Book | More...

513/1-023 - Book | More...

513/1-024 - Book | More...

513/1-027 - Book | More...

513/R-055 - Book | More...

513/R-068 - Book | More...

513/R-070 - Book | More...

**Room 513/1-024** Details...

40 people, public, auto-confirmation, video conference

Search criteria:

Building

☐ Around the building

Floor

Description

Min. capacity

☐ Video conference

☐ Only public rooms

☐ Auto confirm

☐ Only mine

☒ Is active

Filter Reset

Total 146 room(s) / 62 building(s)

- v0.97 (prod now), v0.98 (Beta Nov 2010)
- v1.0 (2H2011)
- Testing Framework
  - Source code analysis
  - Unit testing
  - Code coverage
  - Functional testing – Selenium grid
- <http://indico-software.org>
- External instances
  - 100 known instances in 33 countries



# Questions ?

<http://inspirebeta.net/>

<http://invenio-software.org>

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