Integrating information resources

Annette Holtkamp
CERN/DESY

From secrecy…

Hooke's law:

ceiiinosssttuv

…via journals…

For centuries, scientific journals performed the crucial function of disseminating scientific results and providing the basis of scientific reputation

Today, they provide a corset too restrictive for modern scholarly communication.

What is the contribution of one of the 1000s of authors on a LHC article?

…to Open Science

We should aim to create an open scientific culture where as much information as possible is moved out of people's heads and labs, onto the network and into tools that can help us structure and filter the information.

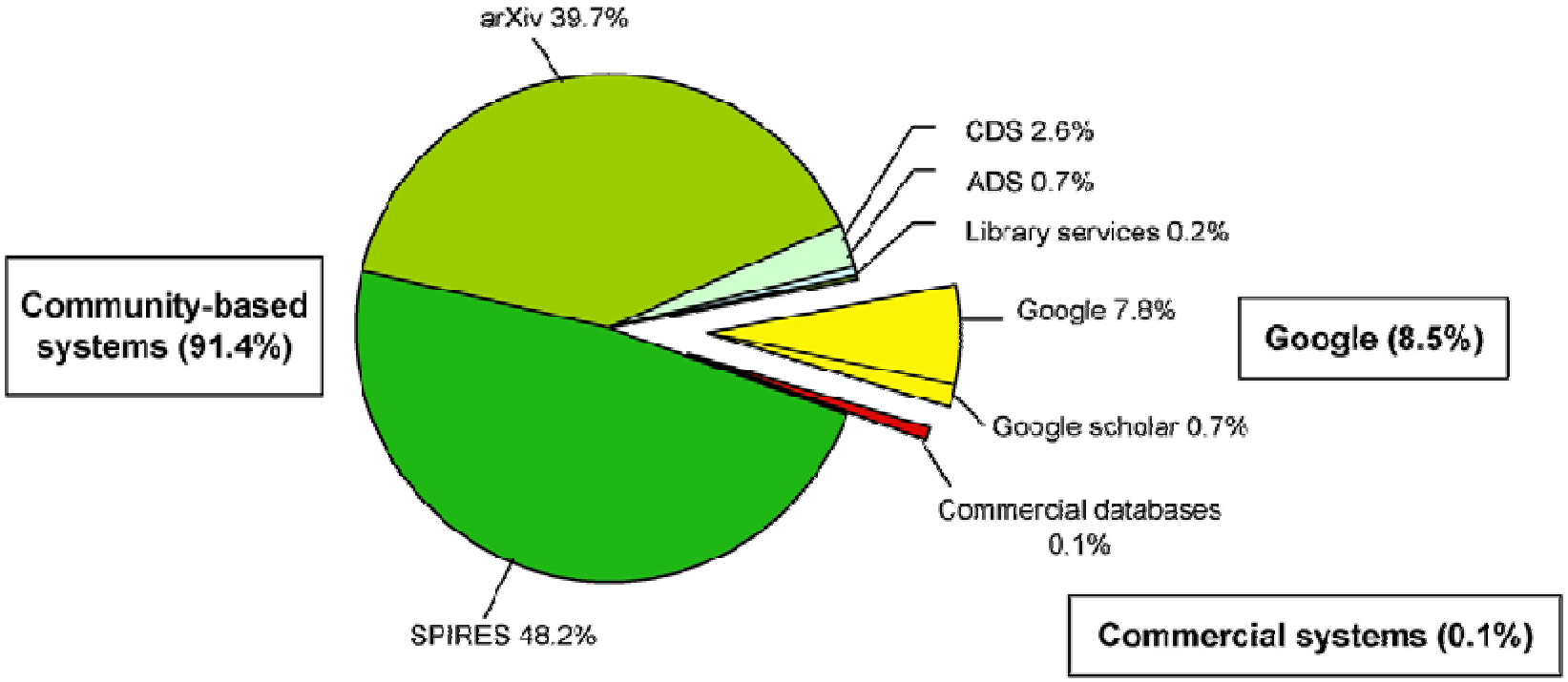
(Michael Nielsen)

SPIRES HEP database

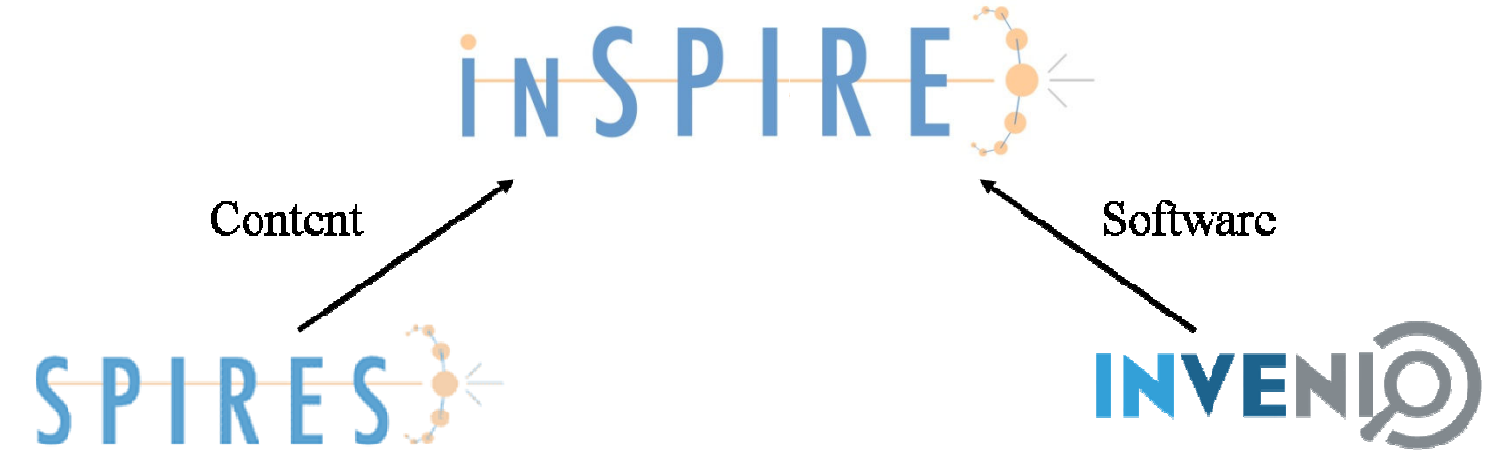
- early form of Open Access in HEP by institutes mailing preprints worldwide
- preprint catalog evolved into SPIRES HEP
- 35 years of high-quality human-proofed metadata

  curated at DESY, Fermilab, SLAC
- early integration of preprint and journal metadata
- close collaboration with arXiv
- close relationship to user community

Advantage of community services



What is the primary source of information for HEP scientists?
From 2007 survey of 2,000 physicists. Gentil-Beccot et al, *Information Resources in High-Energy Physics: Surveying the Present Landscape and Charting the Future Course*.
J.Am.Soc.Inf.Sci.60:150-160,2009 arXiv:0804.2701



run by

Inspire

integrated information platform tailored to the specific needs of HEP researchers

- providing access to the complete HEP literature
- fulltext repository
- offering text- and data-mining applications
- Web2.0 tools
- based on an open source multimedia digital library system
- freely accessible to anyone
- going into production at the end of the year

Extended publication

Article supplemented by additional material

- Data
- Multimedia
- Software
- …

Aggregation of diverse digital objects

Axions In String Theory.

Peter Svrcek (Stanford U., Phys. Dept. & SLAC), Edward Witten (Princeton, Inst. Advanced Study).
May 22, 2006

Published in:**JHEP 0606: 051, 2006**
e-Print: **hep-th/0605206**

Abstract: In the context of string theory, axions appear to provide the most plausible solution of the strong CP problem. However, as has been known for a long time, in many string-based models, the axion coupling parameter F_a is several orders of magnitude higher than the standard cosmological bounds. We re-examine this problem in a variety of models, showing that F_a is close to the GUT scale or above in many models that have GUT-like phenomenology, as well as some that do not. On the other hand, in some models with Standard Model gauge fields supported on vanishing cycles, it is possible for F_a to be well below the GUT scale.

Keyword(s): string model: heterotic ; gauge field theory: SU(3) ; instanton ; axion ; violation: CP ; dimensional reduction ; anomaly ; membrane model: D-brane ; bibliography

Record created 2008-05-04, last modified 2008-05-04 Similar records

Information | References | Citations | Keywords | Discussion | Usage statistics | Volltext | Holdings

The Ultraviolet Behavior of N=8 Supergravity at Four Loops - Bern, Z. *et al* - SLAC-PUB-13608UCLA-09-TEP-09-47arXiv:0905.2326

Additional Datei(en):

GuideToNeq8Files

Version 1 GuideToNeq8Files.nb [198829 B]
GuideToNeq8Files.pdf [311242 B]

Neq8FourLoops

Version 1 Neq8FourLoops.m [2817045 B]

SUGRA1

Version 1 SUGRA1.nb [35697 B]
SUGRA1.pdf [22182 B]

SUGRA10

Version 1 SUGRA10.nb [38452 B]
SUGRA10.pdf [24239 B]

SUGRA11

Version 1 SUGRA11.nb [37988 B]
SUGRA11.pdf [24093 B]

display and manipulate diagrams with Mathematica

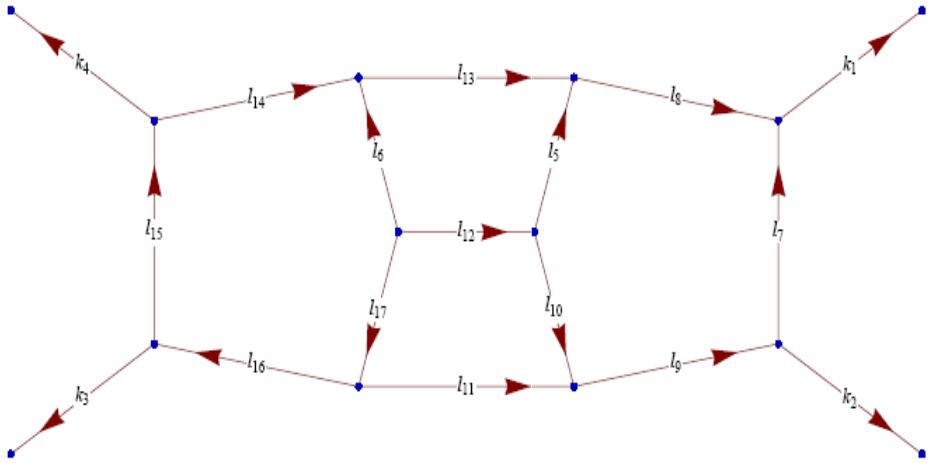
Bern, Carrasco, Dixon, Johansson, Roiban. April 2009

Integral 12: $\mathcal{I}_{12}$

$\mathcal{N} = 8$ four-point four-loop amplitude.

- **2D plot of graph associated with $\mathcal{I}_{12}$**

This fixes the labelling associated with the numerator expressions given below.



When using MathPlayer, by clicking three times (holding the click on the third click) directly on a vertex, one is able to move that vertex around, and its associated edges follow elastically. This functionality is absent when viewing as a pdf.

Aggregation

Easy access to related material/information

- Conference slides
- Preprint
- Journal article
- Supplementary material
- Comments, reviews
- Visualizations
- Similar articles
- Derivative works
- …

at different levels

- article, author, ...

Fusing gauge theory tree amplitudes into loop amplitudes - Bern, Zvi *et al* hep-ph/9409265 SLAC-PUB-6563, SACLAY-SPH-T-94-95, UCLA-TEP-94-29, SWAT-94-36

Cited by: 215 records

(196) Progress in one loop QCD computations - Bern, Zvi *et al* hep-ph/9602280 SLAC-PUB-7111, UCLA-96-TEP-5, SACLAY-SPH-T-96-10

(160) Calculating scattering amplitudes efficiently - Dixon, Lance J. hep-ph/9601359 SLAC-PUB-7106, C95-06-04.1

(154) One loop amplitudes for e+ e- to four partons - Bern, Zvi *et al* hep-ph/9708239 SLAC-PUB-7529, SACLAY-SPH-T-97-090, UCLA-97-TEP-10

(132) On the relationship between Yang-Mills theory and gravity and its implication for ultraviolet divergences - Bern, Z. *et al* hep-th/9802162 SLAC-PUB-7751, UCLA-98-TEP-03, SWAT-98-183

(132) One-loop gauge theory amplitudes in N=4 super Yang-Mills from MHV vertices - Brandhuber, Andreas *et al* hep-th/0407214 QMUL-PH-04-06

more

.. of which self-citations: 32 records

(1) Efficient analytic computation of higher order QCD amplitudes - Bern, Zvi *et al* hep-ph/9503261 SLAC-PUB-6771, SLAC-PUB-95-6771, C94-12-13

(89) Factorization in one loop gauge theory - Bern, Zvi *et al* hep-ph/9503236 UCLA-95-TEP-6

(196) Progress in one loop QCD computations - Bern, Zvi *et al* hep-ph/9602280 SLAC-PUB-7111, UCLA-96-TEP-5, SACLAY-SPH-T-96-10

(0) One loop QCD amplitudes from Cutkosky rules - Bern, Zvi UCLA-96-TEP-19

(100) One loop amplitudes for e+ e- ---> anti-q q anti-Q Q - Bern, Zvi *et al* hep-ph/9610370 SLAC-PUB-7316, SACLAY-SPH-T-96-111, UCLA-96-TEP-33

Co-cited with: 2516 records

(396) One loop n point gauge theory amplitudes, unitarity and collinear limits - Bern, Zvi *et al* hep-ph/9403226 SLAC-PUB-6415, SACLAY-SPH-T-94-20, UCLA-TEP-94-4, SWAT-94-17

(240) Perturbative gauge theory as a string theory in twistor space - Witten, Edward hep-th/0312171

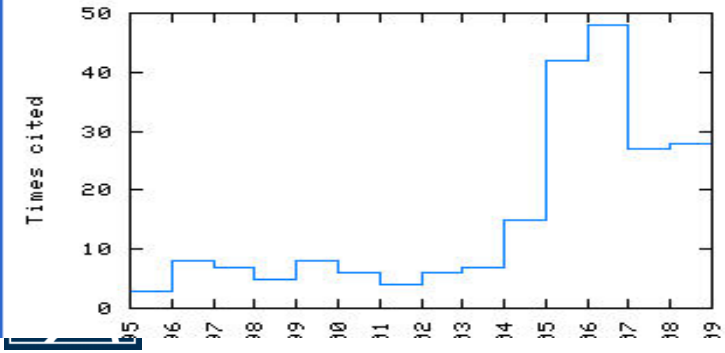
(226) MHV vertices and tree amplitudes in gauge theory - Cachazo, Freddy *et al* hep-th/0403047

(216) Multiparton amplitudes in gauge theories - Mangano, Michelangelo L. *et al* hep-th/0509223 FERMILAB-PUB-90-113-T

(208) Generalized unitarity and one-loop amplitudes in N=4 super-Yang-Mills - Britto, Ruth *et al* hep-th/0412103

more

Citation history:



Svrcek, Peter

Affiliations:

Princeton U. (10)
SLAC (2)
Stanford U., Phys. Dept. (3)

Frequent keywords:

anomaly (5)
analytic properties (5)
twistor (4)
scattering amplitude: higher-order (4)
string model (3)
gauge field theory: Yang-Mills (3)
compactification (3)
bibliography (3)
instanton (2)
gauge field theory: U(N) (2)

Frequent co-authors:

Cachazo, Freddy (5)
Witten, Edward (4)
Kachru, Shamit (2)
Diaconescu, Duiliu-Emanuel (1)
Florea, Bogdan (1)
McGreevy, John (1)

Papers:

All papers (13) (downloaded 0 times)
Conference (2)
Lectures (1)
Preprint (13)
Published (8)
Thesis (1)

Citations:

Citation summary results	All papers	Published only
Total number of papers analyzed:	12	8
Total number of citations:	646	525
Average citations per paper:	53.8	65.6
Breakdown of papers by citations:		
Renowned papers (500+)	0	0
Famous papers (250-499)	0	0
Very well-known papers (100-249)	2	2
Well-known papers (50-99)	2	1
Known papers (10-49)	4	3
Less known papers (1-9)	3	2
Unknown papers (0)	1	0

See also: similar author names
1 Svrcek, P.

Why publish more than articles?

- Increased reproducibility and reusability
- But reputation still based on journal articles
- Incentive needed to publish supplementary material

So make all scholarly objects

- visible
- independently searchable
- citable
- measurable

International Lattice Data Grid

- worldwide project to share lattice QCD configurations (Monte Carlo simulations) see e.g. http://www.usqcd.org/ildg
- Semantic data access to worldwide distributed data (~100 TB)
- Union of regional data grids (grid-of-grids)
  - Australia, France, Germany, Italy, Japan, UK, USA
  - founded in 2001, interoperable since Jul 07
- Metadata standards for describing configurations
- Standards on binary file formats
- standard interfaces

LATTICE QCD ARCHIVE

Center for Computational Sciences, University of Tsukuba

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  CP-PACS Collaboration: S. Aoki et al.,
  Phys. Rev. D65 (2002) 054505 [E: D67 (2003) 059901]

- If you use the CP-PACS/JLQCD 2+1 flavor full QCD configurations stored in this Archive, please **acknowledge** the CP-PACS/JLQCD Collaborations and **cite**
  CP-PACS/JLQCD Collaborations: T. Ishikawa, et al.,
  PoS (LAT2006) 181
  CP-PACS/JLQCD Collaborations: T. Ishikawa et al.,
  arXiv:0704.1937 [hep-lat]

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Title: Galaxy number counts - V. Ultradeep counts: the Herschel and Hubble Deep Fields

Authors: Metcalfe, N.; Shanks, T.; Campos, A.; McCracken, H. J.; Fong, R.

Affiliation: AA(Physics Department, University of Durham, South Road, Durham DH1 3LE), AB(Physics Department, University of Durham, South Road, Durham DH1 3LE), AC(Instituto de Matematicas y Fisica Fundamental, CSIC, Spain), AD(Physics Department, University of Durham, South Road, Durham DH1 3LE), AE(Physics Department, University of Durham, South Road, Durham DH1 3LE)

Publication: Monthly Notices of the Royal Astronomical Society, Volume 323, Issue 4, pp. 795-830. (MNRAS Homepage)

Publication Date: 05/2001

Origin: MNRAS

MNRAS Keywords: GALAXIES: EVOLUTION, GALAXIES: PHOTOMETRY, COSMOLOGY: OBSERVATIONS

Dataset References

Edit Query

Galaxy number counts - V. Ultradeep counts: the Herschel and Hubble Deep Fields --
Metcalfe, N., Shanks,T., Campos,A., McCracken,H.J., Fong,R., 2001MNRAS.323..795M

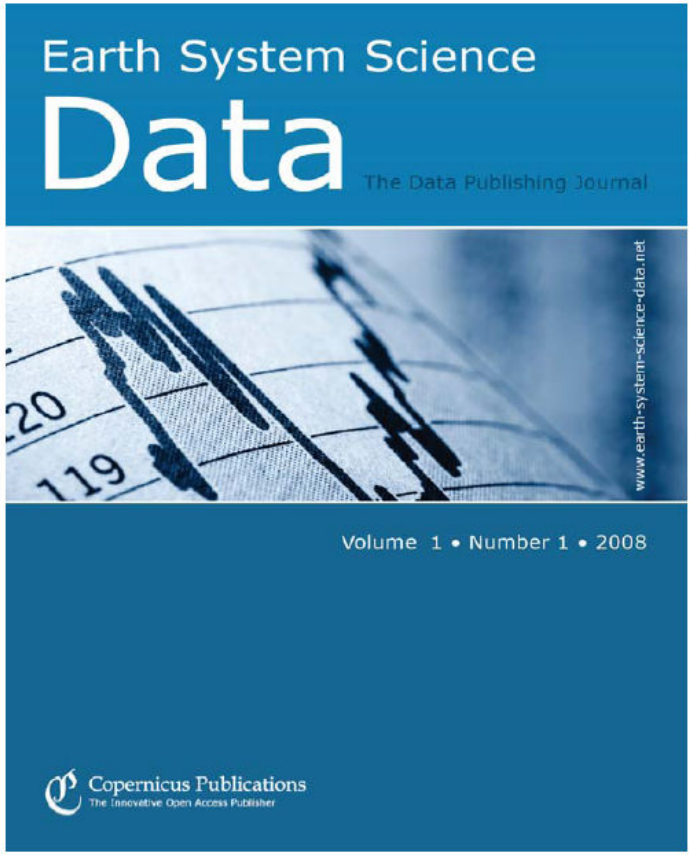
Click on mission names below to do an advanced search and retrieve all pertinent data sets.

HST (Proposal ID = 6337)

Plot marked spectra | Submit marked data for retrieval from STDADS

Mark all | Unmark all | Mark public | Unmark public | Mark proprietary | Unmark proprietary

Mark	Dataset	Target Name	RA (J2000)	Dec (J2000)	Ref	Start Time	Stop Time	Exp Time	Instrument	Apertures	Filters/Gratings	Proposal ID	Release Date	Prev Na
☐	U31P0103T	HDF-123649+621346	12 36 48.48	+62 13 02.3	161	1995-12-18 15:55:17	1995-12-18 16:30:17	2100.000	WFPC2	WFALL-FIX	F450W	6337	1996-01-15 16:15:00	U31P0
☐	U31P0104T	HDF-123649+621346	12 36 48.48	+62 13 02.3	161	1995-12-18 16:34:17	1995-12-18 16:52:37	1100.000	WFPC2	WFALL-FIX	F300W	6337	1996-01-15 16:15:00	U31P0
☐	U31P0105T	HDF-123649+621346	12 36 48.48	+62 13 02.3	161	1995-12-18 17:31:17	1995-12-18 18:16:17	2700.000	WFPC2	WFALL-FIX	F450W	6337	1996-01-15 16:15:00	U31P0
☐	U31P0106T	HDF-123649+621346	12 36 48.48	+62 13 02.3	161	1995-12-18 18:20:17	1995-12-18 18:30:17	600.000	WFPC2	WFALL-FIX	F300W	6337	1996-01-15 16:15:00	U31P0
☐	U31P0108T	HDF-123649+621346	12 36 48.48	+62 13 02.3	161	1995-12-18 19:07:17	1995-12-18 19:52:17	2700.000	WFPC2	WFALL-FIX	F450W	6337	1996-01-15 16:15:00	U31P0
☐	U31P0109T	HDF-123649+621346	12 36 48.48	+62 13 02.3	161	1995-12-18 19:56:17	1995-12-18 20:06:17	600.000	WFPC2	WFALL-FIX	F300W	6337	1996-01-15 16:15:00	U31P0
☐	U31P010BT	HDF-123649+621346	12 36 48.48	+62 13 02.3	161	1995-12-18 20:43:17	1995-12-18 21:28:17	2700.000	WFPC2	WFALL-FIX	F450W	6337	1996-01-15 16:15:00	U31P0
☐	U31P010DT	HDF-123649+621346	12 36 48.48	+62 13 02.3	161	1995-12-18 22:19:17	1995-12-18 23:04:17	2700.000	WFPC2	WFALL-FIX	F450W	6337	1996-01-15 16:15:00	U31P0
☐	U31P010KT	HDF-123649+621346	12 36 48.65	+62 13 02.3	161	1995-12-18 23:56:17	1995-12-19 00:41:17	2700.000	WFPC2	WFALL-FIX	F450W	6337	1996-01-15 16:15:00	U31P0
☐	U31P010MT	HDF-123649+621346	12 36 48.65	+62 13 02.3	161	1995-12-19 01:32:17	1995-12-19 02:17:17	2700.000	WFPC2	WFALL-FIX	F450W	6337	1996-01-15 16:15:00	U31P0



- Data publishing journal
- peer reviewed
- Open Access

- Independent “publication” of non-article scholarly objects
- Persistent identifiers
  - DOI’s?
- Citation standards
- Metrics
- Wider notion of aggregation

OAI-ORE

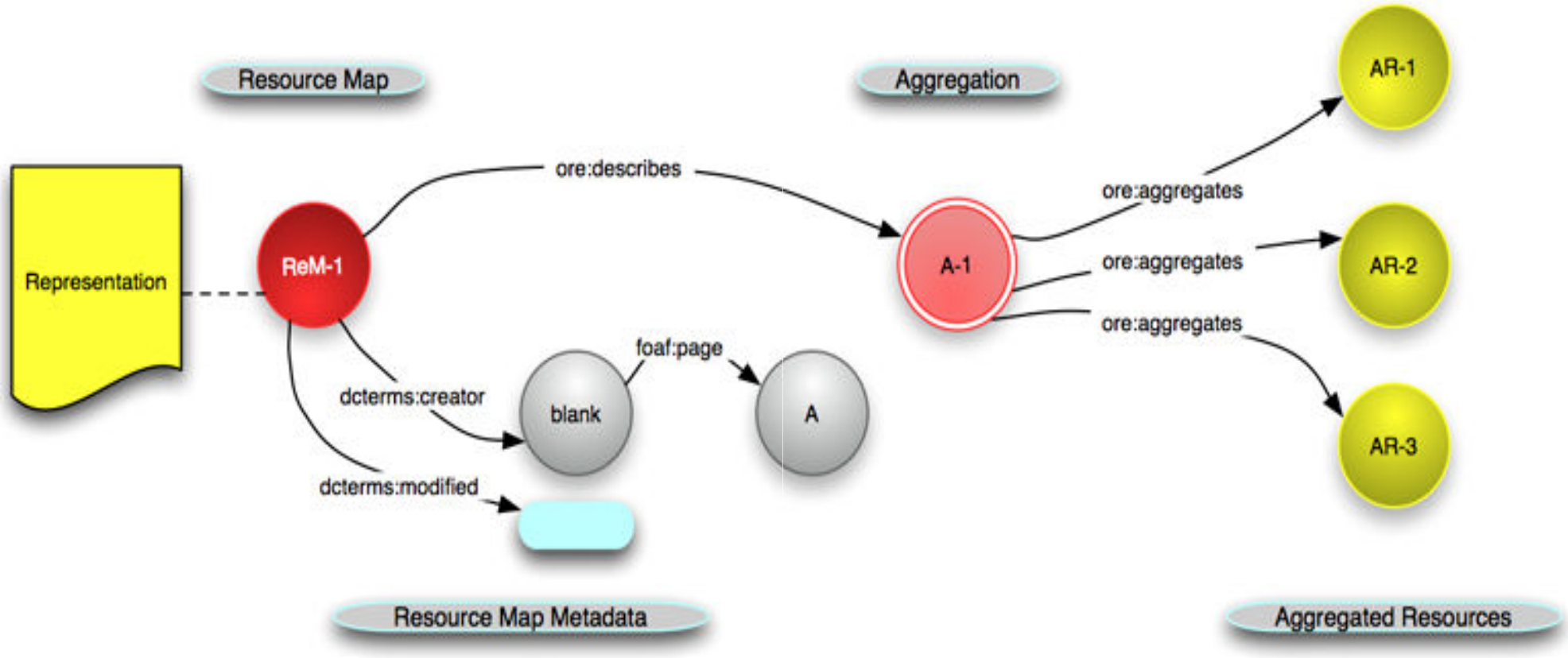
Open Archives Initiative Object Reuse and Exchange (OAI-ORE) defines standards for the description and exchange of aggregations of Web resources. These aggregations, sometimes called compound digital objects, may combine distributed resources with multiple media types including text, images, data, and video. The goal of these standards is to expose the rich content in these aggregations to applications that support authoring, deposit, exchange, visualization, reuse, and preservation.

http://www.openarchives.org/ore

OAI-ORE

- Resources identified by URIs
- Resource map defines ingredients of an aggregation and the relations between them
- Relationships expressed in semantically meaningful way as triples
  - Subject – predicate – object
- Understandable by robots

OAI-ORE Resource Map



Disambiguation

Which J. Ellis is this?

- unique author identification
  - using e.g. lab id's, affiliation history, research topics…
- unique association of papers with authors

  using info on affiliations, coauthors, from publishers and the community ("claim my paper")
- compatible with other author-id schemes

  e.g.Thomson-Reuter's ResearcherID

Semantic publishing

Scientific article as a machine-readable knowledge base:

…anything that enhances the meaning of a published journal article, facilitates its automated discovery, enables its linking to semantically related articles, provides access to data within the article in actionable form, or facilitates integration of data between papers (David Shotton)

Semantic publishing

- Machine-understandable semantic markup
- Embedded metadata
- links to external resources, web-based ontologies
- Actionable data, interactive figures
- Data fusion (mash-ups)
- Structured document summary
- …

respectively; PR 1.32, 95% CI 1.10–1.57) (Table 1). Similar associations with age and gender were observed when MAT titers of ≥1:50 and ≥1:100 were used to define subjects with *Leptospira* antibodies.

Table 1. Risk factors for *Leptospira* antibodies among subjects at the slum community site.

Raw Data for Table 1 (82KB XLS Spreadsheet)

doi:10.1371/journal.pntd.0000228.t001

Panels A and B in Figure 3 show smoothed spatial distributions of subjects with *Leptospira* antibodies and all subjects, respectively, according to place of residence. The population-adjusted distribution (Figure 3C) showed that risk of acquiring *Leptospira* antibodies clustered in areas occupied by squatters at the bottom of valleys (Figure 3D). Similar spatial distributions were observed in analyses that used higher titer values to define subjects with *Leptospira* antibodies (Figure S1).

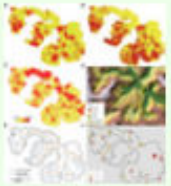


Figure 3. Spatial distribution of subjects with *Leptospira* antibodies and all enrolled subjects, according to place of residence, and environmental attributes of the community site.

Interactive version of Figure 3

View this location in Google Maps

Map showing overlay with leptospirosis incidence data in Salvador (data taken from [6]).

Panels A and *B* show the smoothed Kernel density distribution of subjects with *Leptospira* antibodies (N = 489) and all (N = 3,171) subjects, respectively, according to place of residence. The yellow-to-red gradient represents increasing density in smoothing analyses which used 40 meters as the bandwidth. Black circles show the location of subject households. *Panel C* shows the distribution of the population-adjusted Kernel density estimator for subjects with *Leptospira* antibodies which was calculated as the ratio of the estimators for subjects with *Leptospira* antibodies and all subjects. *Panel D* shows a topographic map generated by the digital terrain model. The yellow line is the level that is 20 meters above the

Example of a PLoS paper enhanced by D. Shotton et al.:
http://dx.doi.org/10.1371/journal.pntd.0000228.x001

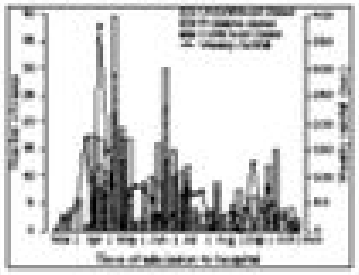
Citation in context

transmission [6],[10]. Urban epidemics of leptospirosis now occur in cities throughout the developing world during seasonal heavy rainfall and flooding [6],[11]–[18]. There is scarce data on the burden of

[6] Albert I Ko et al. (1999). Urban epidemic of severe leptospirosis in Brazil *Lancet* **354**: 820–825.

Supporting claims:

- **Results:** *"..Severe flooding occurred during the heaviest period of rainfall between April 21 and April 27. The largest number of cases per week (39) was reported 2 weeks after this event...."*
- **Results:** *"Figure 2. Weekly cases of leptospirosis and rainfall in Salvador, Brazil, between March 10, and Nov 2, 1996"*



Structured Digital Abstract

Molecular **INT**eraction database **MINT**

- Short papers on protein-protein interactions
- SDA complement to the regular journal article abstract
- XML-encoded summary
  - Names of interacting proteins, unique identifiers, links to MINT and Uniprot
  - Types of protein-protein interaction involved
  - Vocabulary from the Molecular Interaction ontology

MINT | Home | Search | Curation | Statistics | Download | Contacts/Links/Linking

Interaction: **MINT-7260047**

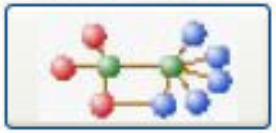
back

This interaction is supported by **figure 4**
interaction type: **physical association**
Detection method: **pull down**
interaction detected in vitro

Evidences of interaction between:

Transforming protein RhoA precursor (Rhoa)
(Rattus norvegicus)
Rhotekin (RTKN)
(Homo sapiens)

2 partners:



	1 bait	1 prey
	Rhotekin-RBD *(author)*	**Rhoa** *(author)*
	Stoichiometry: 0.0	Stoichiometry: 0.0
	Rhotekin RTKN Homo sapiens	Transforming protein RhoA precursor Rhoa Rattus norvegicus
Sample	purified	cell lysate
Expression		endogenous level
Identification	predetermined participant	polyclonal antibody western blot
Tag	gst tagged	
Binding site	**binding site:** (IPR011072), 7-89	

This interaction is curated from:
Inhibition of farnesylpyrophosphate synthase prevents angiotensin II-induced hypertrophic responses in rat neonatal cardiomyocytes: involvement of the RhoA/Rho kinase pathway.
Ye Y. et al. FEBS Lett. (0014-5793)
pubmed:19716825

Structured digital abstract (SDA):
in this publication the authors describe the following interactions:

MINT-7260047:
Rhotekin-RBD *physically interacts* with **Rhoa** by *pull down*

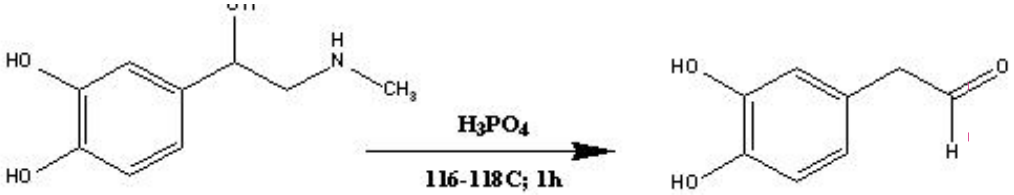
Publishing the process

Open Notebook Science

is the practice of making the entire primary record of a research project publicly available online as it is recorded. This involves placing the personal, or laboratory, notebook of the researcher online along with all raw and processed data, and any associated material, as this material is generated.

(Wikipedia)

UsefulChem, OpenWetWare, …



Example from UsefulChem

Objective

To convert adrenaline to DOPAL by acid catalysis

Procedure

A solution of adrenaline (1.0g 5.5mmoles) in 85% phosphoric acid was heated (116-118C) in a round bottom flask (for 1hour) in a heating mantle then removed from heat and allowed to cool . The solution was stirred for 90 min in distilled water and then saturated with NaCl. It was taken up in ethyl ether, and dried over anhydrous MgSO4.The ether extract was then evaporated to obtain DOPAL (80 mg 0.53mmol, 9.5% yield)

Characterization:

Results

1. TLC of 25A in 3:1 MeCl2:MeOH and in 6:1 MeCl2/ MeOH, and stained with CAM
2. HNMR of 25A in acetone-d6, and the expansions of the prominent peak regions (one, three, four, five) (500MHz Varian inova). The integration is good enough to not require further purification.

Discussion

This is the first time that DOPAL was obtained pure (by NMR integration) immediately after extraction into ether. There are 3 factors that may have contributed to this: preheating the phosphoric acid then adding the adrenaline powder, carrying out the reaction under nitrogen and a careful temperature control. It is likely that the main impurity showing up in the H NMR spectra of previous attempts (EXP016, EXP023) is the carboxylic acid (Exp016HNMR, Exp023HNMR), the formation of which the inert atmosphere should have prevented.

Conclusion

DOPAL can be obtained pure in 9.5% yield by heating adrenaline in 85% phosporic acid at 116-118 C for an hour followed by hydrolysis and extraction into ether.

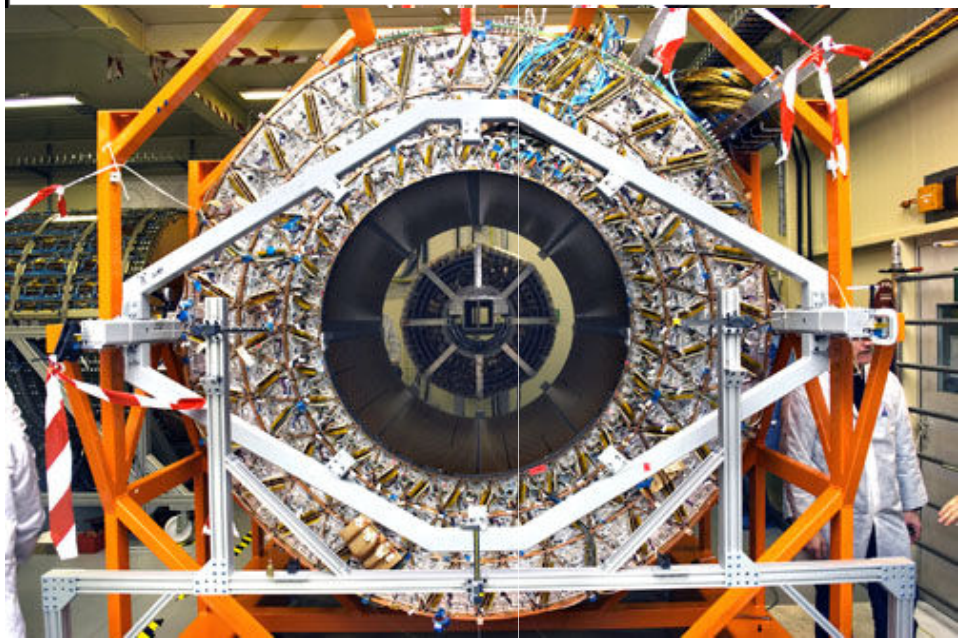
US/LHC BLOGS

Particle Physics at Discovery's Horizon

Another brick in the wall!

Posted by Vivek Jain on 19 Aug 2009 at 03:21 pm | Tagged as: Uncategorized

I thought I'd give you a sense of what it takes to put together a detector like ATLAS, e.g., how much time, how many people, etc. For an overview of the ATLAS detector, please look at the ATLAS webpage and Monica's post. Since ATLAS is huge, I will focus on just one sub-system, the Barrel Transition Radiation Tracker (TRT), which was built in the US. Its main purpose is to provide hits so that we can map the trajectory of charged particles and improve the measurement of their momentum (see Seth's post on tracking). It can also discriminate between electrons and pions.



Structuring knowledge

- Standardized metadata
  - descriptive
  - administrative
  - structural
- Integrated landscape of metadata
- Ontologies
  - formalized representation of the knowledge of the domain

Organizing knowledge on HEP

(Poly)hierarchical organization (taxonomy) of all important

- HEP terms (dynamical symmetry breaking)

providing

- synonyms (dynamically broken)
- related terms (spontaneous symmetry breaking)
- broader/narrower (symmetry breaking)
- definitions
- subject areas (high-energy physics – theory)

applicable to all material

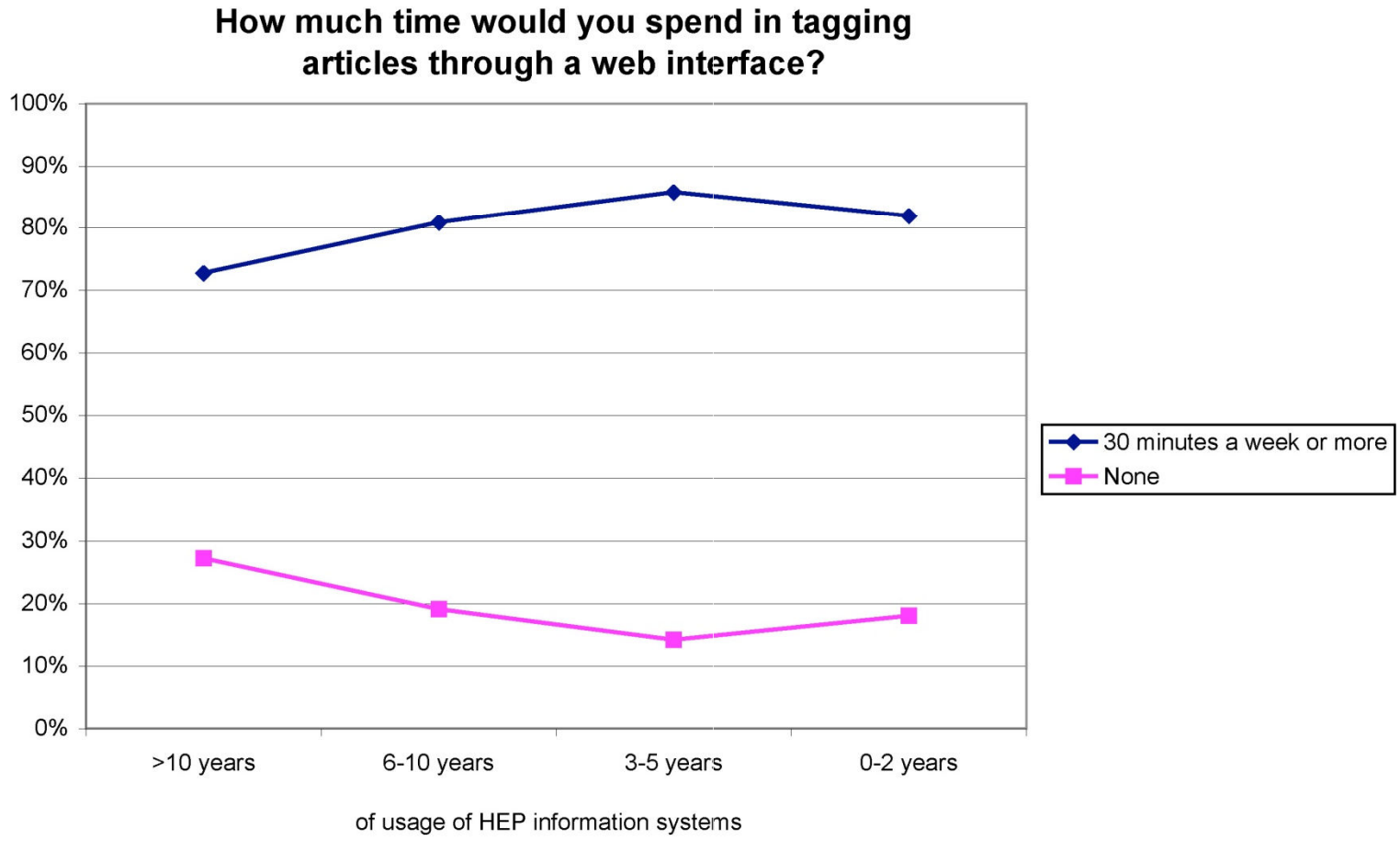
Taxonomy applications in Inspire

- keywords included in metadata of all material
- automatic selection of HEP relevant material
  - selective harvesting
  - no longer time delay in border areas due to manual selection
- fast automatic generation of keywords
  - enabling e.g. timely alerts/feeds
- improved search algorithm (planned)
  - A search for „SUSY“ will also find „supersymmetry“
  - narrow/broaden search
- user tagging (planned)
  - Combine controlled vocabulary with folksonomy

The most important resource…

… is our community

- New material (drop box)
- Comments, reviews, ranking, blogs…
- Aggregation
- Corrections
- Classification, subject tagging


How much time would you spend in tagging articles through a web interface?
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
>10 years
6-10 years
3-5 years
0-2 years
30 minutes a week or more
None
of usage of HEP information systems

philpapers BETA

- Comprehensive directory of philosophy articles
  - ~200k records
  - From journals, archives, personal pages
- Community involvement
  - User submission
  - Discussion forum
  - Taxonomy-based categorization

philpapers BETA

Online research in philosophy
Entries: 192,429 New this week: 168

General search | Category finder
Search
advanced search | help | use + and * as usual.

Home | New items | Browse by area | Browse journals | Forums | My profile | Submit material | Help

Apply to be editor of this category.

Philosophy of Physical Science

In this area

Search inside: go

Subcategories

Complex Systems (272 / 33)
- Artificial Life* (33)
- Chaos (1)
- Complexity (0)
- Emergence* (151)
- Nonlinear Dynamics (6)
- Systems Theory (48)
- Complex Systems, Misc (0)

Philosophy of Chemistry (241 / 188)
- Bonding (0)
- Chemical Explanation (1)
- Chemical Laws (0)
- Chemical Substance (0)
- Chemical Supervenience (0)

Also in this area

Entries to categorize (149)

Most recently added items

People

Contributed bibliographies:
There are currently no bibliographies in this area.

Most recent discussion threads:
No threads found (Go to forum)

Forum subscribers: 400

C. C. Allen (1933). **Is the Theory of Relativity Sound?** *Australasian Journal of Philosophy* 11 (4):293 – 299.

Categorize me:
what is this?

Complex Systems
- Artificial Life
- Chaos
- Complexity
- Emergence
- Nonlinear Dynamics
- Systems Theory
- Complex Systems, Misc

Phil of Chemistry
- Bonding
- Chemical Explanation
- Chemical Laws
- Chemical Substance
- Chemical Supervenience
- Chemical Synthesis
- Elements
- Molecular Structure
- Organic Chemistry
- Periodic Table
- Quantum Chemistry
- Realism in Chemistry
- Reduction in Chemistry
- Thermodynamics and Statistical Mechanics
- Phil of Chemistry, Misc

Phil of Cosmology
- The Early Universe
- Design and Observership
- Phil of Cosmology, Miscellaneous

Phil of Earth Sciences

Phil of Physics, Miscellaneous
- Astrophysics
- Atomic and Molecular Physics
- Biophysics
- Condensed Matter Physics
- Classical Mechanics
- Electromagnetism
- Gauge Theories
- Matter
- Particle Physics

Phil of Physical Science, Misc

To read | Discuss | Edit | Categorize | Remove from this list | File under.. | Export | Scholar | More..

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  - Working papers, articles, books, software
  - Author pages
  - Institutional listings
- Collaborative effort of hundreds of volunteers, no paid staff
- Input from departments, institutional archives and publishers
  - No direct user submission
- Author registration (>20.000)
  - Unique author id, profile with bibliographic data (~1/2 of database claimed)
  - Statistics on downloads and abstract views

RePEc ranking

- Impact factor
  - Simple, age discount, recursive
- Ranking of works
  - Number of citations, weighted by age, by impact factor
- Ranking of authors
  - Number of works, weighted by number of authors or various impact factors
  - Citation counts, weighted by number of authors, various impact factors, h-index etc
  - Popularity (abstract views, downloads)
  - Various aggregations of criteria
- Ranking of institutions
- Ranking of geographic regions
- …

RePEc University of Connecticut Department of Economics IDEAS

Top 5% Authors, as of August 2009

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Average Rank Score

The average rank score is determined by taking a harmonic mean of the ranks in each method, except the first one (number of works), the best and the worst rank. Click on the column heads to find definitions and rankings for each method.
This ranking is based on 21152 registered authors. Customize this ranking. Same ranking by economic institutions or countries and states.

Rank	Author	Score	Nb Works	DNb Works	Sc Works	WSc Works	ANb Works	ASc Works	AWSc Works	Nb Cites	D Cites	Sc Cites	DSc Cites	WSc Cites	WDSc Cites	ANb Cites	AD Cites	ASc Cites	ADSc Cites
1	Andrei Shleifer	3.27	25	68	2	7	123	25	29	1	1	1	1	1	1	6	4	5	4
2	Joseph E. Stiglitz	3.51	5	3	3	5	5	2	7	4	5	7	10	7	11	4	5	6	7
3	Robert J. Barro	3.86	70	86	22	27	27	12	16	2	3	2	4	2	4	1	1	2	2
4	James J. Heckman	4.3	12	17	5	8	25	13	21	3	2	4	2	5	3	3	3	3	3
5	Robert E. Lucas Jr.	6	898	592	268	315	348	149	206	5	10	3	5	3	5	2	2	1	1
6	Peter C. B. Phillips	8.37	2	4	4	2	4	3	2	37	41	75	82	127	100	33	40	69	74
7	Martin S. Feldstein	10.13	7	6	1	1	3	1	1	77	148	42	95	21	94	47	94	24	63

Done

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