INSPIRE: Community Information Management for Particle Physics

Travis Brooks

SLAC

INSPIRE

Why am I here?

- Learn about JACoW
- Identify New Opportunities for Collaboration
  - From SLAC and INSPIRE side

1) INSPIRE past/present/future
2) Connections with JACoW
3) Questions

1) INSPIRE past/present/future*

2) Connections with JACoW

3) Questions

* Some slides from other INSPIRE talks (S. Mele – CERN)

HEP researchers write 10,000 papers a year

I'll talk about these papers

And how people exchange them

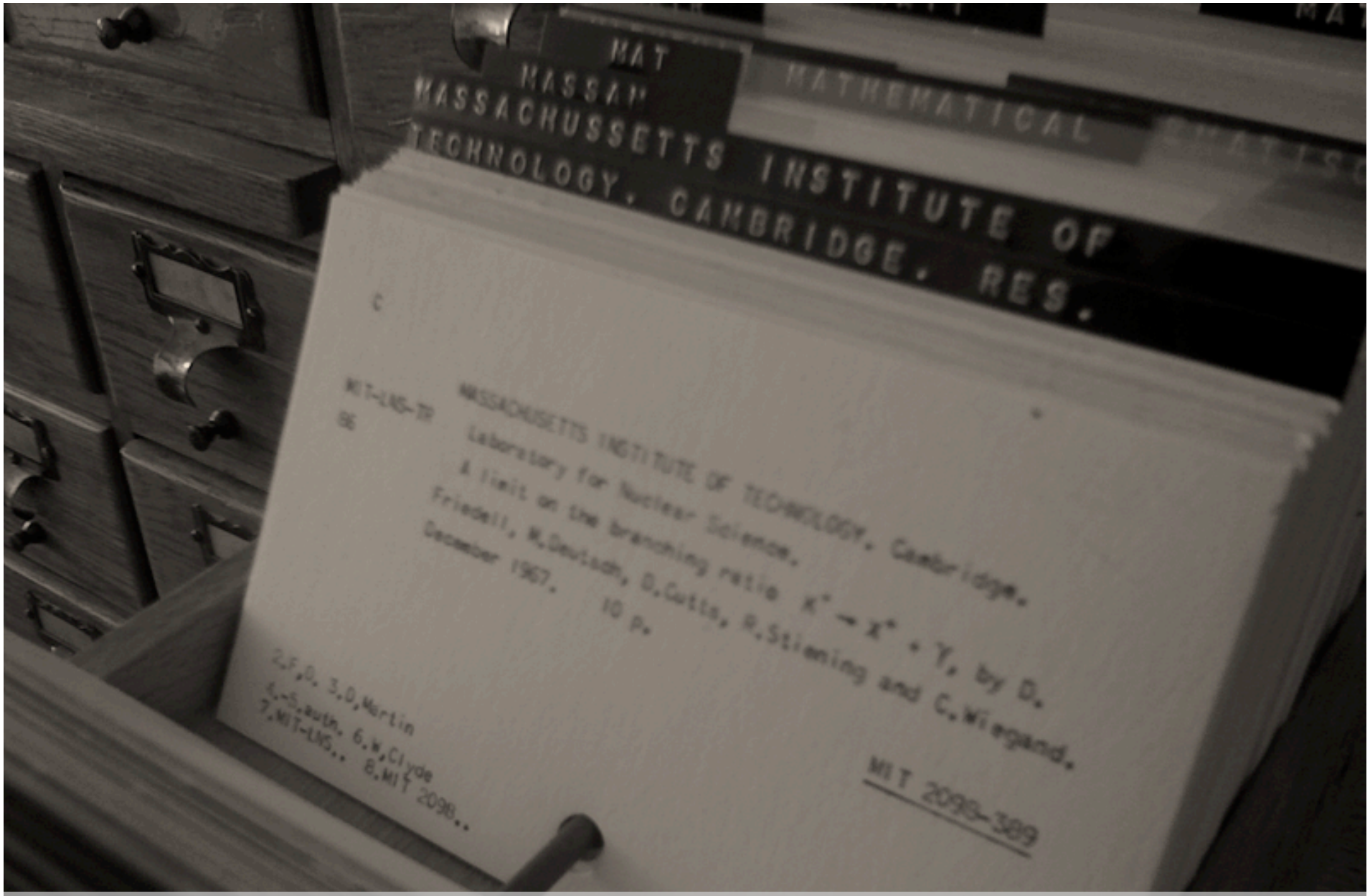
And find and read and cite them

And publish them

Let me tell you a story

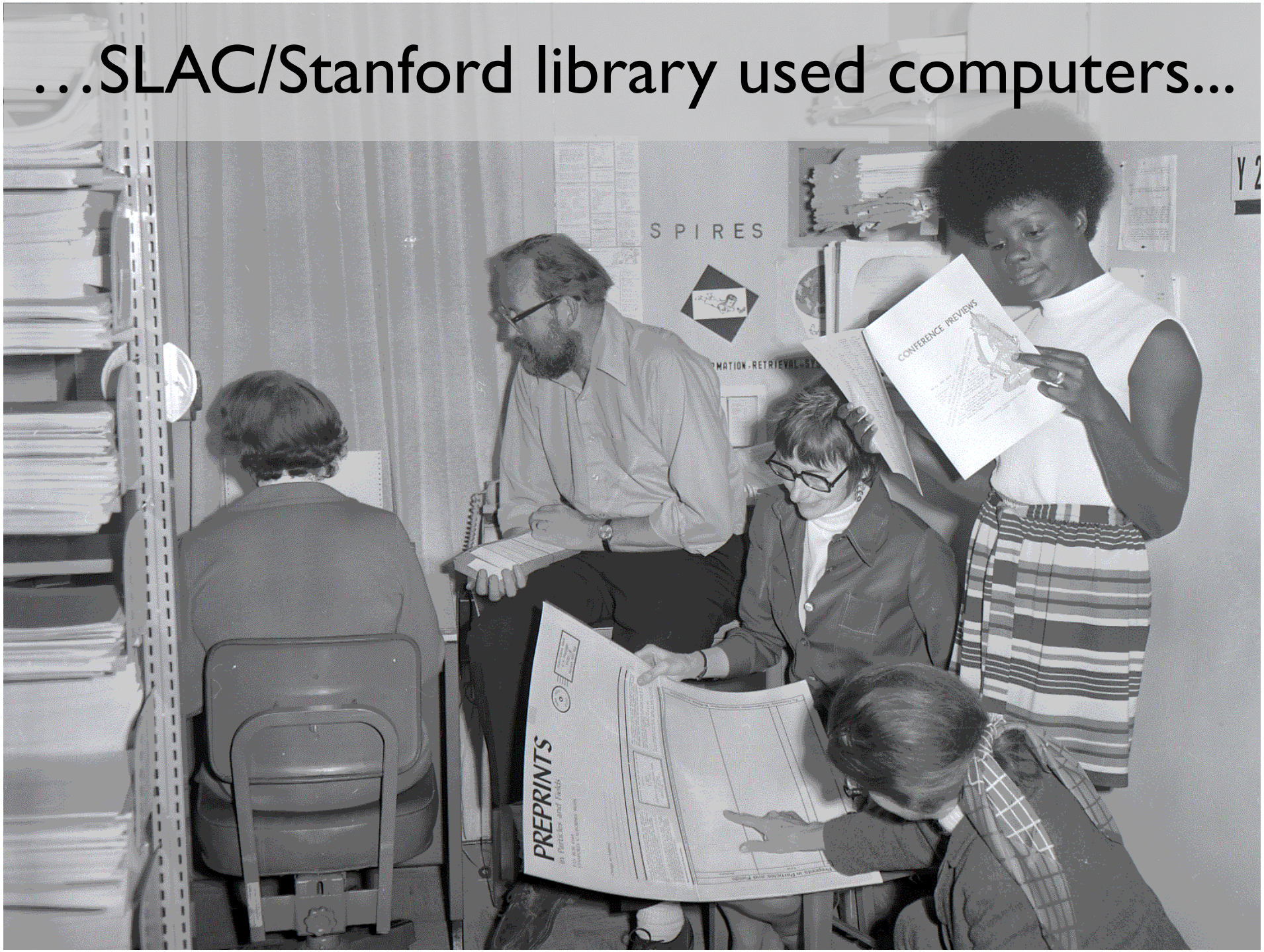
Once upon a time HEP folks wrote papers…


…then went to the mailroom…

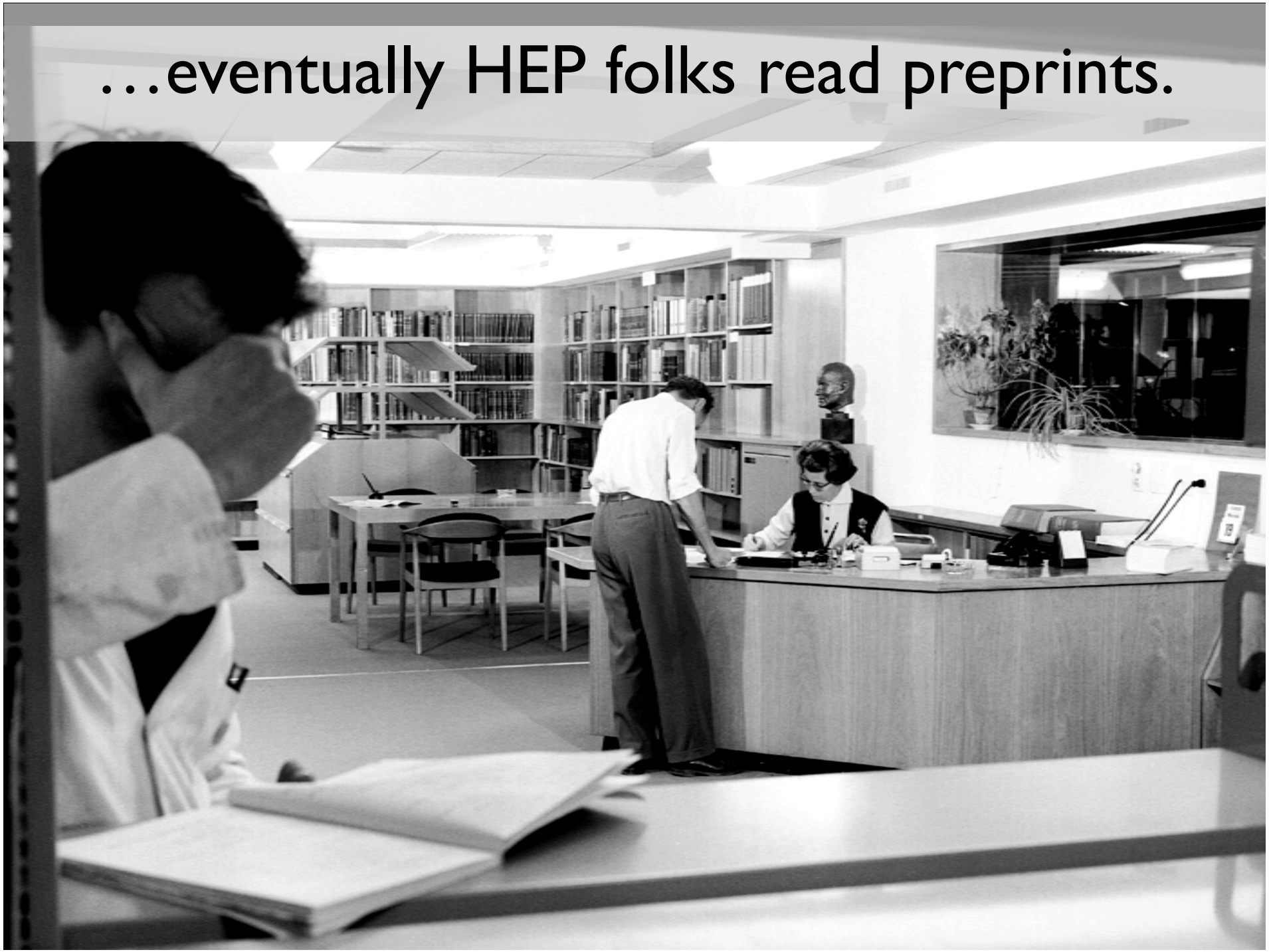


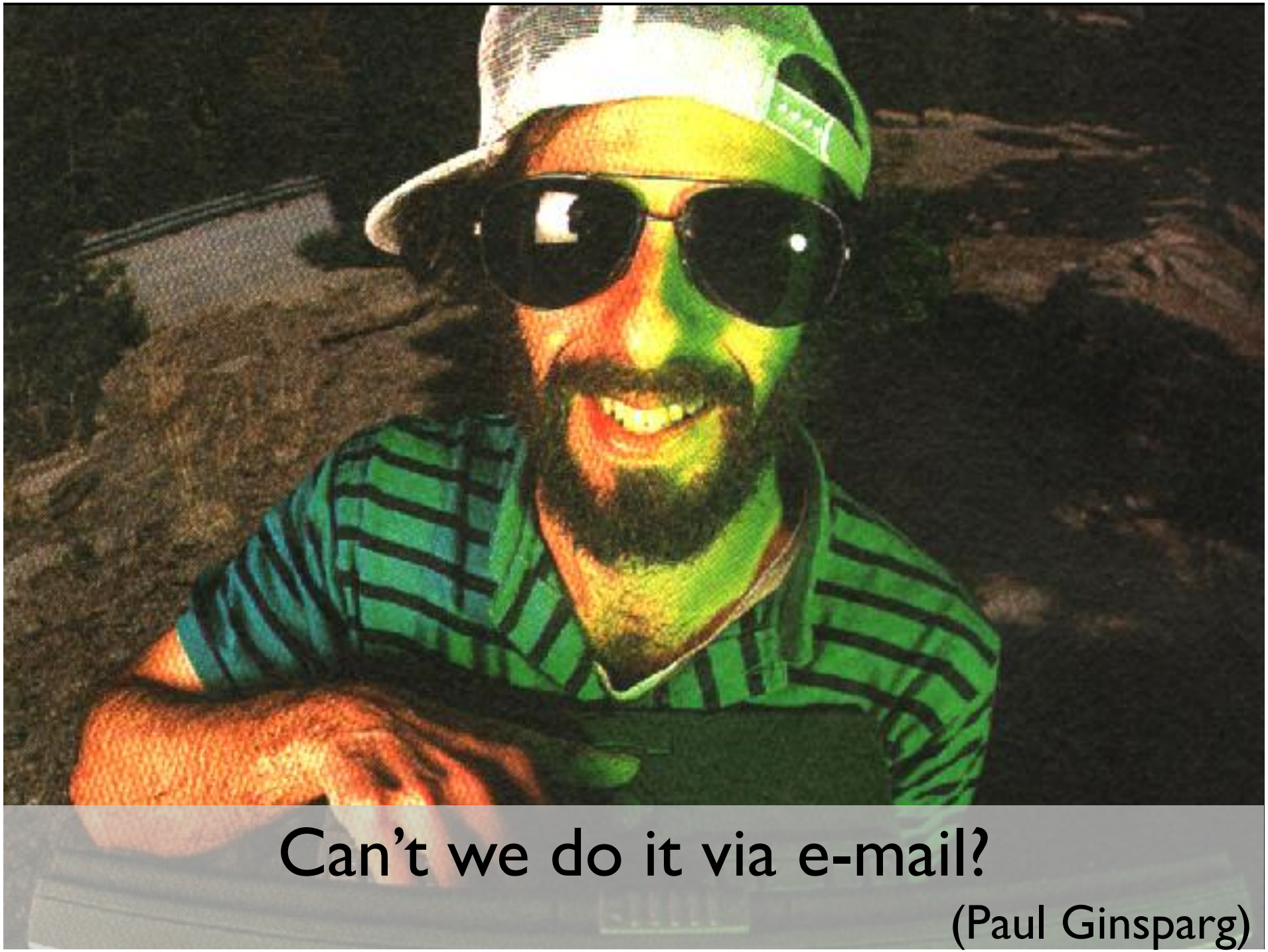
…libraries got and catalogued *preprints*…

….SLAC/Stanford library used computers...

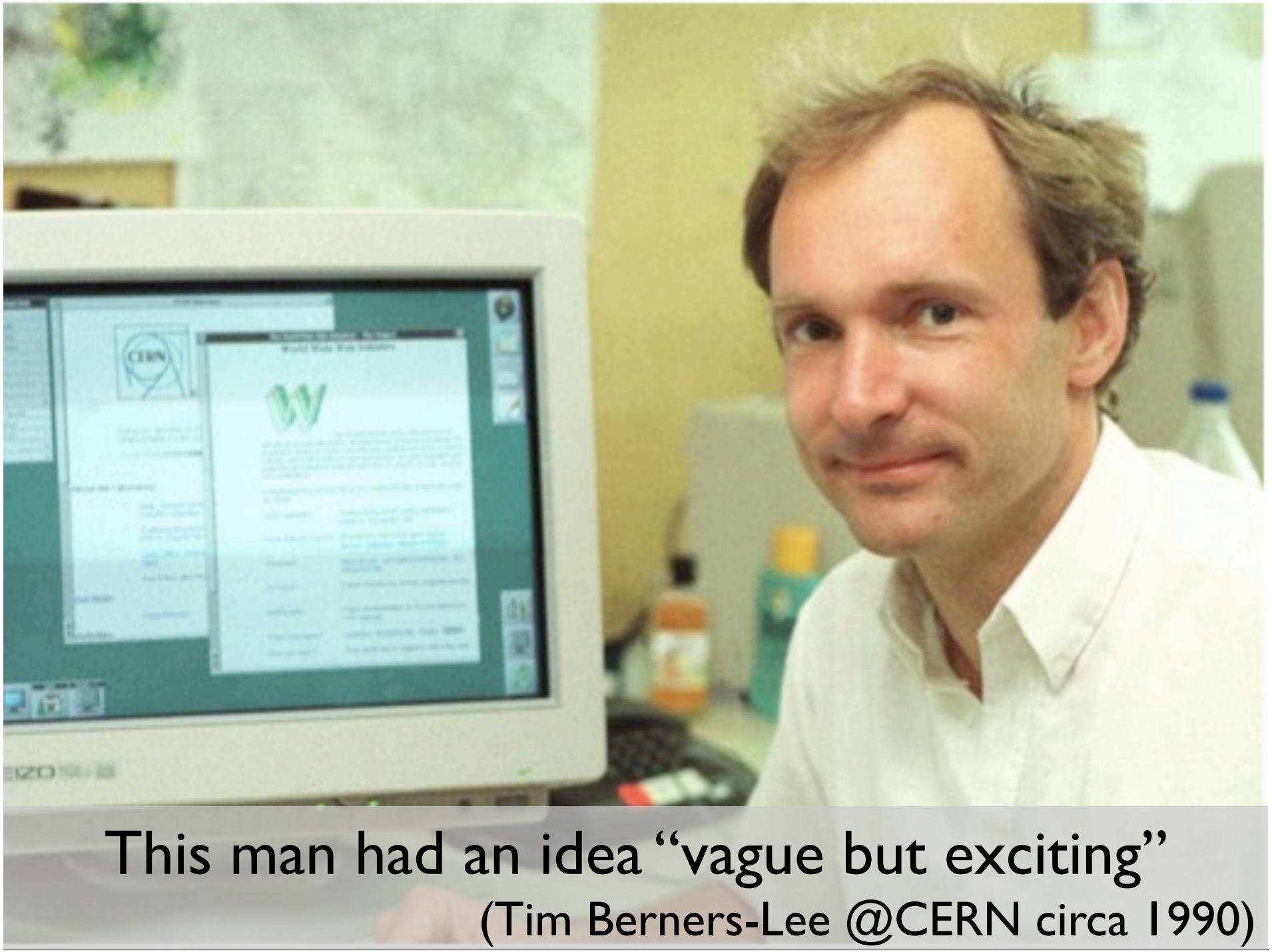


…eventually HEP folks read preprints.




Can’t we do it via e-mail?
(Paul Ginsparg)

arXiv is born (hep-th Aug '91; astro-ph Apr ’92)


This man had an idea “vague but exciting”
(Tim Berners-Lee @CERN circa 1990)

Which was the first web site in the U.S. ?

Which was the first web site in the U.S. ?

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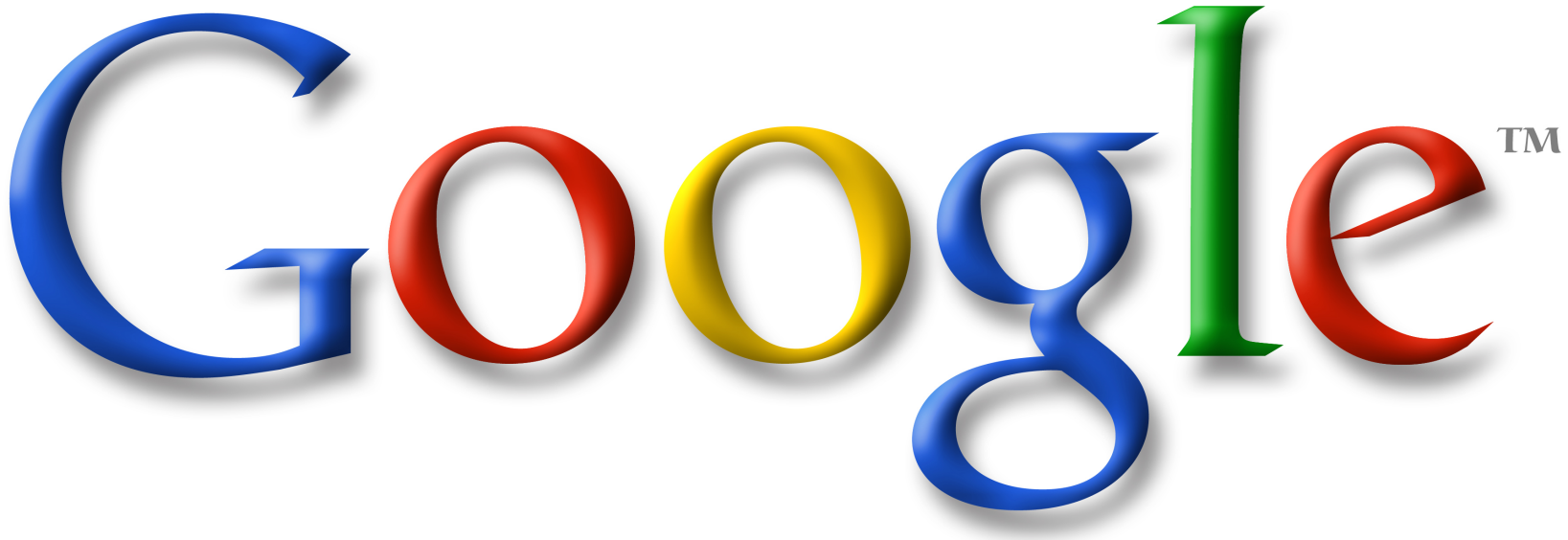
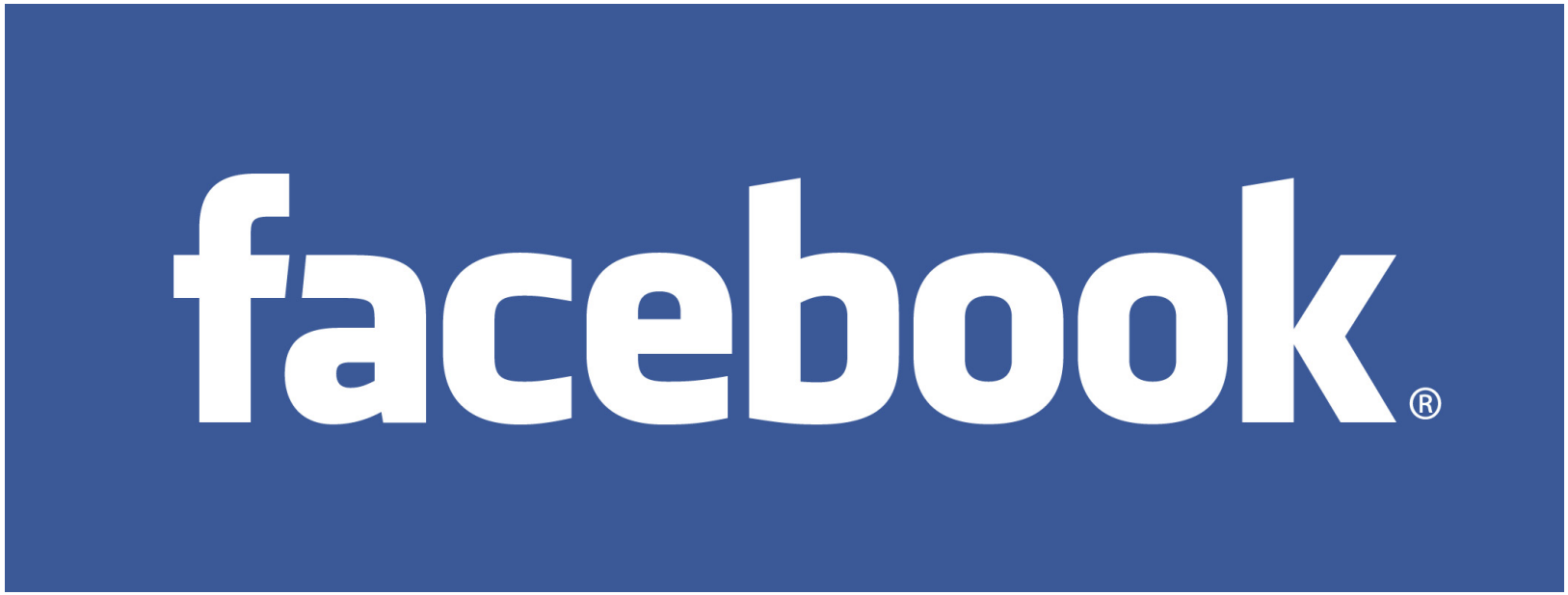
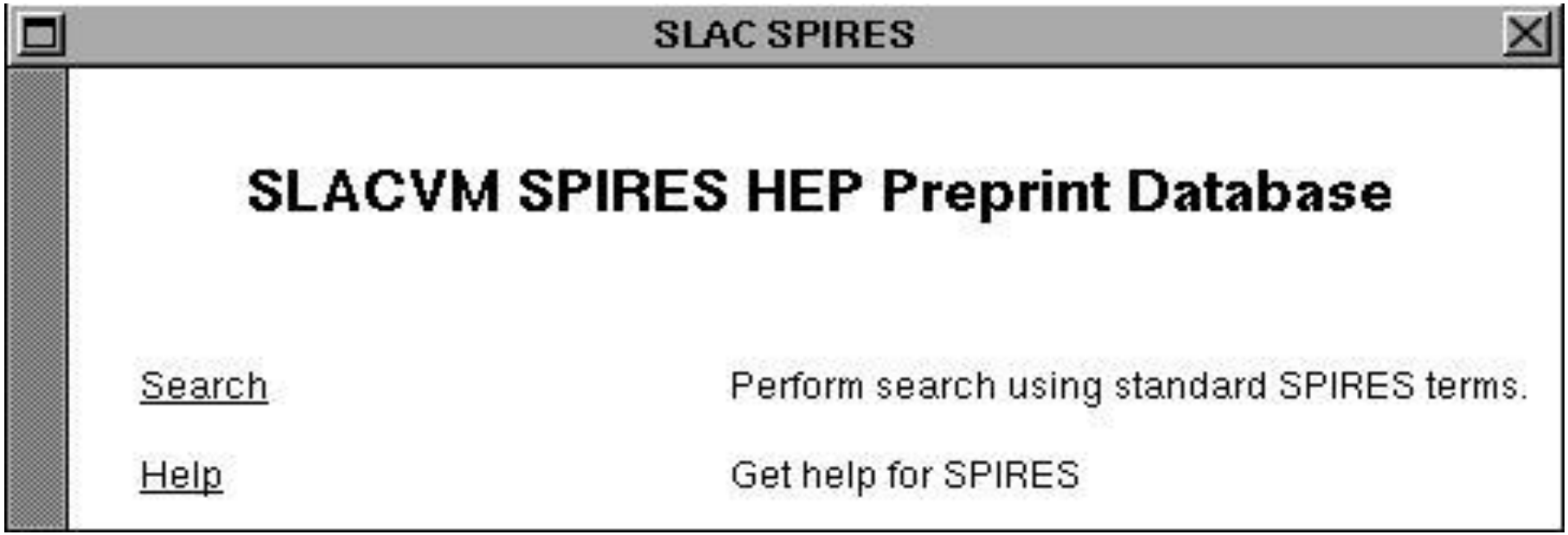


Which was the first web site in the U.S. ?



SPIRES, the first web site in the U.S.



(And the first database on the web)

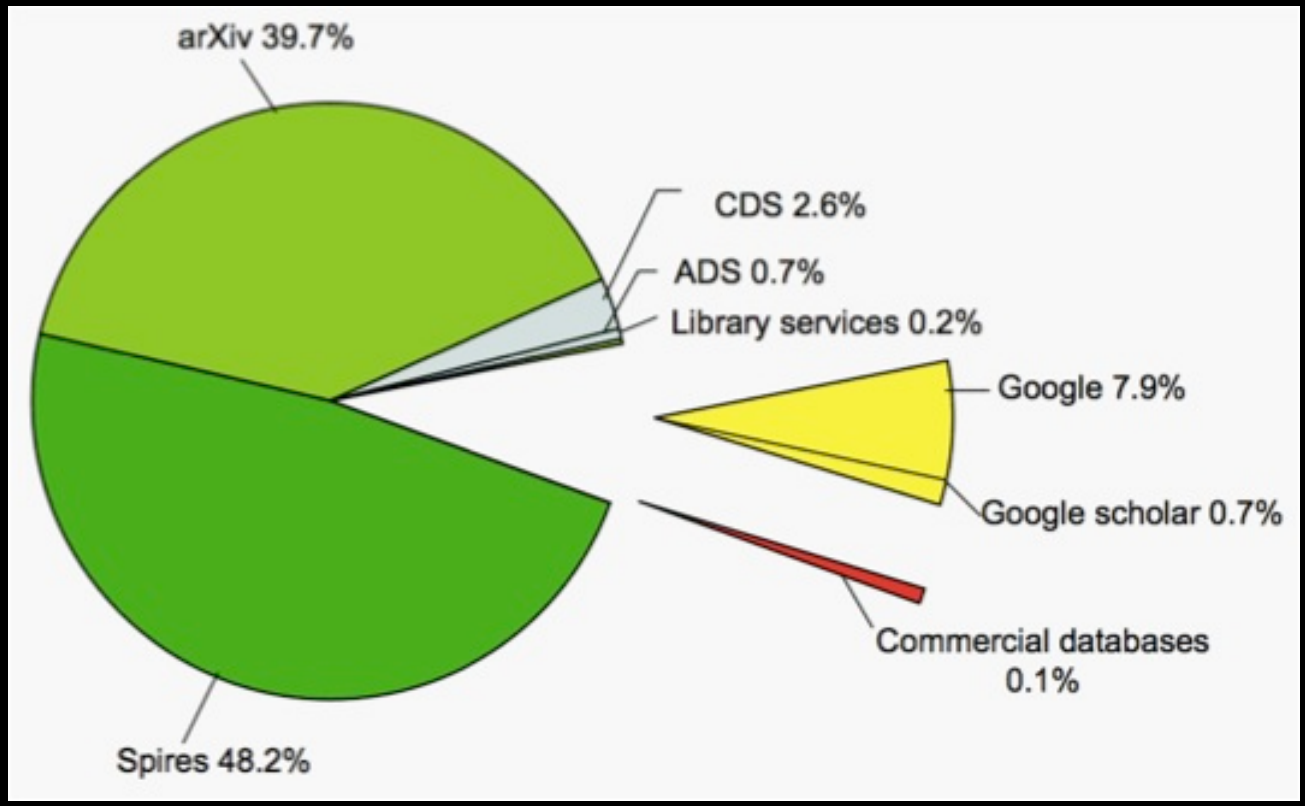
Successful cyber-infrastructure for
Scientific Communication in
High-Energy Physics

Successful cyber-infrastructure for
Scientific Communication in
High-Energy Physics

Like JACoW for Accelerator Physics…

Where do HEP scientists look for info?

Gentil-Beccot *et al.* arxiv:0804.2701



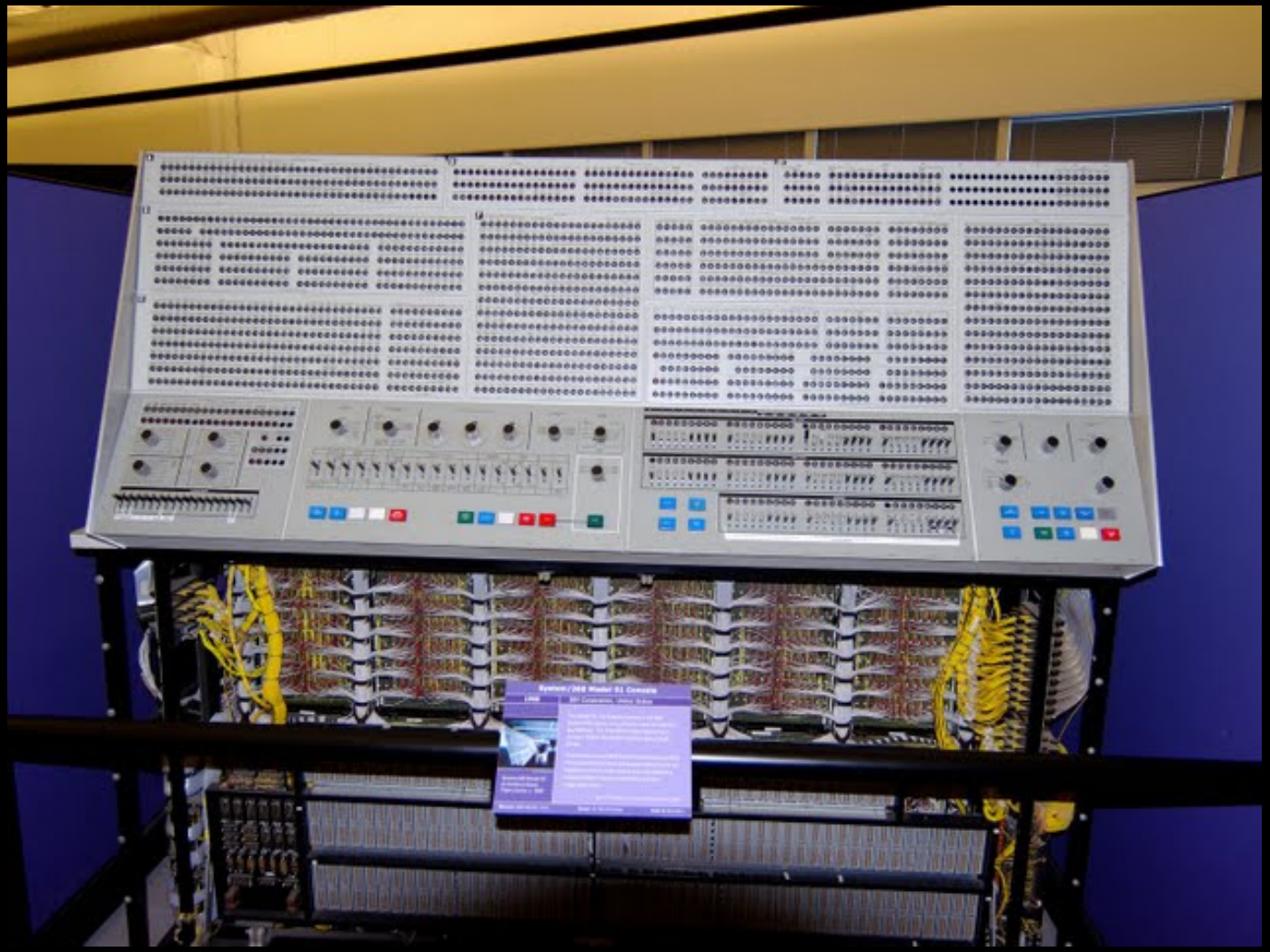
Survey of 2'000+ scientists (10% of community)

OA tools answer scientists' information needs

Google as proxy of arXiv, SPIRES, publishers

Still, a clone of the paper era

Using paper era Tech



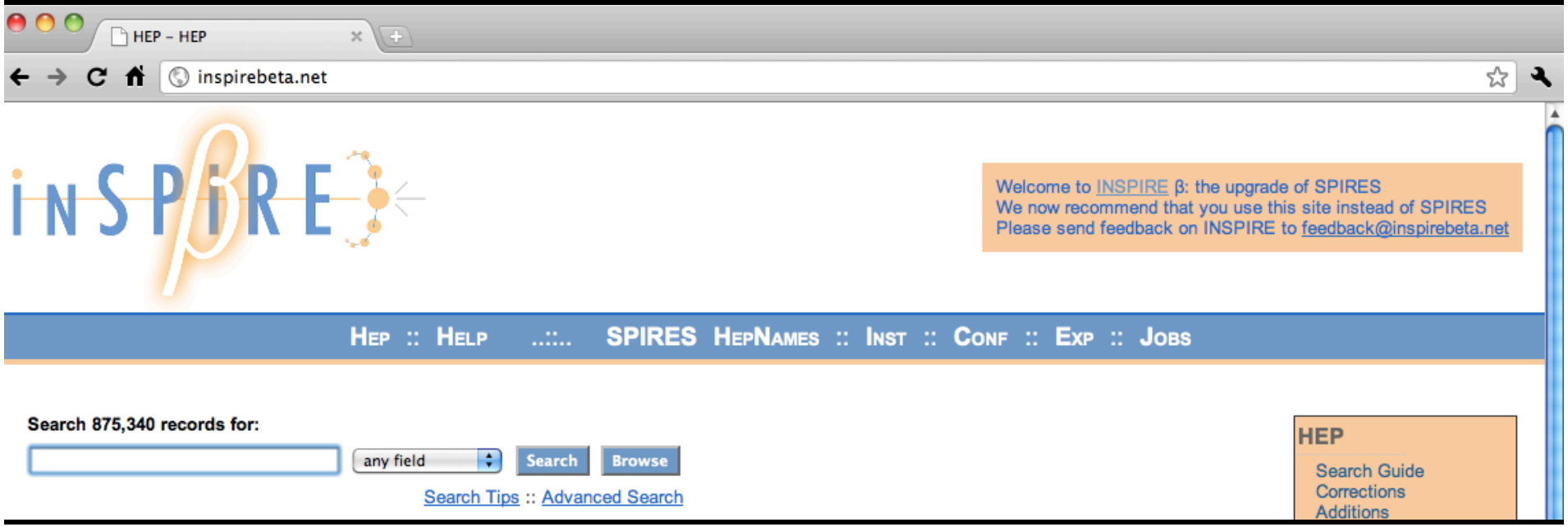
Enter INSPIRE

CERN, DESY, Fermilab, SLAC

What is it?

What does it do?

What will it do?



Invenio – Open Source Digital Repository

LAMP – Linux, Apache, MySQL, Python

http://invenio-software.org

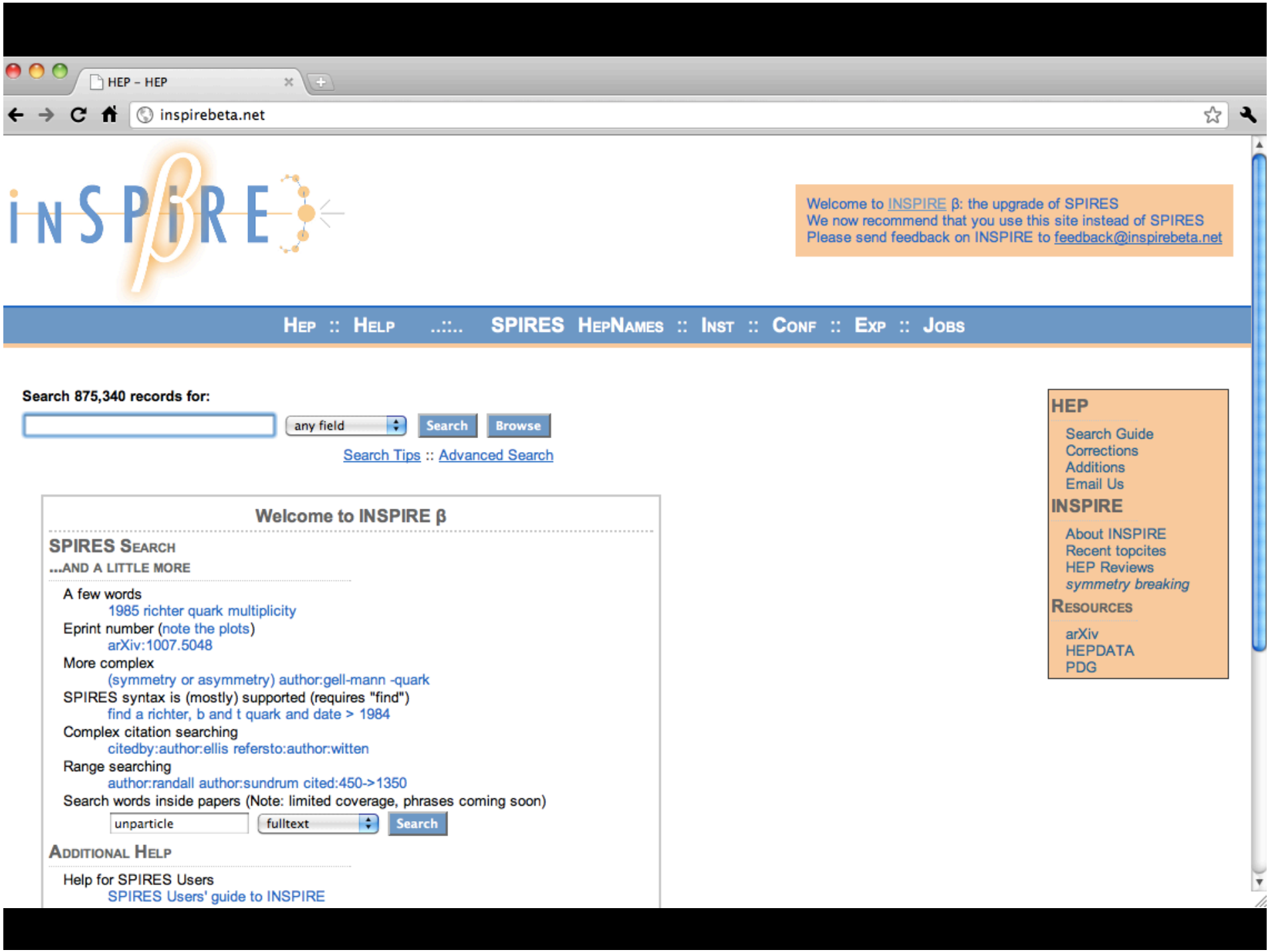
Designed for scientific repositories with 0.2-10M records

Contributors at CERN, SLAC, NASA-ADS, other institutions (via git)

(Part of CDSware suite, with InDiCo)

Notable INSPIRE Features

- Author Profiles
  - Automatically disambiguated
  - Author claiming system (Coming Soon!)
- Objects other than papers
  - Talks
  - Figures
  - Data Files
- Increased Interaction with authors/end-users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A few words
1985 richter quark multiplicity
Eprint number (note the plots)
arXiv:1007.5048
More complex
(symmetry or asymmetry) author:gell-mann -quark
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...and a little more

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Eprint number (note the plots)
arXiv:1007.5048
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Search words inside papers (Note: limited coverage, phrases coming soon)
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Help for SPIRES Users
SPIRES Users' guide to INSPIRE

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*** any public collection ***

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Display results: 25 results | single list

Output format: HTML brief

HEP **1** records found Search took 0.03 seconds.

1. **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.*). CERN-EP-2003-011. Mar 2003. 23
Published in **Phys.Lett. B565 (2003) 61-75**
e-Print: **hep-ex/0306033**

References | BibTeX | LaTeX(US) | LaTeX(EU) | EndNote
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pdgLive (measurements quoted by PDG)
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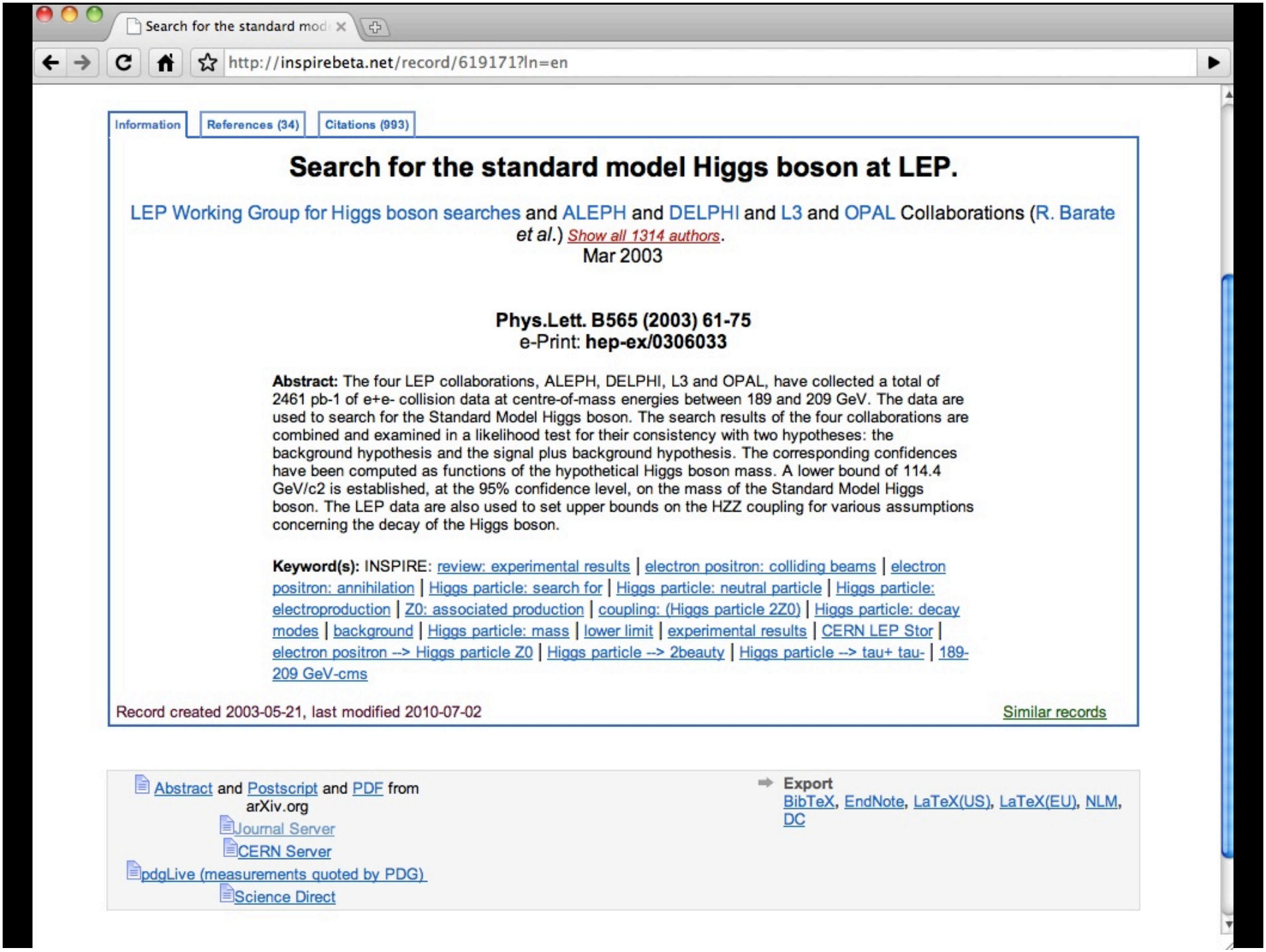
Search for the standard mod
http://inspirebeta.net/record/619171?ln=en
Information
References (34)
Citations (993)
Search for the standard model Higgs boson at LEP.
LEP Working Group for Higgs boson searches and ALEPH and DELPHI and L3 and OPAL Collaborations (R. Barate et al.) Show all 1314 authors.
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
Record created 2003-05-21, last modified 2010-07-02
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Home > Search for the standard model Higgs boson at LEP > References
Information
References (34)
Citations (993)
Search for the standard model Higgs boson at LEP - Barate, R. et al hep-ex/0306033 CERN-EP-2003-011
- Broken symmetries, massless particles and gauge fields - Higgs, Peter W.
- Broken Symmetries and the Masses of Gauge Bosons - Higgs, Peter W.
- Spontaneous Symmetry Breakdown without Massless Bosons - Higgs, Peter W.
- Broken Symmetry and the Mass of Gauge Vector Mesons - Englert, F. et al
- Global Conservation Laws and Massless Particles - Guralnik, G.S. et al
- A Model of Leptons - Weinberg, Steven
- A Combination of preliminary electroweak measurements and constraints on the standard model 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 - Barate, R. et al hep-ex/0011045 CERN-EP-2000-138
- Higgs candidates in e+ e- interactions at s**(1/2) = 206.6-GeV - Acciarri, M. et al hep-ex/0011043 CERN-EP-2000-140
- Search for the standard model Higgs boson in e+ e- collisions at s**(1/2) approximately = 192-GeV - 209-GeV - Abbiendi, G. et al hep-ex/0101014 CERN-EP-2000-156
- Search for the standard model Higgs boson at LEP in the year 2000 - Abreu, P. et al hep-ex/0102036 CERN-EP-2001-004
- Final results of the searches for neutral Higgs bosons in e+ e- collisions at s**(1/2) up to 209-GeV - Heister, A. et al hep-ex/0201014 CERN-EP-2001-095
- Final results from DELPHI on the searches for SM and MSSM neutral Higgs bosons - Abdallah, J. et al hep-ex/0303013 CERN-EP-2003-008

Search for the standard mod

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

Information | References (34) | Citations (993)

Search for the standard model Higgs boson at LEP - Barate, R. *et al* hep-ex/0306033 CERN-EP-2003-011

Cited by: 993 records

(391) **Precision electroweak measurements on the Z resonance** hep-ex/0509008 SLAC-R-774

(332) **Physics interplay of the LHC and the ILC** - Weiglein, G. *et al* hep-ph/0410364 SLAC-PUB-10764, ANL-HEP-PR-04-108, CERN-PH-TH-2004-214, DCPT-04-134, DESY-04-206, IFIC-04-59, IISC-CHEP-13-04, IPPP-04-67, UB-ECM-PF-04-31, UCD-04-28, UCI-TR-2004-37

(320) **Split supersymmetry** - Giudice, G.F. *et al* hep-ph/0406088 CERN-PH-TH-2004-100

(301) **Expected Performance of the ATLAS Experiment - Detector, Trigger and Physics** - Aad, G. *et al* arXiv:0901.0512 [hep-ex]

(297) **Search for neutral MSSM Higgs bosons at LEP** - Schael, S. *et al* hep-ex/0602042 CERN-PH-EP-2006-001

more

Co-cited with: 21049 records

(168) **Supersymmetry, Supergravity and Particle Physics** - Nilles, Hans Peter UGVA-DPT-1983-12-412

(161) **Review of Particle Physics** - Yao, W.-M. *et al*

(158) **A Model of Leptons** - Weinberg, Steven

(158) **Review of particle physics. Particle Data Group** - Eidelman, S. *et al*

(151) **Search for neutral MSSM Higgs bosons at LEP** - Schael, S. *et al* hep-ex/0602042 CERN-PH-EP-2006-001

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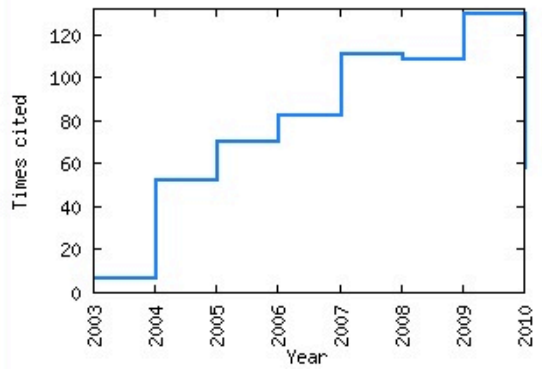
Citation history:



A Model of Leptons - HEP

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Information | References (16) | Citations (7135)

A Model of Leptons - Weinberg, Steven

Cited by: 7135 records

(6018) **CP Violation in the Renormalizable Theory of Weak Interaction** - Kobayashi, Makoto *et al* KUNS-242

(3600) **Supersymmetry, Supergravity and Particle Physics** - Nilles, Hans Peter UGVA-DPT-1983-12-412

(3491) **The Search for Supersymmetry: Probing Physics Beyond the Standard Model** - Haber, Howard E. *et al* UM-HE-TH-83-17, SCIPP-85-47

(3225) **Unity of All Elementary Particle Forces** - Georgi, H. *et al*

(3178) **Review of particle physics. Particle Data Group** - Barnett, R.Michael *et al*

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Co-cited with: 60553 records

(3668) **Partial Symmetries of Weak Interactions** - Glashow, S.L.

(2079) **Weak Interactions with Lepton-Hadron Symmetry** - Glashow, S.L. *et al*

(1429) **CP Violation in the Renormalizable Theory of Weak Interaction** - Kobayashi, Makoto *et al* KUNS-242

(1039) **Broken symmetries, massless particles and gauge fields** - Higgs, Peter W.

(867) **Unity of All Elementary Particle Forces** - Georgi, H. *et al*

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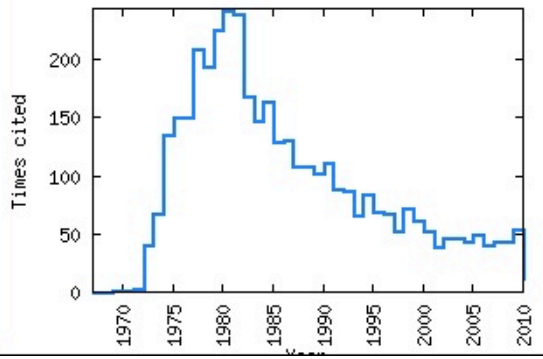
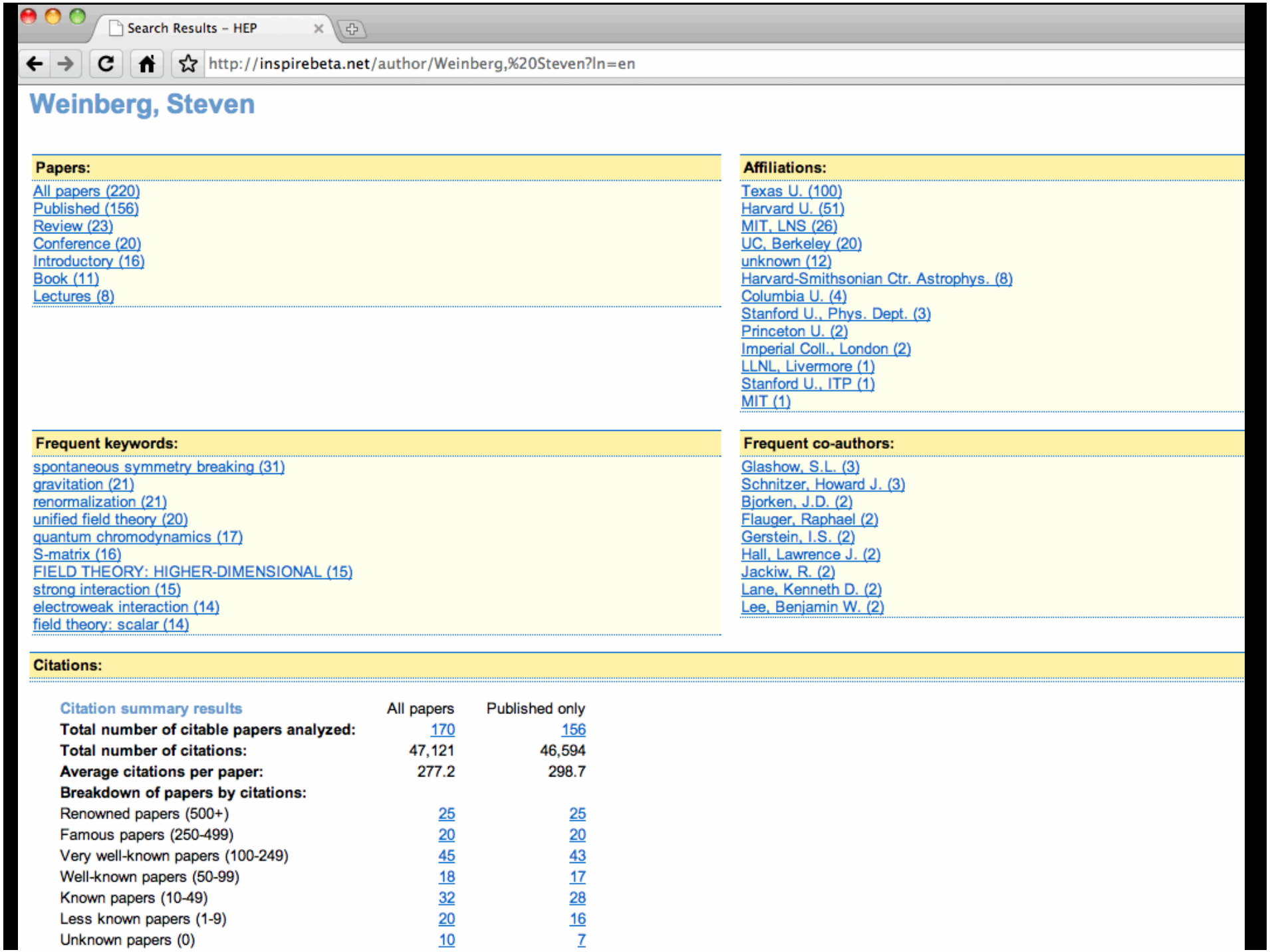
Citation history:





Weinberg, Steven

Papers:

All papers (220)
Published (156)
Review (23)
Conference (20)
Introductory (16)
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	All papers	Published only
Total number of citable papers analyzed:	170	156
Total number of citations:	47,121	46,594
Average citations per paper:	277.2	298.7
Breakdown of papers by citations:		
Renowned papers (500+)	25	25
Famous papers (250-499)	20	20
Very well-known papers (100-249)	45	43
Well-known papers (50-99)	18	17
Known papers (10-49)	32	28
Less known papers (1-9)	20	16
Unknown papers (0)	10	7

Information | References (17) | Citations (1) | Plots

Diffractive W and Z Production at the Fermilab Tevatron.

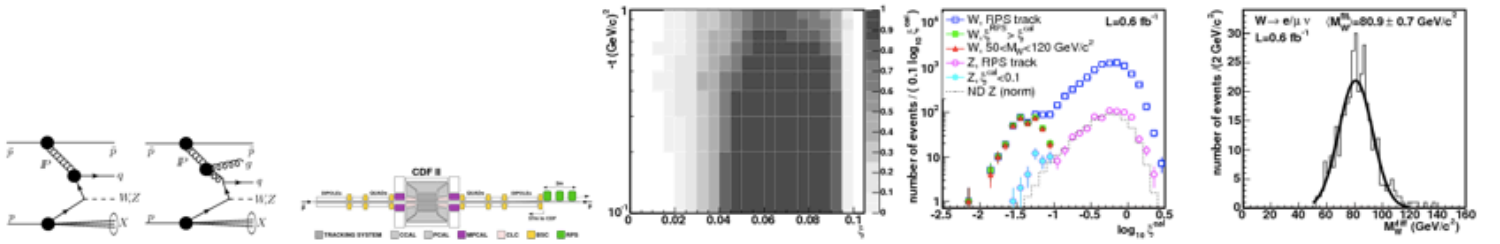
CDF Collaboration (T. Aaltonen (Helsinki Inst. of Phys.) *et al.*) Show all 514 authors.

Jul 2010

Submitted to: Phys.Rev.D
e-Print: **arXiv:1007.5048 [hep-ex]**

Abstract: We report on a measurement of the fraction of events with a W or Z boson produced diffractively in antiproton-proton collisions at a center of mass energy of 1.96 TeV, using data from 0.6 inverse femtobarns of integrated luminosity collected with the CDF-II detector equipped with a Roman-pot spectrometer that detects the antiproton (pbar) from pbar+p --> pbar+[X+W/Z]. We find that (0.97 +/- 0.11)% of Ws and (0.85 +/- 0.22)% of Zs are produced diffractively in a region of (anti)proton fractional momentum loss (\xi) of 0.03< \xi <0.10 and 4-momentum transferred squared t of -1<t<0 (GeV/c)^2. We also report on searches for W and Z production in double Pomeron exchange, p+pbar --> p+[X+W/Z]+pbar, and on exclusive Z production, pbar+p-->pbar+Z+p. No signal is seen above background for these processes, and comparisons are made with expectations.

Keyword(s): INSPIRE: W: hadroproduction | Z0: hadroproduction | pomeron: exchange | diffraction | Batavia TEVATRON Coll | CDF
Author supplied: diffraction



Diffractive W and Z Productio

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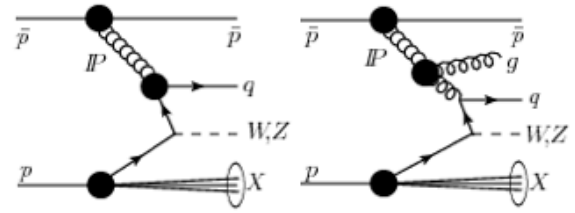
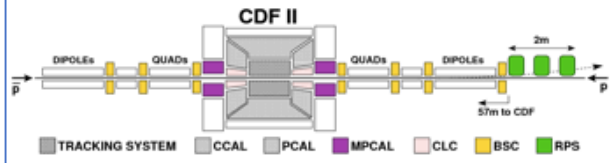
Information | References | Citations | Plots

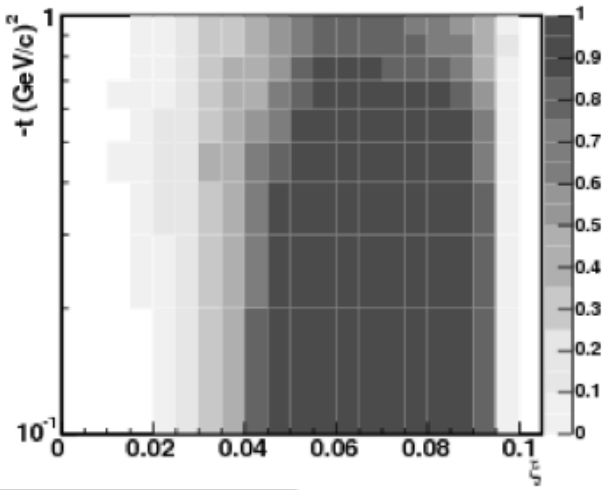
Diffractive W and Z Production at the Fermilab Tevatron - CDF Collaboration (Aaltonen, T. *et al.*) Submitted to: Phys.Rev.D . arXiv:1007.5048 [hep-ex] . FERMILAB-PUB-10-255-E



Diffractive W production: (left) through quarks, and (right) through gluons.



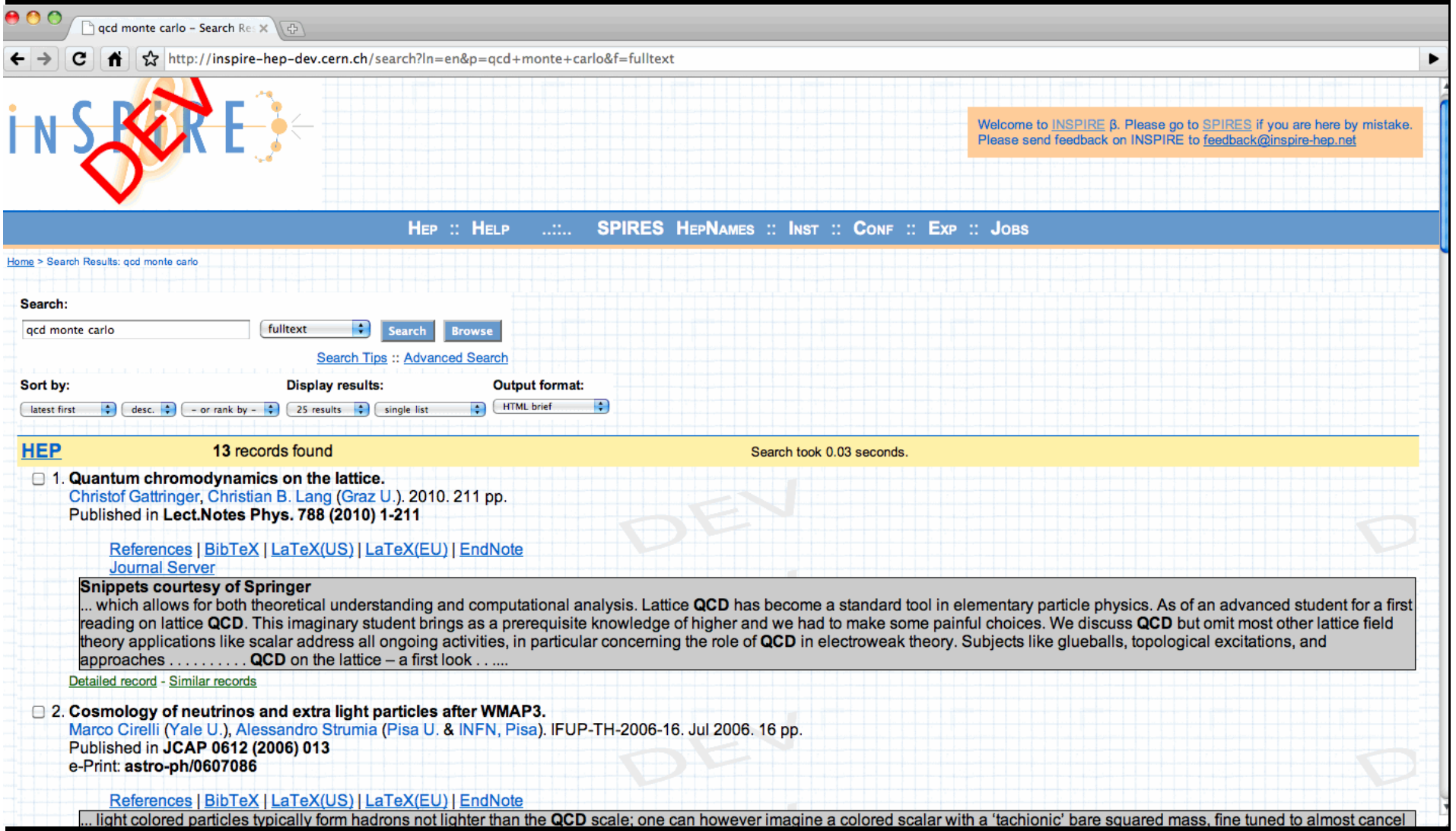
Schematic drawing of the CDF-II detector.

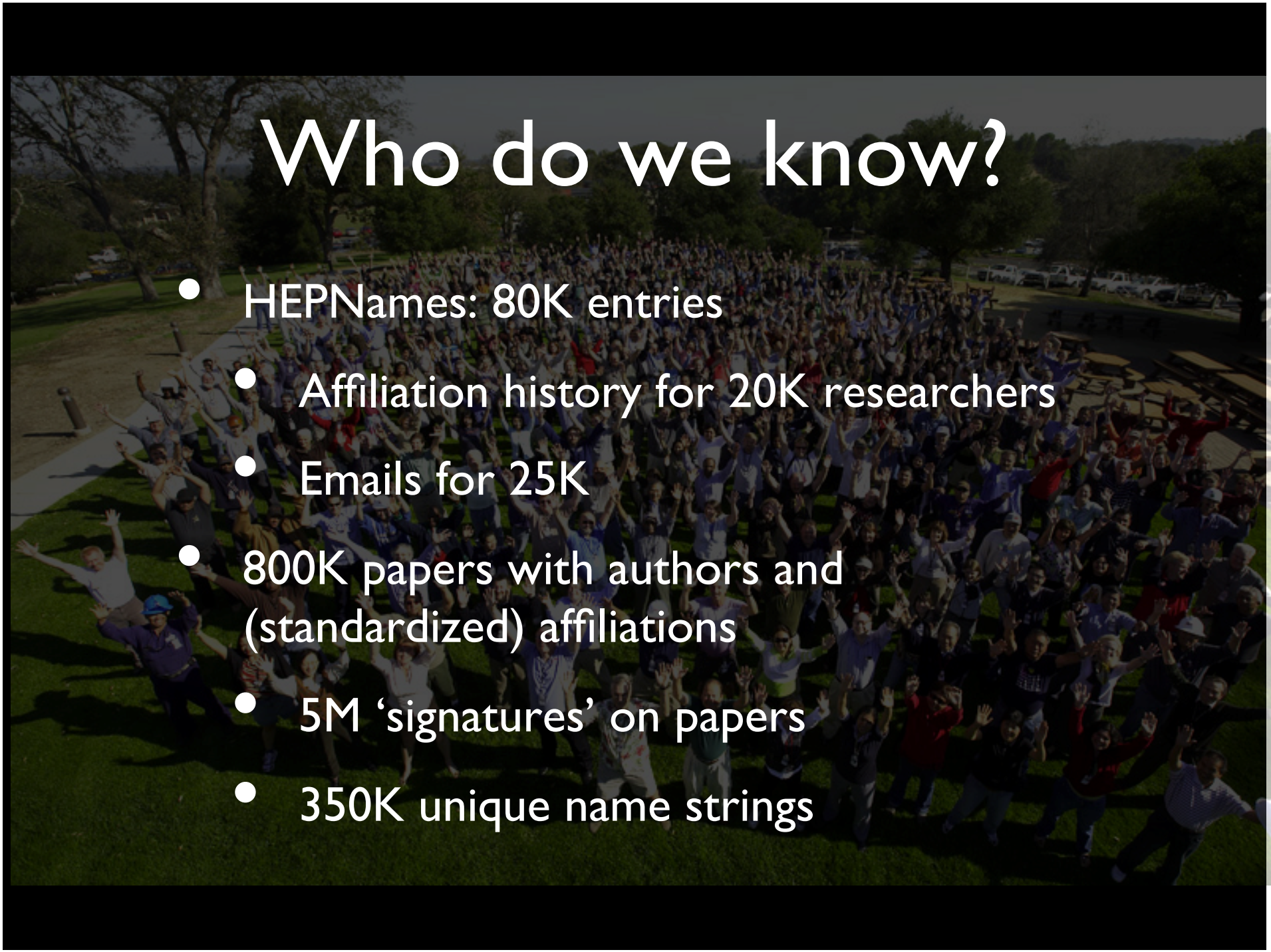


RPS acceptance as a function of ξ and t obtained from simulationusing the transport parameters between the nominal interaction point and the Roman pots.

inspirebeta.net/record/.../WZ_fig1.png

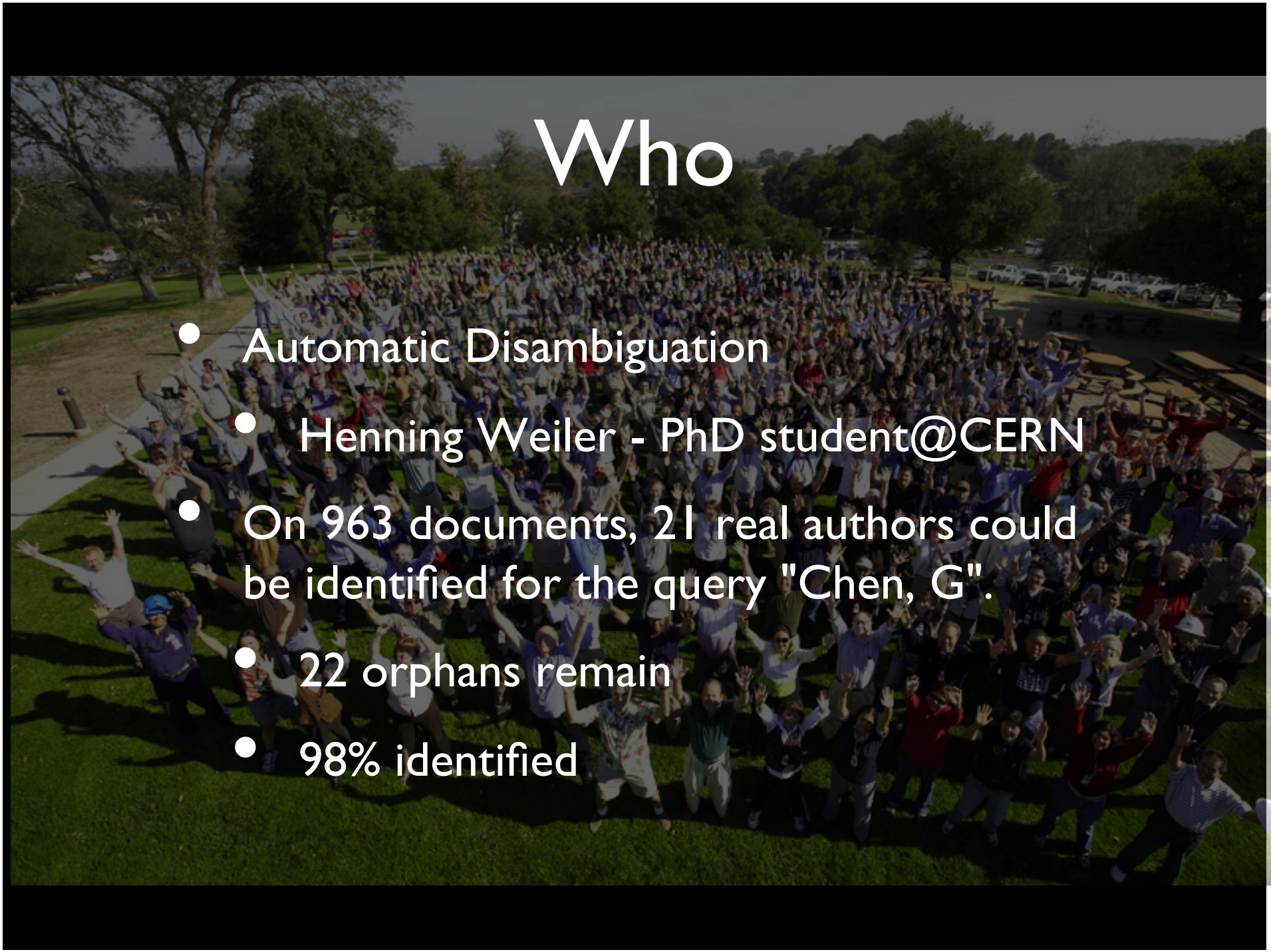
Full-text search





Who do we know?

- HEPNames: 80K entries
  - Affiliation history for 20K researchers
  - Emails for 25K
- 800K papers with authors and (standardized) affiliations
  - 5M ‘signatures’ on papers
  - 350K unique name strings



Who

- Automatic Disambiguation
  - Henning Weiler - PhD student@CERN
- On 963 documents, 21 real authors could be identified for the query "Chen, G".
  - 22 orphans remain
  - 98% identified

Author Details (#109)

Name history

- Ellis, Stephen D. (57 Papers)
- Ellis, S.D. (54 Papers)
- Ellis, S. (3 Papers)
- Ellis, Stephen (1 Paper)

Affiliation history (10 distinct)

- 2009-12 - Unknown (as Ellis, Stephen D.)
- 2009-05 - Washington U., Seattle (as Ellis, Stephen D.)
- 2007-12 - Washington U., Seattle (as Ellis, S.D.)
- 2005-09 - Washington U., Seattle (as Ellis, S.D.)

Author Details (#115)

Name history

- Ellis, Simon C. (8 Papers)
- Ellis, S.C. (7 Papers)
- Ellis, S. (1 Paper)

Affiliation history (2 distinct)

- 2009-10 - Unknown (as Ellis, S.C.)
- 2008-01 - Unknown (as Ellis, S.C.)
- 2006-02 - Anglo-Australian Observ. (as Ellis, Simon C.)
- 2003-04 - Unknown (as Ellis, S.C.)
- 2001-10 - Unknown (as Ellis, S.C.)
- 2000-11 - Unknown (as Ellis, S.)

- Large Transverse Momentum Phenomena: An Experimental and Theoretical Review (as "Ellis, S.D.", p: 64.94%)
- Implications of parton model concepts for large transverse momentum production of hadrons (as "Ellis, S.D.", p: 75.08%)
- Inclusive reactions, finite-energy sum rules and reggeon-particle scattering (as "Ellis, S.D.", p: 70.40%)
- Decays of the Upsilon' and the Structure of the Resonances at 10-GeV (as "Ellis, Stephen D.", p: 64.19%)
- Jets in hadron-hadron collisions (as "Ellis, S.D.", p: 66.79%)

- The K band luminosity function of high redshift clusters (as "Ellis, S.C.", p: 70.03%)
- The colour-magnitude relations of clj1226.9+3332, a massive cluster of galaxies at z=0.89 (as "Ellis, Simon C.", p: 74.05%)
- Characterization and on-sky demonstration of an integrated photonic spectrograph for astronomy (as "Ellis, S.C.", p: 70.03%)
- The x-ray evolution of clusters of galaxies to z=0.9 (as "Ellis, S.", p: 78.87%)
- The case for OH suppression at near-infrared wavelengths (as "Ellis, S.C.", p: 70.03%)

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- Claim-my-papers (with arXiv and ORCID)
- Personal libraries, alerts
- Submit theses and old non-arXiv material
- Attach non-text material (high-level data files)
- Scan/OCR old material (on the grid)
- Advanced feeds (with ADS, arXiv, Publishers)
- Tag papers

1) INSPIRE past/present/future

2) Connections with JACoW

3) Questions

JACoW Content in INSPIRE

- Over 25,000 papers
  - Starting with 1st PAC 1965
- ~25,000 Authors
- ~60 Conferences

Author Profiles

- ORCID http://orcid.org
  - Publishers, Societies, Repositories, Universities, Others
  - Global author identifiers
    - INSPIRE sits on Board of Directors and Technical Working Group
    - Ensure Proper Attribution in Broad landscape for our community
- Projects within related disciplines Astro <-> HEP HEP <-> Accelerator

Technical Opportunities

INSPIRE Strengths	INSPIRE Needs
- Central Repository - Search - Author Disambiguation - Rich Metadata	- Ingestion Tools for Talks - Conference Citation Tools - User Interface Design - Back Office Tools

Action Items

- Metadata exchange
  - Scripts From Volker (inspire.xml) run for every conference
- Profile Information
  - Add author ID to scripts
  - Use to match profiles
- Technical Collaboration
  - Keep eyes open for potential to share code/ strategies/expertise

1) INSPIRE past/present/future

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3) Questions