The High Energy Physics information platform: Introduction

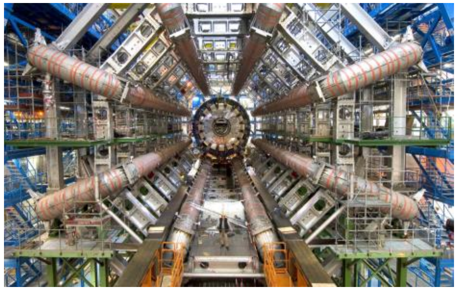
Annette Holtkamp

CERN

CERN-UNESCO School on Digital Libraries, Kumasi, Nov 2016

The HEP community

- Close-knit community
- ~30,000 active HEP researchers
- 50% experimentalists
- 50% theorists
- very international (even small author groups)
- ~40,000 papers/year
- Long Open Access tradition
- Community based information services
  - arXiv, INSPIRE



INSPIRE overview

- Comprehensive HEP information platform
  - conceived in 2007
  - In production since 2012
  - Invenio
- Evolution of SPIRES (1974-2012)
  - high data quality, manually curated
  - comprehensive coverage
  - high acceptance, user involvement
- run by

CERN DESY Institute of High Energy Physics Chinese Academy of Sciences Fermilab SLAC

http://inspirehep.net

https://inspirehep.net (Invenio 1)

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HEP Search

High-Energy Physics Literature Database

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

Brief format | Search | Easy Search | Advanced Search

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

How to Search

SPIRES syntax is (mostly) supported (requires "find")

- find a richter, b and t quark and date > 1984
- find j phys.rev.,D50,1140 or j jhep,0903,112
- find eprint arxiv:1007.5048 (Note the plots available on the detailed record)
- find fulltext "quark-gluon plasma" (Note new "fulltext" operator)
- find a ellis and refersto a witten (Note "refersto")
- find a kane and citedby title SUSY and topcite 200+ (Note "citedby")

New techniques:

- 1985 richter quark multiplicity
- arXiv:1007.5048
- citedby:author:ellis -refersto:author:witten
- author:randall | author:sundrum cited:450->1350

Additional Help:

- More search tips and full help

INSPIRE Updates

See our blog at blog.inspirehep.net for updates on new features and other news. You can also follow us at @inspirehep on twitter. To send us feedback use feedback@inspirehep.net. The data in INSPIRE is updated daily. To request corrections to data in INSPIRE, write us at help@inspirehep.net. INSPIRE superseded SPIRES in 2012.

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Resources

- ADS
- arXiv
- HepData
- INIS
- PDG
- PDG review of online resources

INSPIRE News

2014-07-25 Last day for our developers at @europython today where they gather input on how to make INSPIRE even better for you. #ep14 #europython

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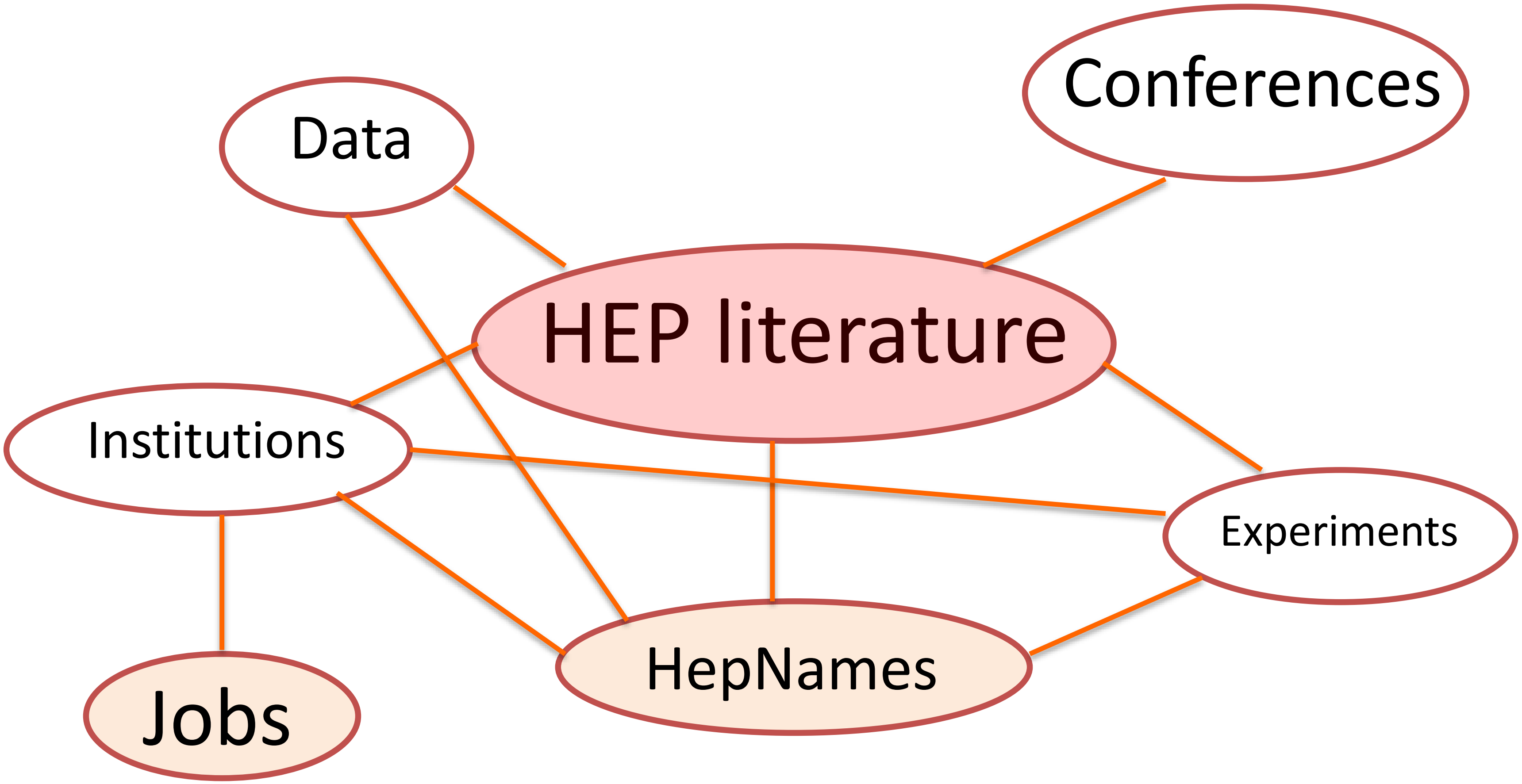
INSPIRE content

Network of collections



HEP literature

literature collection

1,2 million records (Nov 2016)

- Preprints
- journal articles
- conference papers
- books + proceedings
- theses

Metadata enrichment

- Affiliations, keywords, conference + publication info, experiments …

1 search/second

Fulltext repository

- >50% of HEP collection with fulltext
- All OA material
  - arXiv, theses, preprints, OA journal articles
  - esp “endangered” material (conf procs)
- Access restricted articles
  - hidden archive of journal articles
  - searchable
- Historical material – scanning
  - important preprint/conference series
  - a few journals

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Sort by: earliest date | desc. | - or rank by -

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   Bianca Dittrich (Perimeter Inst. Theor. Phys.), Philipp A. Hoehn (Vienna U.), Tim A. Koslowski (Mexico U., ICN), Mike I. Nelson (Ghana U.). Feb 9, 2016. 7 pp.
   e-Print: **arXiv:1602.03237 [gr-qc] | PDF**
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ATLAS Virtual Visits Team and CMS Virtual Visits Team Collaborations (Marzena Lapka (CERN) *et al.*) Show all 10 authors

2015 - 9 pages

PoS EPS-HEP2015 (2015) 349
SISSA (2015-11-03)
Conference: C15-07-22
Proceedings
Experiment: CERN-LHC-ATLAS

Abstract
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Keyword(s): INSPIRE: talk: Vienna 2015/07/22 | particle physics | communications | lectures | CERN Lab | ATLAS | CMS

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CERN-LHC-ATLAS (CERN)
{ATLAS}

(Proposed: 1992-10-01, Approved: 1996-01-31, Started: 2009-11-23, Still Running)

Spokesperson: Charlton, David G.; Gianotti, Fabiola
URL: http://cern.ch/atlas; https://twitter.com/ATLASexperiment; https://en.wikipedia.org/wiki/ATLAS_experiment

ATLAS is a particle physics experiment at the Large Hadron Collider at CERN. The ATLAS detector is searching for new discoveries in the head-on collisions of protons of extraordinarily high energy. ATLAS will learn about the basic forces that have shaped our Universe since the beginning of time and that will determine its fate. Among the possible unknowns are the origin of mass, extra dimensions of space, unification of fundamental forces, and evidence for dark matter candidates in the Universe. The 3000 physicists in ATLAS come from more than 174 universities and laboratories and include 1000 students.

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Predictions for the Rates of Compact Binary Coalescences Observable by Ground-based Gravitational-wave Detectors

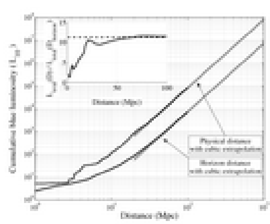
LIGO Scientific and VIRGO Collaborations (J. Abadie *et al.*) *Show all 710 authors*

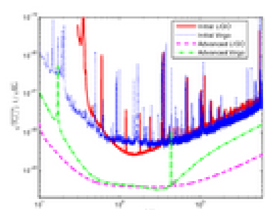
Mar 2010

Class.Quant.Grav. 27 (2010) 173001
DOI: 10.1088/0264-9381/27/17/173001
e-Print: arXiv:1003.2480 [astro-ph.HE] | PDF

Abstract (arXiv)
We present an up-to-date, comprehensive summary of the rates for all types of compact binary coalescence sources detectable by the Initial and Advanced versions of the ground-based gravitational-wave detectors LIGO and Virgo. Astrophysical estimates for compact-binary coalescence rates depend on a number of assumptions and unknown model parameters, and are still uncertain. The most confident among these estimates are the rate predictions for coalescing binary neutron stars which are based on extrapolations from observed binary pulsars in our Galaxy. These yield a likely coalescence rate of 100 per Myr per Milky Way Equivalent Galaxy (MWEG), although the rate could plausibly range from 1 per Myr per MWEG to 1000 per Myr per MWEG. We convert coalescence rates into detection rates based on data from the LIGO S5 and Virgo VSR2 science runs and projected sensitivities for our Advanced detectors. Using the detector sensitivities derived from these data, we find a likely detection rate of 0.02 per year for Initial LIGO-Virgo interferometers, with a plausible range between 0.0002 and 0.2 per year. The likely binary neutron-star detection rate for the Advanced LIGO-Virgo network increases to 40 events per year, with a range between 0.4 and 400 per year.

Keyword(s): INSPIRE: binary: coalescence | neutron star: binary | pulsar: binary | gravitational radiation detector | detector: sensitivity | galaxy | VIRGO | LIGO | interferometer: network | noise | black hole: binary | numerical calculations





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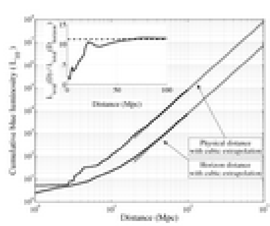
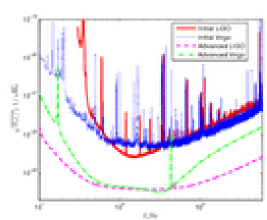
Keyword(s): INSPIRE: binary: coalescence | neutron star: binary | pulsar: binary | gravitational radiation detector | detector: sensitivity | galaxy | VIRGO | LIGO | interferometer: network | noise | black hole: binary | numerical calculations





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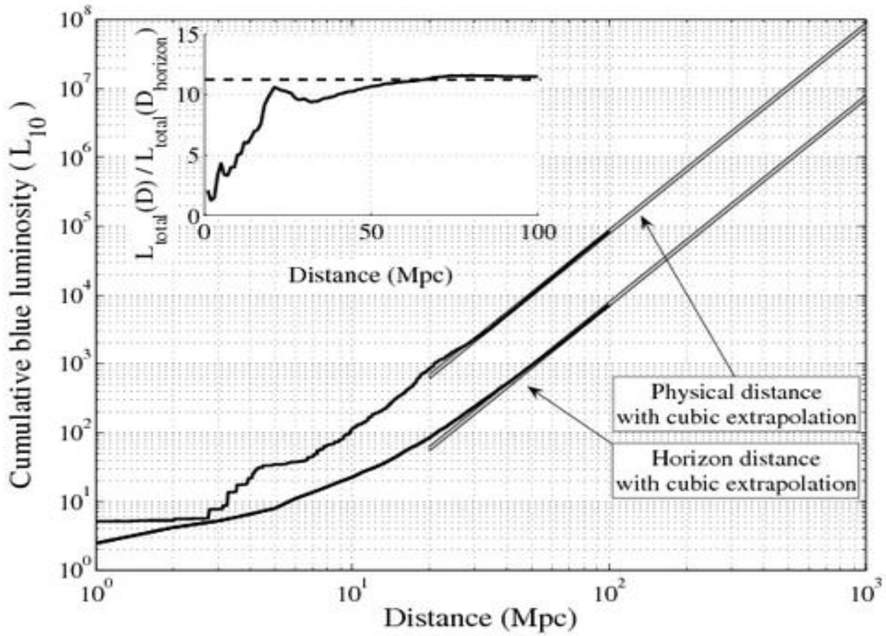

The total blue-light luminosity within a sphere of a given radius (top curve) and the accessible blue-light luminosity for a given horizon distance $D_{\rm horizon}$, taking location and orientation averaging into account (bottom curve). Gray shaded lines are cubic extrapolations. The inset shows the ratio between the top and bottom curves, which asymptotes to 2.26^3 , as discussed in the text. Reproduced from \cite{LIGOS3S4Galaxies} by permission of the AAS.

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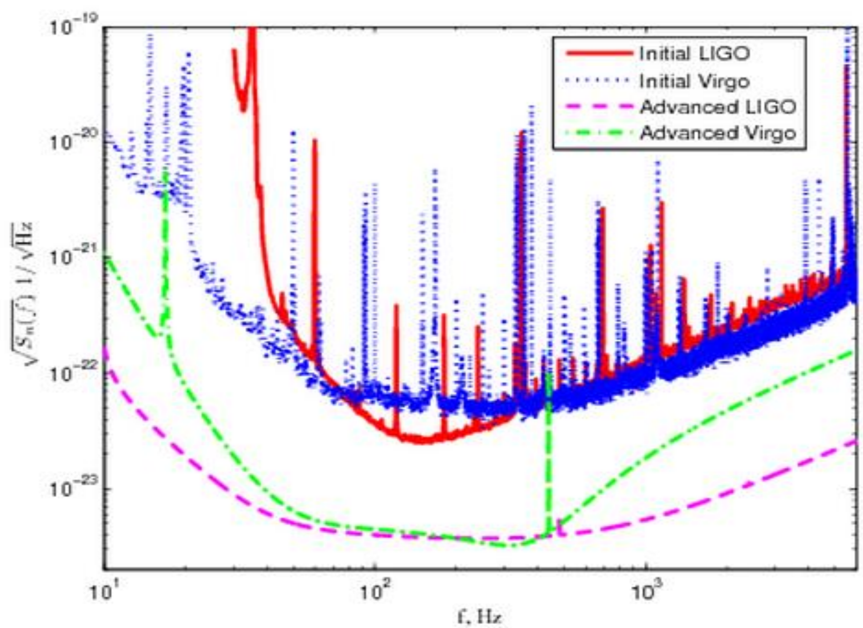

Noise amplitude spectral densities (ASDs) as a function of frequency. The Initial LIGO noise ASD (solid red curve) corresponds to the typical detector sensitivity as measured from data taken during the S5 run \cite{PSD:S5}. The Advanced LIGO noise ASD (dashed magenta) represents a possible Advanced LIGO configuration with high laser power and zero detuning \cite{PSD:AL}. The Initial Virgo noise ASD (dotted blue) was measured during Virgo's VSR2 run \cite{PSD:VSR2}. The Advanced Virgo noise ASD (dash-dotted green) is based on the Advanced Virgo Baseline Design \cite{PSD:AV}.

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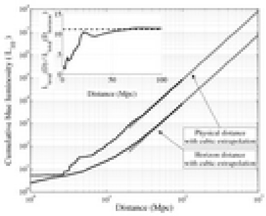

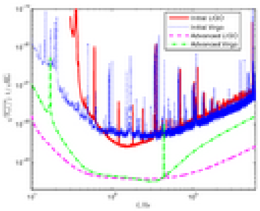

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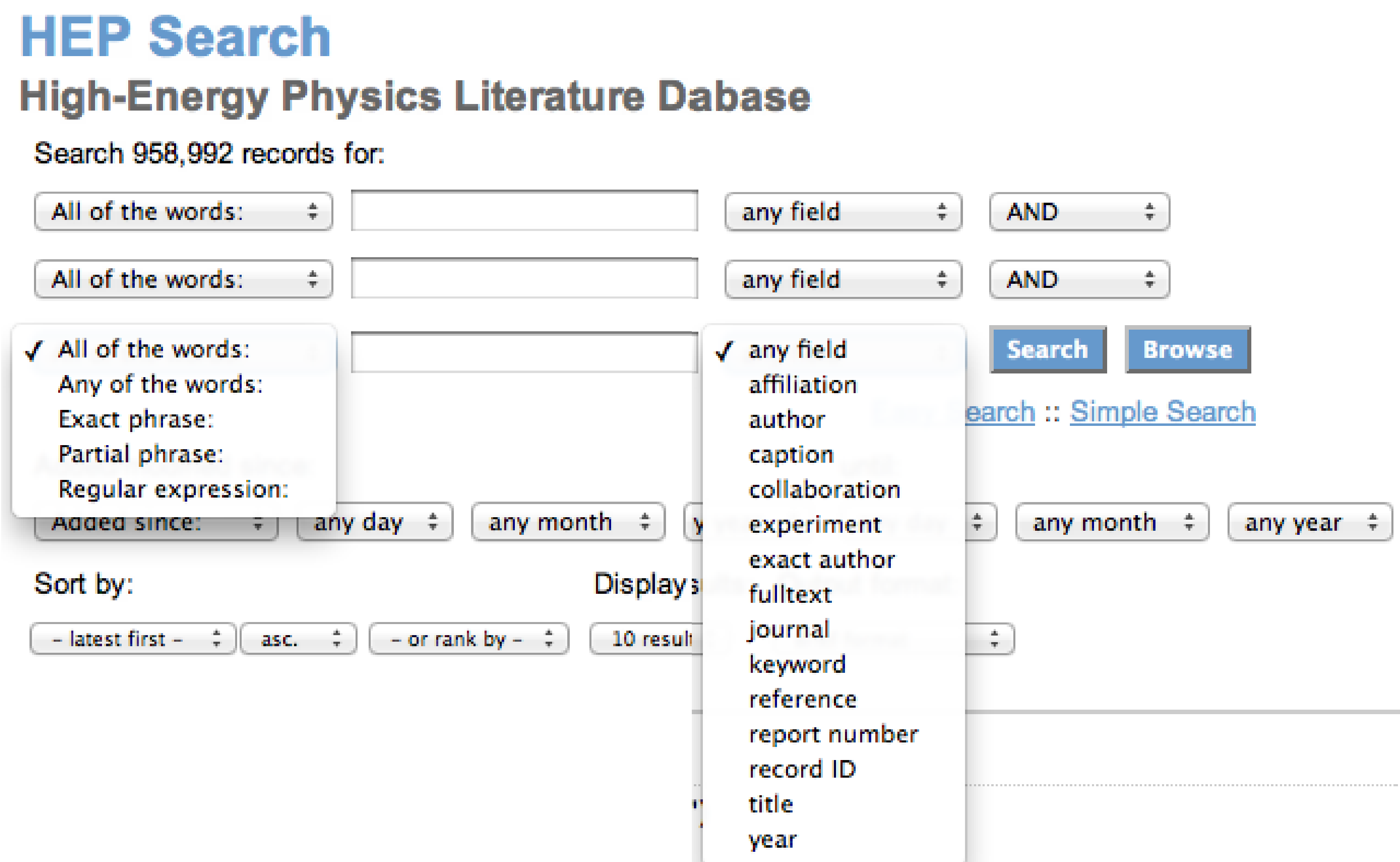

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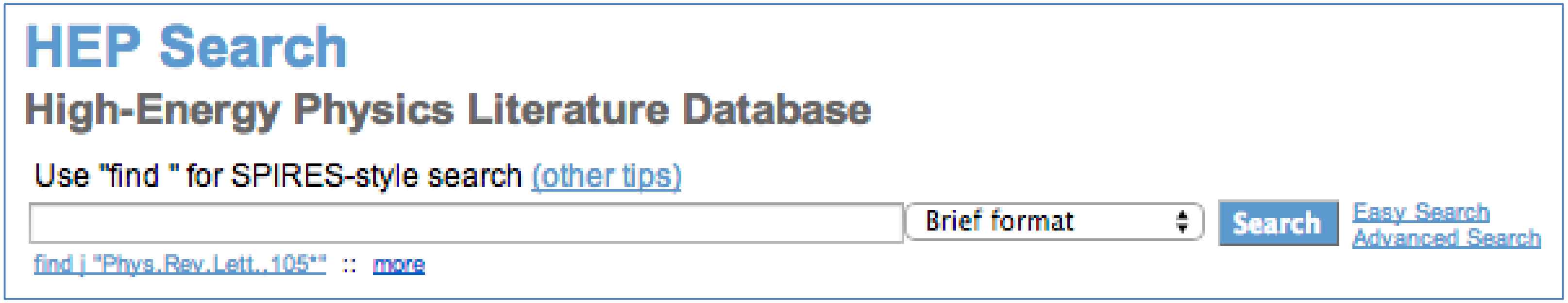

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The Large N limit of superconformal field theories and supergravity

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Abstract
We show that the large N limit of certain conformal field theories in various dimensions include in their Hilbert space a sector describing supergravity on the product of Anti-deSitter spacetimes, spheres and other compact manifolds. This is shown by taking some branes in the full M/string theory and then taking a low energy limit where the field theory on the brane decouples from the bulk. We observe that, in this limit, we can still trust the near horizon geometry for large N. The enhanced supersymmetries of the near horizon geometry correspond to the extra supersymmetry generators present in the superconformal group (as opposed to just the super-Poincare group). The 't Hooft limit of 4-d $\mathcal{N} = 4$ super-Yang-Mills at the conformal point is shown to contain strings: they are IIB strings. We conjecture that compactifications of M/string theory on various Anti-deSitter spacetimes are dual to various conformal field theories. This leads to a new proposal for a definition of M-theory which could be extended to include five non-compact dimensions.

Note: Reprinted in *Duff, M.J. (ed.): The world in eleven dimensions* 492-513

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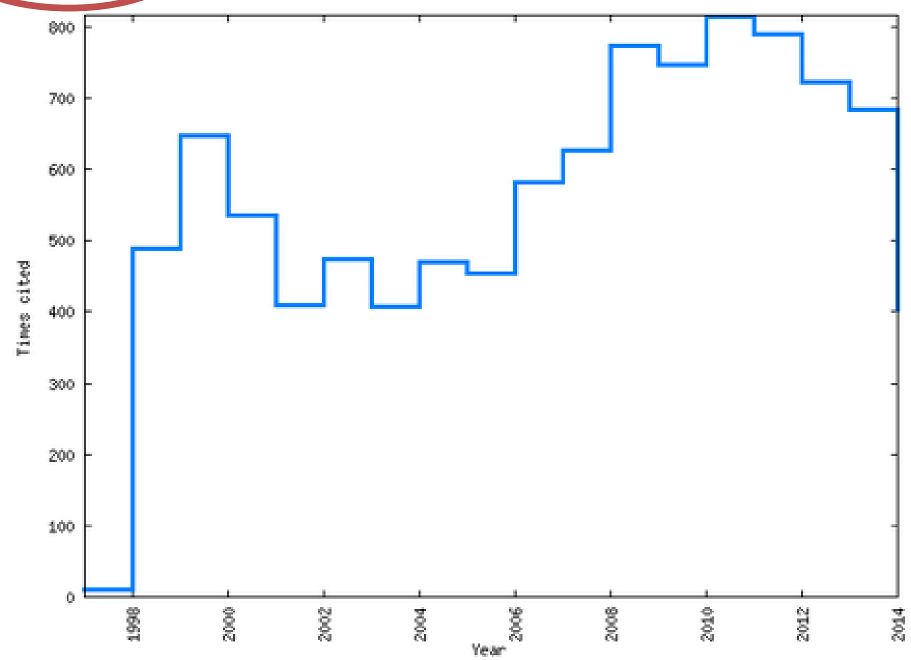

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153 papers found, 139 of them citeable (published or arXiv)

Citation summary results	Citeable papers	Published only
Total number of papers analyzed:	139	112
Total number of citations:	39,414	37,504
Average citations per paper:	283.6	334.9
Breakdown of papers by citations:		
Renowned papers (500+)	14	14
Famous papers (250-499)	14	13
Very well-known papers (100-249)	44	36
Well-known papers (50-99)	28	25
Known papers (10-49)	25	17
Less known papers (1-9)	11	5
Unknown papers (0)	3	2
h_{HEP} index [?]	83	76

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Citesummary: any search

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

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Display results: 25 results | single list

Citations summary

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56586 papers found, 37428 of them citeable (published or arXiv)

Citation summary results	Citeable papers	Published only
Total number of papers analyzed:	37,428	25,580
Total number of citations:	1,532,657	1,446,893
Average citations per paper:	40.9	56.6
Breakdown of papers by citations:		
Renowned papers (500+)	323	308
Famous papers (250-499)	662	629
Very well-known papers (100-249)	2,385	2,291
Well-known papers (50-99)	3,685	3,539
Known papers (10-49)	10,869	9,777
Less known papers (1-9)	11,762	6,926
Unknown papers (0)	7,742	2,110
h_{HEP} index [?]	425	416

Author profiles

Who's who?

The INSPIRE search for

Y Wang

returns 3346 papers of at least 44 different authors

How to find the papers of Yan Wang?

Author disambiguation

Goal:

Unambiguously associate papers with their authors

regardless of name variations

Method:

Algorithm based on metadata in Inspire

coauthors, affiliation, collaboration…

that clusters papers probably written by the same author

→ **Author Profile Pages**

Information | References (11) | Citations (74) | Files | Plots

Status of the GEO600 detector

H. Lück, M. Hewitson, Parameswaran Ajith, Bruce Allen, P. Aufmuth, C. Aulbert, S. Babak, R. Balasubramanian, B.W. Barr, S. Berukoff *et al.*
Show all 100 authors

2006 - 8 pages

Class.Quant.Grav. 23 (2006) S71-S78
DOI: 10.1088/0264-9381/23/8/S10
Prepared for Conference: C05-06-20.8
Proceedings

Abstract
Of all the large interferometric gravitational-wave detectors, the German/British project GEO600 is the only one which uses dual recycling. During the four weeks of the international S4 data-taking run it reached an instrumental duty cycle of 97% with a peak sensitivity of 7 × 10−22 Hz−1/2 at 1 kHz. This paper describes the status during S4 and improvements thereafter.

PACS: 95.55.Ym | 04.80.Nn

Record added 2006-05-02, last modified 2015-06-08

Allen, Bruce

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2015-05-29 17:38:03

PERSONAL INFORMATION

Personal Details (HepNames)

Name	Bruce Allen
Current Institution	Hannover, Max Planck Inst. Grav.
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Experiments	LIGO
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Period	Rank	Institution
1976 – 1980	UG	MIT
1980 – 1984	PHD	Cambridge U.
1983 – 1985	PD	UC, Santa Barbara
1985 – 1986	PD	Tufts U.
1986 – 1987	PD	Meudon Observ.
1987 – 1989	PD	Tufts U.
1989	SENIOR	Wisconsin U., Milwaukee
2007	SENIOR	Hannover, Max Planck Inst. Grav.

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PUBLICATIONS AND OUTPUT

Publications | Datasets | External

1. Timing of five millisecond pulsars discovered in the PALFA survey
2. Directed search for gravitational waves from Scorpius X-1 with initial LIGO data
3. Narrow-band search of continuous gravitational-wave signals from Crab and Vela pulsars in Virgo VSR4 data
4. Searching for stochastic gravitational waves using data from the two colocated LIGO Hanford detectors
5. Multimessenger search for sources of gravitational waves and high-energy neutrinos: Initial results for LIGO-Virgo and IceCube
6. Improved Upper Limits on the Stochastic Gravitational-Wave Background from 2009–2010 LIGO and Virgo Data
7. Arecibo Pulsar Survey Using ALFA. III. Precursor Survey and Population Synthesis
8. First all-sky search for continuous gravitational waves from unknown sources in binary systems
9. Methods and results of a search for gravitational waves associated with gamma-ray bursts using the GEO600, LIGO, and Virgo detectors
10. Fast Radio Burst Discovered in the Arecibo Pulsar ALFA Survey

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Co-Authors

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A.C.Ottewill.1 (13)
E.P.S.Shellard.1 (13)
A.G.Lyne.1 (12)
F.Camilo.1 (12)
I.H.Stairs.1 (12)
J.W.T.Hessels.1 (12)
M.A.Papa.1 (12)
more

Papers

	All papers	Single authored
All papers	206	18
Book	0	0
ConferencePaper	27	3
Introductory	0	0
Lectures	2	2
Published	186	13
Review	2	1
Thesis	0	0
Proceedings	0	0

Subject Categories

Gravitation and Cosmology (129)
Astrophysics (90)
Instrumentation (30)
Theory-HEP (17)
General Physics (4)
Math and Math Physics (1)

Frequent Keywords

LIGO (83)
experimental results (45)
gravitational radiation (38)
data analysis method (32)
VIRGO (31)
numerical calculations (29)
astrophysics: string (24)
gravitational radiation: burst (19)
gravitational radiation: emission (19)
signal processing (18)
more

Collaborations

LIGO Scientific (84)
VIRGO (43)
LIGO (12)
TAMA (2)
ALLEGRO (1)
AURIGA (1)

STATS

Citations Summary

206 papers found, 198 of them citeable (published or arXiv)

	Citeable papers	Published only
Number of papers analyzed:	198	186
Number of citations:	11133	10693
Citations per paper (average):	56.2	57.5
h$_{HEP}$ index [?]	62	62

Breakdown of papers by citations:

	Citeable papers	Published only
Renowned papers (500+)	1	1
Famous papers (250-499)	3	3
Very well-known papers (100-249)	28	26
Well-known papers (50-99)	41	41
Known papers (10-49)	89	82
Less known papers (1-9)	33	31
Unknown papers (0)	3	2

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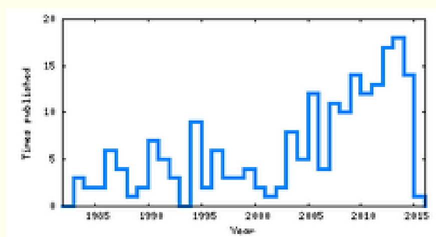
Warning: The citations count should be interpreted with great care. Read the fine print

Publication Graph



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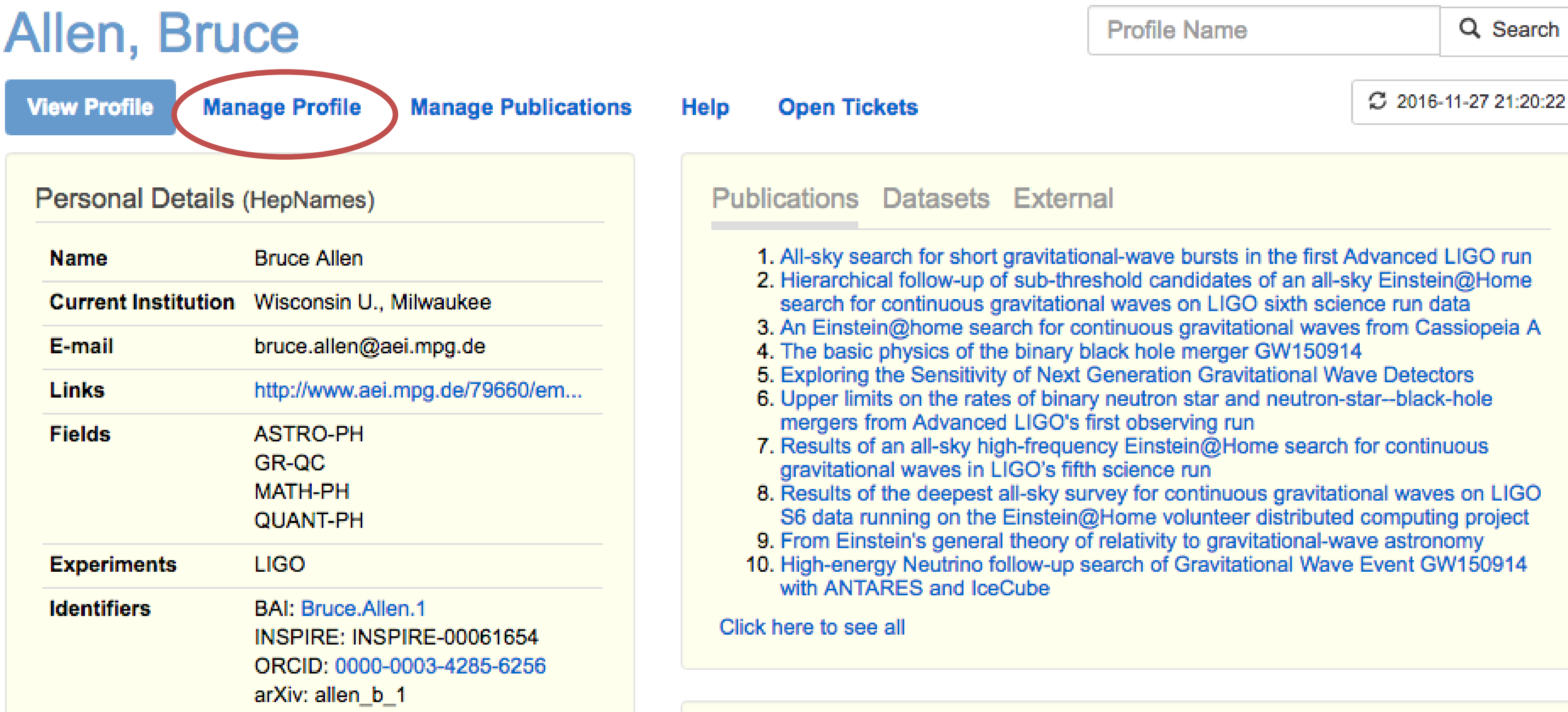

e.g. update affiliation history

Crowdsourcing: manage publications

Allen, Bruce

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2016-11-27 21:20:22

Personal Details (HepNames)

Name	Bruce Allen
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Experiments	LIGO
Identifiers	BAI: Bruce.Allen.1 INSPIRE: INSPIRE-00061654 ORCID: 0000-0003-4285-6256 arXiv: allen_b_1

Publications | Datasets | External

1. All-sky search for short gravitational-wave bursts in the first Advanced LIGO run
2. Hierarchical follow-up of sub-threshold candidates of an all-sky Einstein@Home search for continuous gravitational waves on LIGO sixth science run data
3. An Einstein@home search for continuous gravitational waves from Cassiopeia A
4. The basic physics of the binary black hole merger GW150914
5. Exploring the Sensitivity of Next Generation Gravitational Wave Detectors
6. Upper limits on the rates of binary neutron star and neutron-star--black-hole mergers from Advanced LIGO's first observing run
7. Results of an all-sky high-frequency Einstein@Home search for continuous gravitational waves in LIGO's fifth science run
8. Results of the deepest all-sky survey for continuous gravitational waves on LIGO S6 data running on the Einstein@Home volunteer distributed computing project
9. From Einstein's general theory of relativity to gravitational-wave astronomy
10. High-energy Neutrino follow-up search of Gravitational Wave Event GW150914 with ANTARES and IceCube

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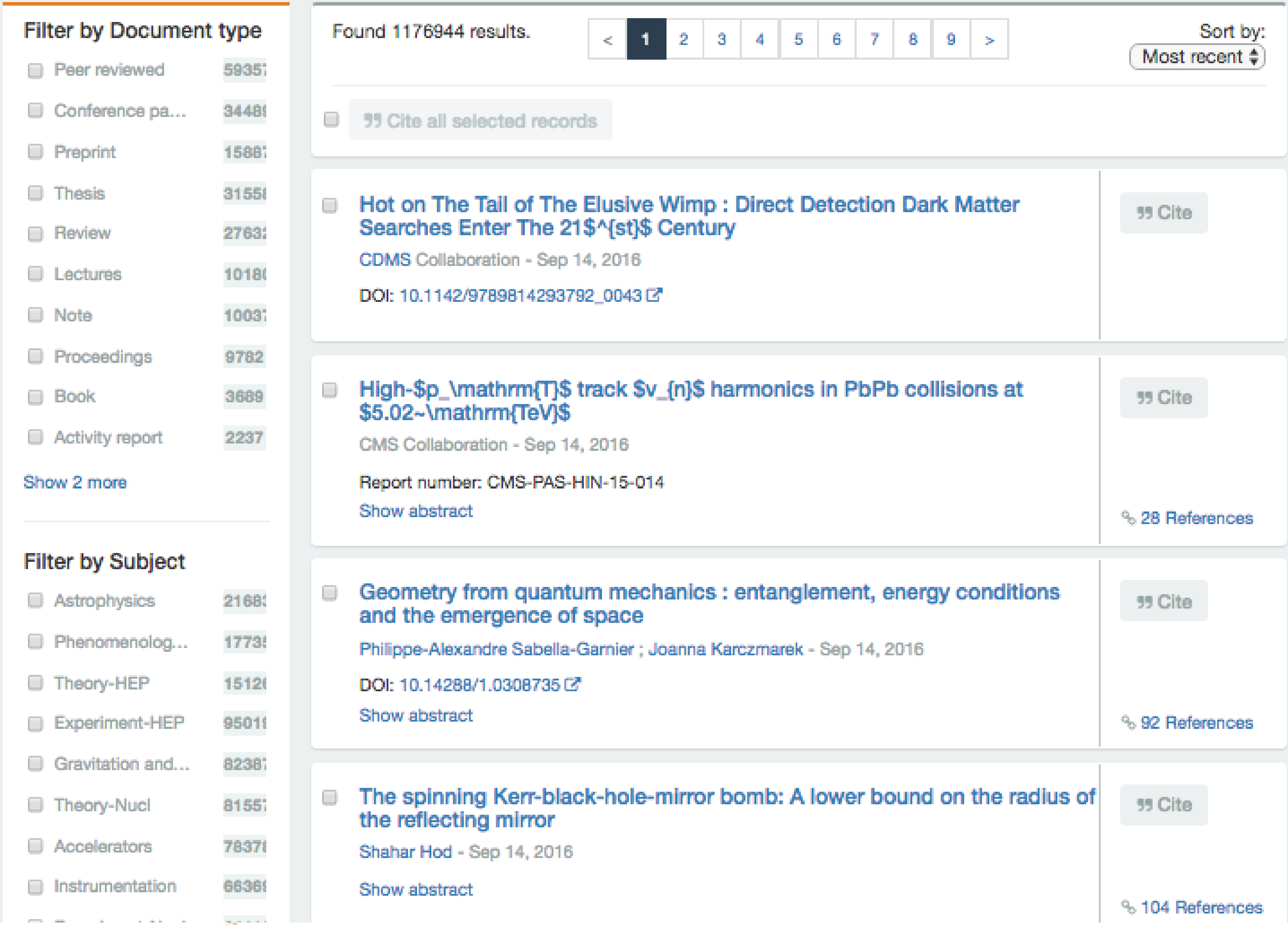
- find j phys.rev.,D50,1140 or j jhep,0903,112
- find eprint arxiv:1007.5048 (Note the plots available on the detailed record)
- find fulltext "quark-gluon plasma" (Note new "fulltext" operator)
- find a ellis and refersto a witten (Note "refersto")
- find a kane and citedby title SUSY and topcite 200+ (Note "citedby")

New techniques:

- 1985 richter quark multiplicity
- arXiv:1007.5048
- citedby:author:ellis -refersto:author:witten
- author:randall | author:sundrum cited:450->1350

Additional Help:

- More search tips and full help



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Report number: CMS-PAS-HIN-15-014
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Machine learning

- Author disambiguation
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- Subject guessing
- Experiment guessing
- Metadata extraction from pdf
- …

Thank you
for your attention!

Don't hesitate to contact me with any questions

Annette.Holtkamp@cern.ch