



Georgia Technical S3 Workshop:

Identifying scientific potential (level 1)

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Contents – Level 1 Training

1

What kind of questions does S3 try to answer from the perspective of science / knowledge production?

2

Which questions can be answered through quantitative methods? How?

3

How do scientometrics inform the analysis of economic and innovative potential?



1

Some **interesting** questions

Source: RIS3Key (<https://era.gv.at/object/document/494>)

1. Where does your country already excel or has the potential to put itself on the map as a recognized world-class place of competence?
2. Which are the specific scientific strengths and research specializations in your country?
3. Which emerging new scientific competences can be spotted in your country?
4. Who are the key actors? How are they linked with the national economy?
5. How fit is your national knowledge base to address conjointly the grand challenges of society?
6. How do lead institutions position themselves in global chains of knowledge?
7. How favorable are working conditions for researchers in your country? How much mobility between the public science and the private sector does exist? Do universities train scholars and graduates to become entrepreneurs?
8. Does current academic education fit to the needs of the national economy – do employers absorb graduates or are graduates forced to look elsewhere?
9. What about the internationalization of researchers and research collaborations?



2 Some interesting questions **that can be answered by scientometrics**

1. **Where does your country already excel or has the potential to put itself on the map as a recognized world-class place of competence?**
2. **Which are the specific scientific strengths and research specializations in your country?**
3. **Which emerging new scientific competences can be spotted in your country?**
4. Who are the **key actors**? How are they linked with the national economy?
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8. Does current academic education fit to the needs of the national economy – do employers absorb graduates or are graduates forced to look elsewhere?
9. What about the **internationalization** of researchers and **research collaborations**?



2

What can you expect from Scientometrics?

Analysis of scientific production, specialization, and identification of key actors

Who has done what? Who's good in what? Who collaborates with whom?

Specialisation analysis at various levels

Analysis of knowledge trajectories and of the degree of participation in global knowledge chains

Knowledge trajectories

Access to global knowledge chains

Research evaluation

Micro-, meso- and macro-levels

Research monitoring

Who is researching what right now?

Mapping of Innovation Ecosystems

To what degree higher education and public research organisations are parts of wider innovation ecosystems?



3 How can the results inform the analysis of economic potential?

The key question here is whether and which local research capacities can be productively combined with economic capacities

		Scientific Capability	
		<i>Low</i>	<i>High</i>
Economic Potential	<i>Low</i>	Forget it (from the S3 perspective)!	Can commercialization of research outputs create new economic opportunities?
	<i>High</i>	Can relevance of research be improved through research policy?	Is knowledge exchange in place? Is it effective? How can it be reinforced?



Part I

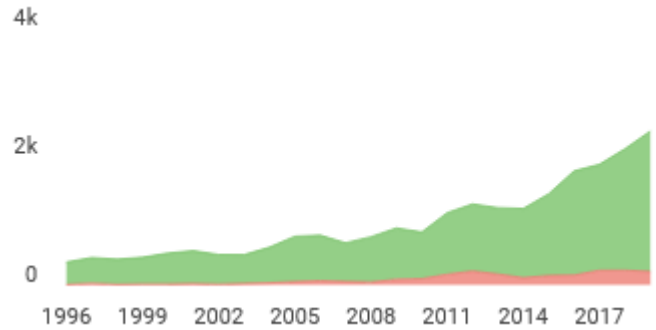
DESCRIPTIVE STATISTICS AND FIRST INSIGHTS



Scientific Production

Source: <https://www.scimagojr.com/countrysearch.php?country=GE>

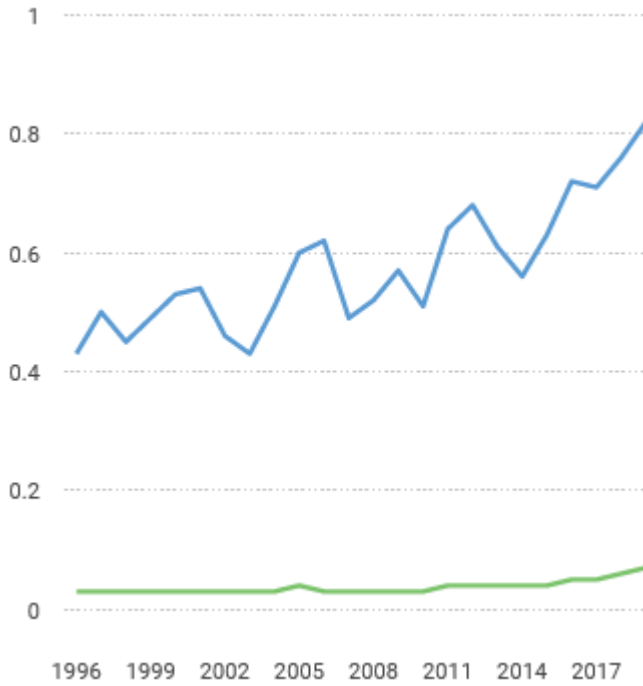
Publications per year



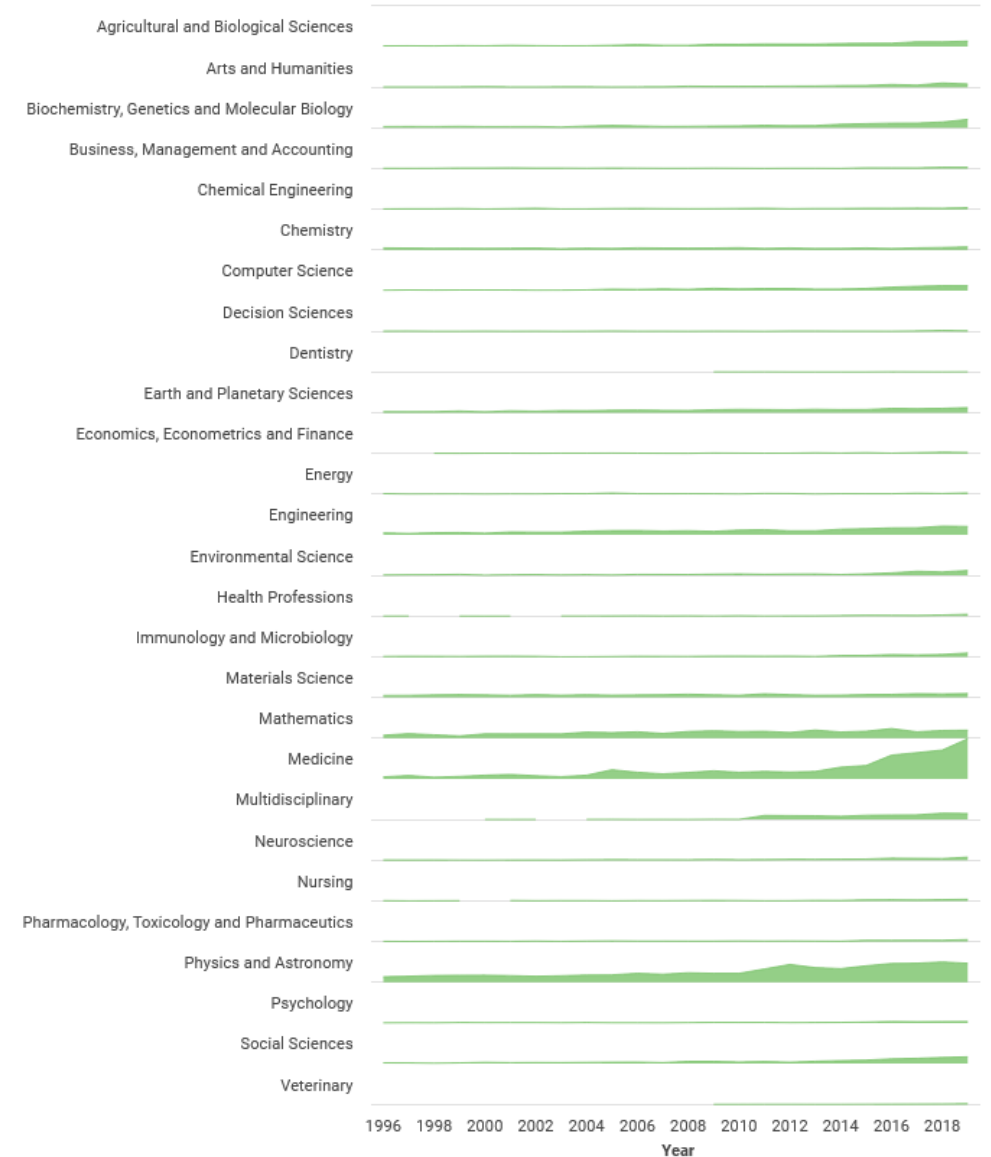
% international collaboration









Output:
● % of the World ● % of Eastern Europe



Publications per subject area

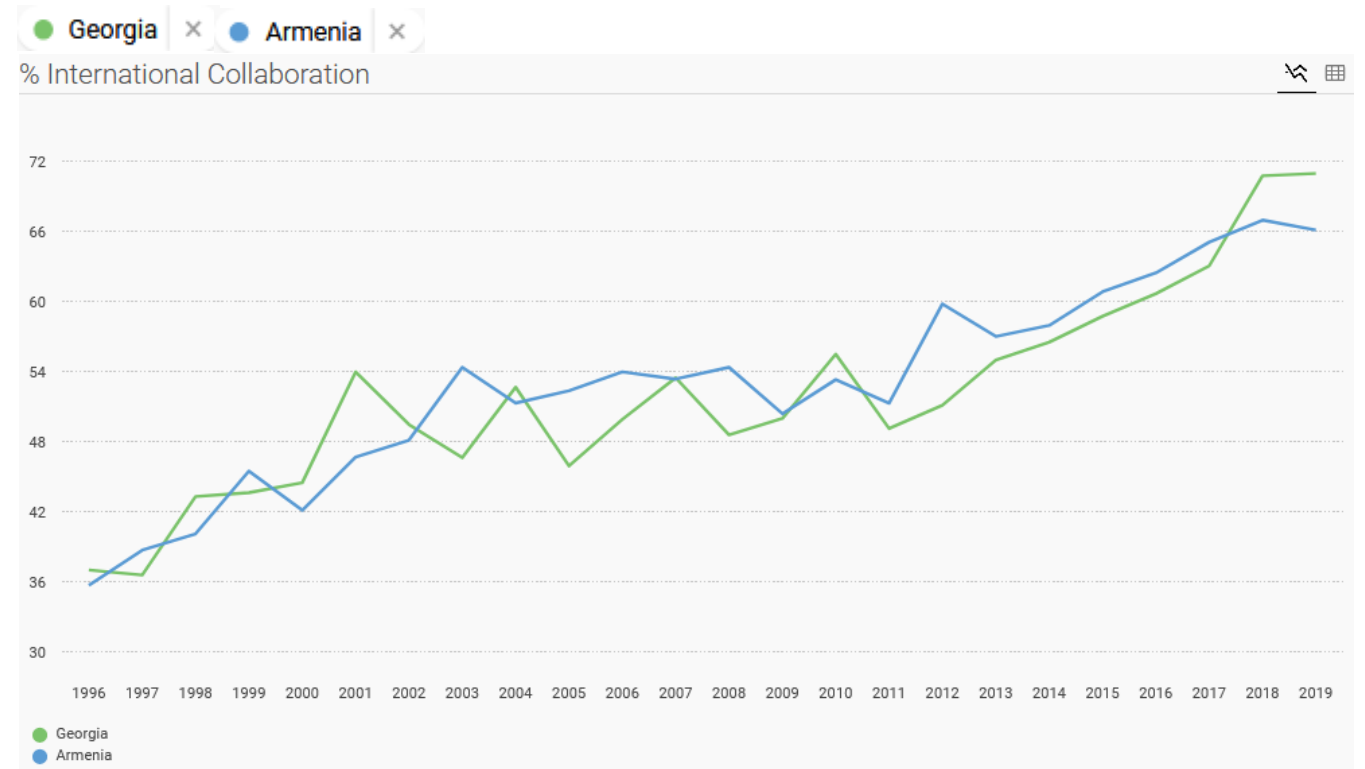
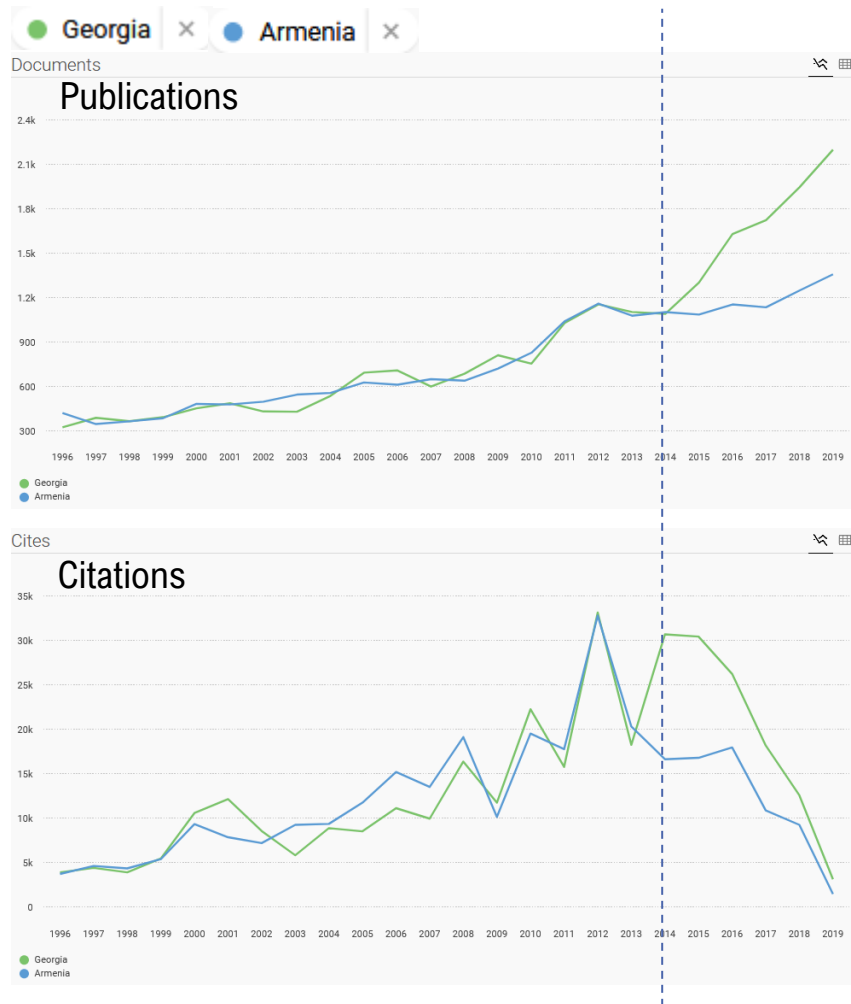


Key actors

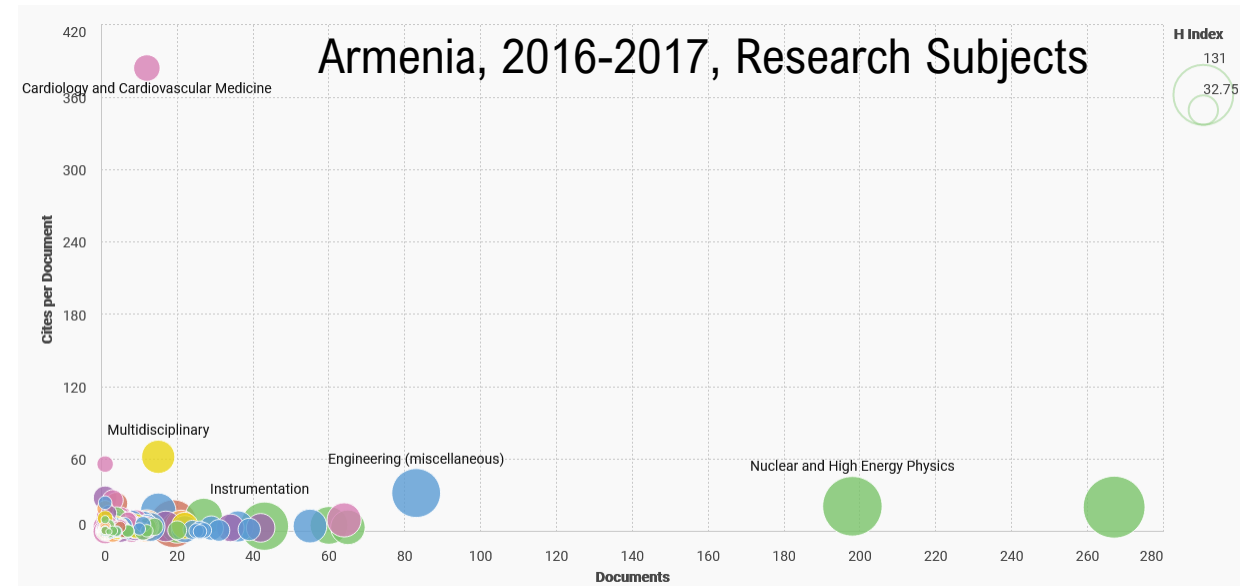
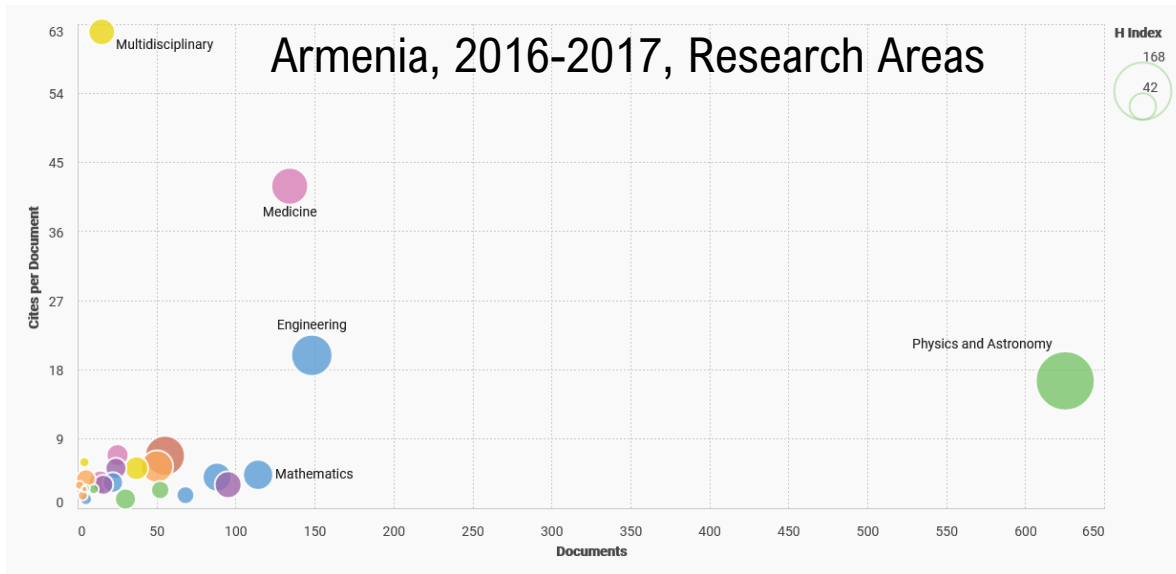
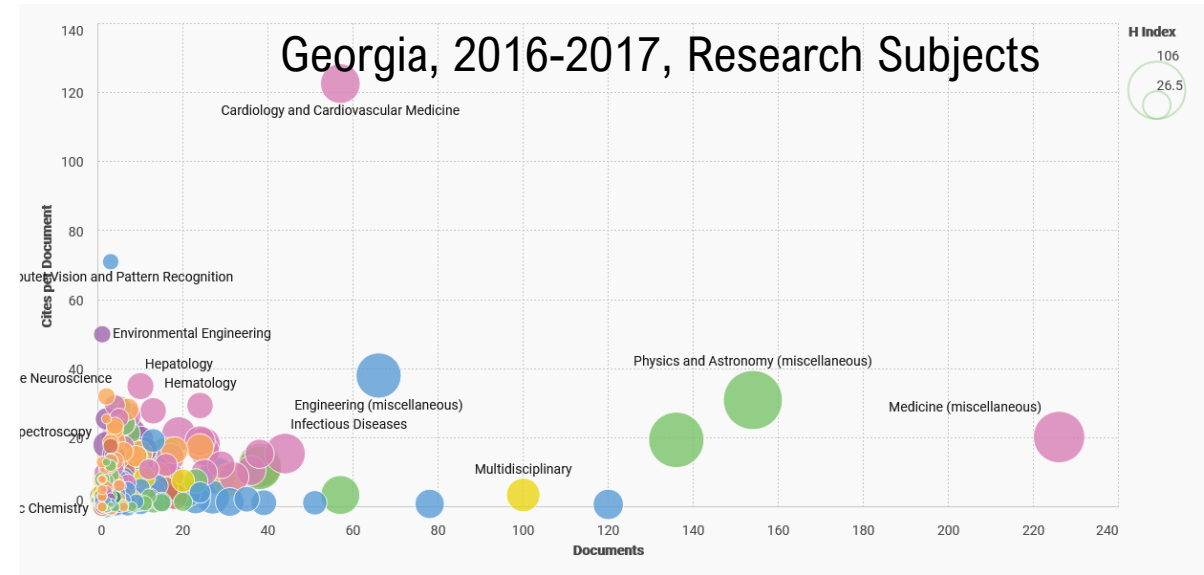
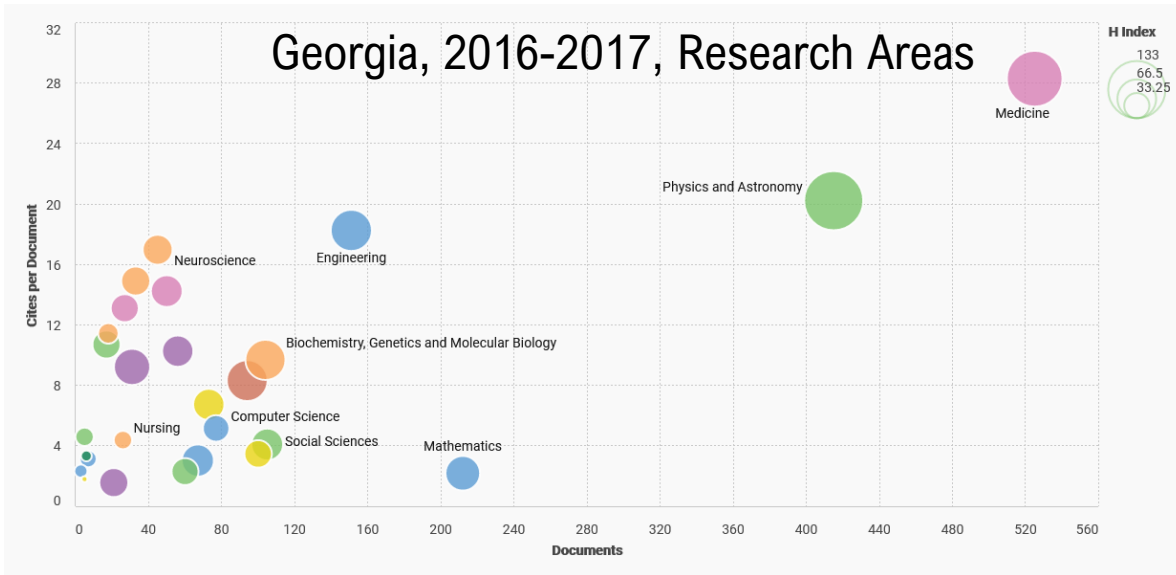
Overall Rank	▼	All sectors	▼	Georgia	▼	2020	▼
6 ranked institutions ↓ select to compare							Download data (csv)
<input type="checkbox"/>	1 (777)	Andronikashvili Institute of Physics of the Georgian Academy of Sciences	GEO		Best quartile	Q1	
<input type="checkbox"/>	2 (781)	Ivane Javakhishvili Tbilisi State University	GEO			Q1	
<input type="checkbox"/>	3 (786)	Ilia State University	GEO			Q1	
<input type="checkbox"/>	4 (801)	Georgian Technical University	GEO			Q3	
<input type="checkbox"/>	5 (808)	Georgian National Academy of Sciences *	GEO			Q1	
<input type="checkbox"/>	6 (818)	Tbilisi State Medical University	GEO			Q1	



Simple benchmarking (Georgia vs Armenia)



Impact of science using citations as a proxy & benchmarking



Part II

SPECIALISATION ANALYSIS & IDENTIFICATION OF EMERGING COMPETENCES



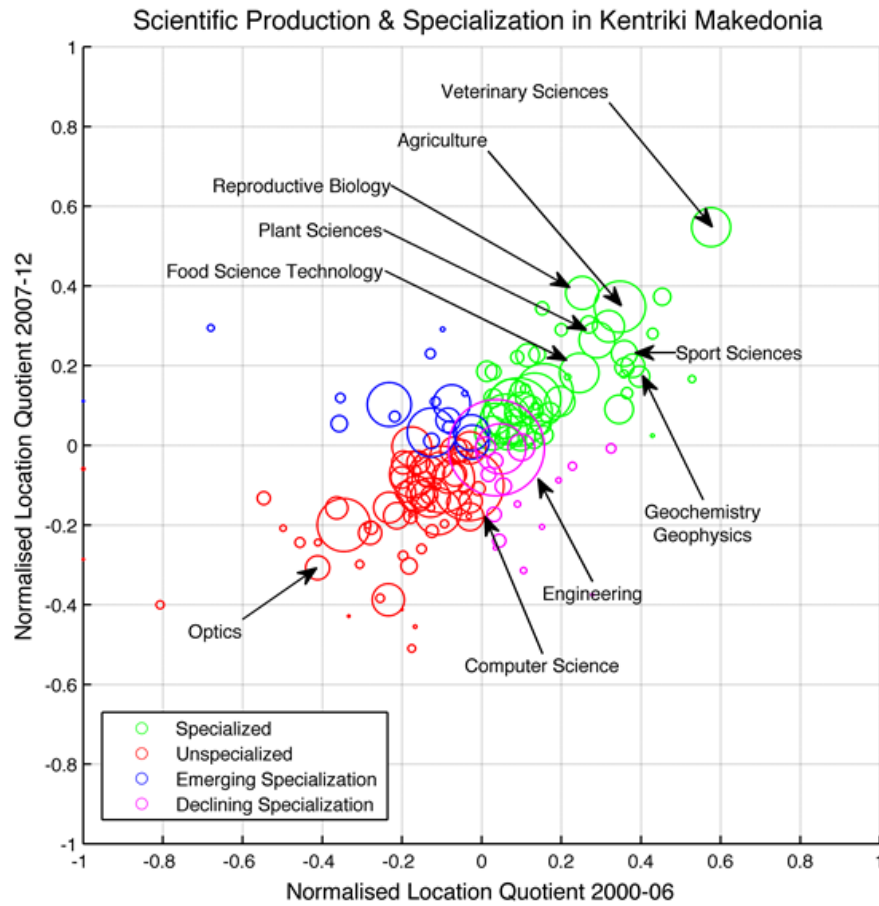
Specialisation in Science: Key principles

1. Define the **baseline**, the geographic area that serves as the basis for the analysis (e.g., EU-27, a country)
2. Define the **reference**, a subset of the base line for which specialization is calculated (e.g., a EU member state, a region in a country)
3. Choose your preferred **bibliographic database** (Scopus vs Web of Science) and stick to that
4. Choose the metric: **Research Areas vs Research Subjects**
5. Collect aggregate data for two consecutive time windows of minimum 4 years (=1 PhD epoch), e.g., 2012-2015 and 2016-2019
6. Calculate Location Quotients
7. Plot the results

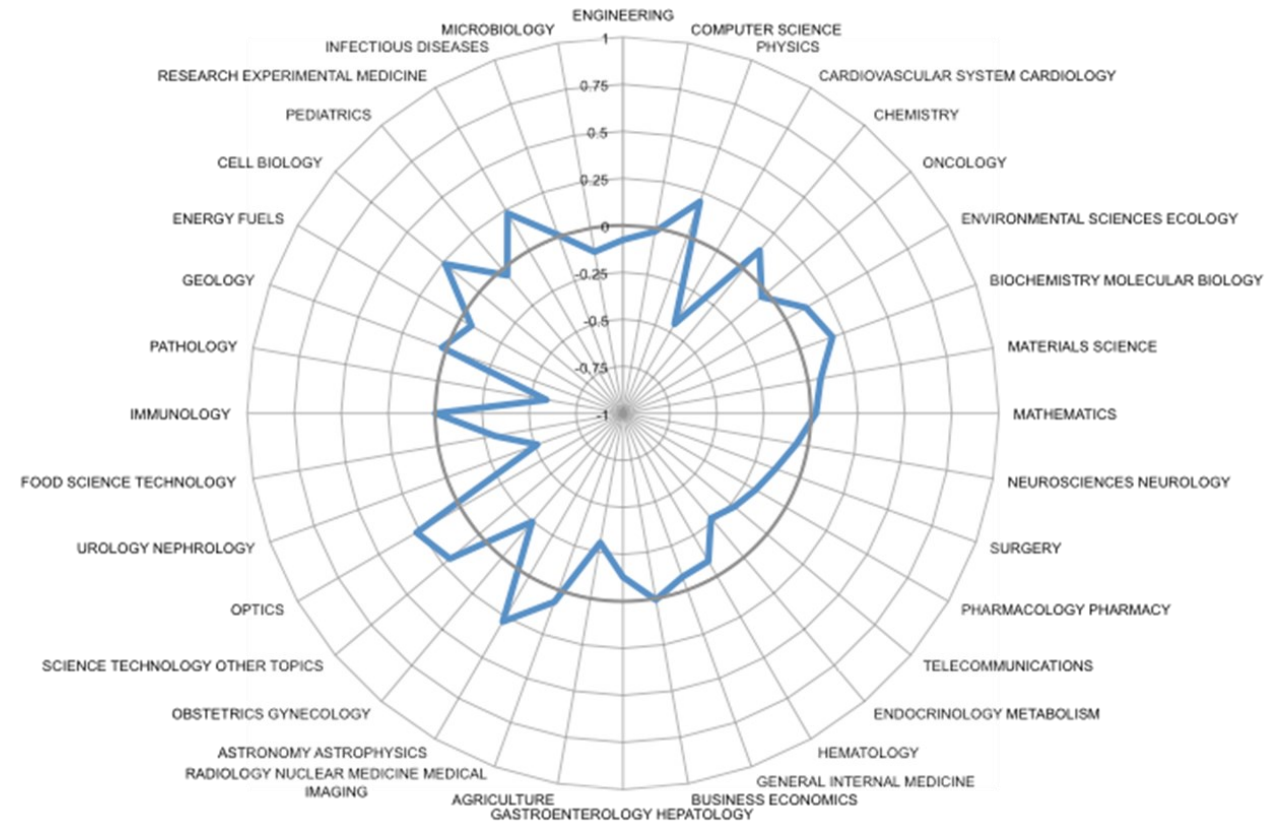


Examples of visualisation

Kentriki Makedonia vs Greece, 2000-12



Crete vs Greece, 2004-2011



Example

Web of Science InCites Journal Citation Reports Essential Science Indicators EndNote Publons Kopernio Master Journal List Sign In Help English

Web of Science

Clarivate Analytics

Tools Searches and alerts Search History Marked List

We're building the new Web of Science. [Click here to access the preview](#)

Select a database Web of Science Core Collection

Basic Search Author Search ^{BETA} Cited Reference Search Advanced Search

Use field tags, Boolean operators, parentheses, and query sets to create your query. Results will appear in the Search History table at the bottom of the page. [Learn more about Advanced Search](#)

Example: TS=(nanotub* AND carbon) NOT AU=Smalley RE #1 NOT #2 [more examples](#) | [view the tutorial](#)

CU = GEORGIA

Search

Restrict results by languages and document types:

All languages	All document types
English	Article
Afrikaans	Abstract of Published Item
Arabic	Art Exhibit Review

Timespan

Custom year range 2015 to 2019

More settings

Booleans: AND, OR, NOT, SAME, NEAR

Field Tags:

TS= Topic	SA= Street Address
TI= Title	CI= City
AU= Author [Index]	PS= Province/State
AI= Author Identifiers	CU= Country/Region
GP= Group Author [Index]	ZP= Zip/Postal Code
ED= Editor	FO= Funding Agency
SO= Publication Name [Index]	FG= Grant Number
DOI= DOI	FT= Funding Text
PY= Year Published	SU= Research Area
AD= Address	WC= Web of Science Category
OG= Organization-Enhanced [Index]	IS= ISSN/ISBN
OO= Organization	UT= Accession Number
SG= Suborganization	PMID= PubMed ID
AB= Abstract	ALL= All Fields
AK= Author Keywords	
KP= Keyword Plus	

Country

Year range



Results Analysis

Showing 5,229 records for CU = GEORGIA

Create Citation Report

Web of Science Categories

Publication Years

Document Types

Organizations-Enhanced

Funding Agencies

Authors

Source Titles

Book Series Titles

Countries/Regions

Editors

Group Authors

Languages

Research Areas

Grant Numbers

Organizations



Sort by Record count | Show 25 | Minimum record count 1 | Update

Select records to view, or exclude. Choose "View records" to view the selected records only or "Exclude records" to view the unselected records only.

Select	Field: Research Areas	Record Count	% of 5,229	Bar Chart
<input type="checkbox"/>	PHYSICS	1,489	28.476 %	■
<input type="checkbox"/>	ASTRONOMY ASTROPHYSICS	637	12.182 %	■
<input type="checkbox"/>	MATHEMATICS	547	10.461 %	■
<input type="checkbox"/>	NEUROSCIENCES NEUROLOGY	223	4.265 %	■
<input type="checkbox"/>	CHEMISTRY	176	3.366 %	■
<input type="checkbox"/>	CARDIOVASCULAR SYSTEM CARDIOLOGY	157	3.002 %	■
<input type="checkbox"/>	ONCOLOGY	157	3.002 %	■
<input type="checkbox"/>	BIOCHEMISTRY MOLECULAR BIOLOGY	149	2.849 %	■
<input type="checkbox"/>	ENGINEERING	145	2.773 %	■
<input type="checkbox"/>	SCIENCE TECHNOLOGY OTHER TOPICS	144	2.754 %	■
<input type="checkbox"/>	ENVIRONMENTAL SCIENCES ECOLOGY	129	2.467 %	■
<input type="checkbox"/>	PSYCHIATRY	128	2.448 %	■
<input type="checkbox"/>	PHARMACOLOGY PHARMACY	125	2.391 %	■
<input type="checkbox"/>	INFECTIOUS DISEASES	120	2.295 %	■
<input type="checkbox"/>	IMMUNOLOGY	117	2.238 %	■
<input type="checkbox"/>	MATERIALS SCIENCE	99	1.893 %	■
<input type="checkbox"/>	GEOLOGY	97	1.855 %	■
<input type="checkbox"/>	PSYCHOLOGY	92	1.759 %	■
<input type="checkbox"/>	PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH	90	1.721 %	■
<input type="checkbox"/>	WATER RESOURCES	80	1.530 %	■
<input type="checkbox"/>	GENERAL INTERNAL MEDICINE	78	1.492 %	■
<input type="checkbox"/>	BUSINESS ECONOMICS	69	1.320 %	■
<input type="checkbox"/>	INSTRUMENTS INSTRUMENTATION	67	1.281 %	■
<input type="checkbox"/>	SURGERY	65	1.243 %	■
<input type="checkbox"/>	ZOOLOGY	65	1.243 %	■

Full export

```

georgia-2015-2019-SC - Notepad
File Edit Format View Help
Research Areas records % of 5229
PHYSICS 1489 28.476
ASTRONOMY ASTROPHYSICS 637 12.182
MATHEMATICS 547 10.461
NEUROSCIENCES NEUROLOGY 223 4.265
CHEMISTRY 176 3.366
CARDIOVASCULAR SYSTEM CARDIOLOGY 157 3.002
ONCOLOGY 157 3.002
BIOCHEMISTRY MOLECULAR BIOLOGY 149 2.849
ENGINEERING 145 2.773
SCIENCE TECHNOLOGY OTHER TOPICS 144 2.754
ENVIRONMENTAL SCIENCES ECOLOGY 129 2.467
PSYCHIATRY 128 2.448
PHARMACOLOGY PHARMACY 125 2.391
INFECTIOUS DISEASES 120 2.295
IMMUNOLOGY 117 2.238
MATERIALS SCIENCE 99 1.893
GEOLOGY 97 1.855
PSYCHOLOGY 92 1.759
PUBLIC ENVIRONMENTAL OCCUPATIONAL HEALTH 90 1.721
WATER RESOURCES 80 1.530
GENERAL INTERNAL MEDICINE 78 1.492
BUSINESS ECONOMICS 69 1.320
INSTRUMENTS INSTRUMENTATION 67 1.281
SURGERY 65 1.243
ZOOLOGY 65 1.243
MECHANICS 64 1.224
OBSTETRICS GYNECOLOGY 60 1.147
GASTROENTEROLOGY HEPATOLOGY 57 1.090
MICROBIOLOGY 56 1.071
PLANT SCIENCES 55 1.052
METEOROLOGY ATMOSPHERIC SCIENCES 54 1.033
AGRICULTURE 51 0.975
EVOLUTIONARY BIOLOGY 51 0.975
COMPUTER SCIENCE 49 0.937
GOVERNMENT LAW 49 0.937
ENDOCRINOLOGY METABOLISM 48 0.918

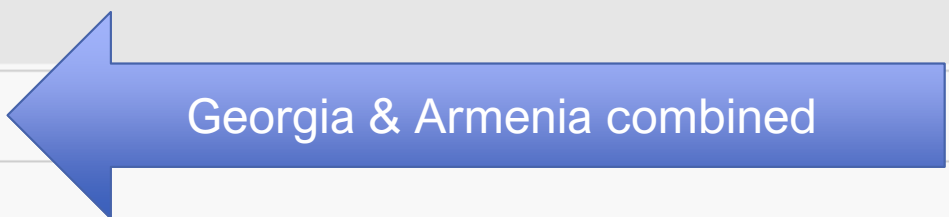
```

This is what you get

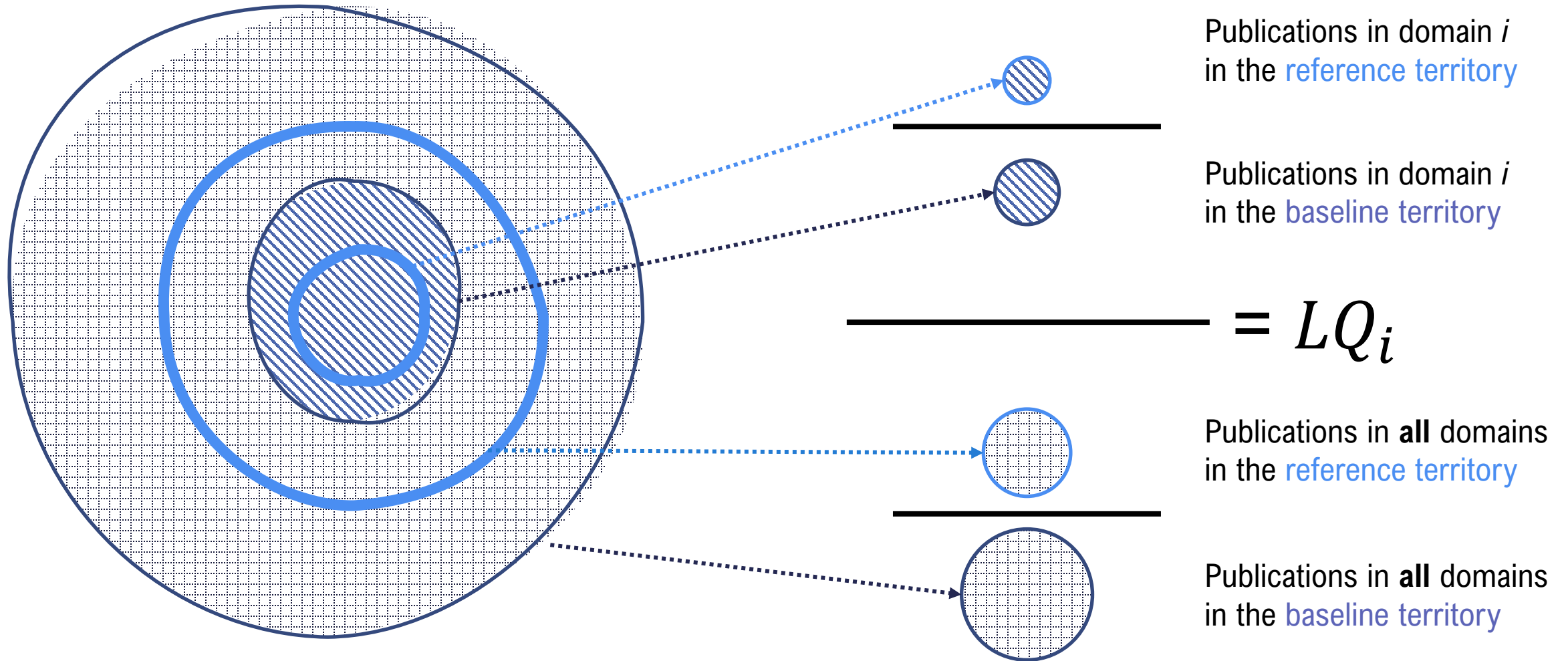
Which baseline?

Search History:

Set	Results		Edit Sets	Combine Sets	Delete Sets
		<input type="button" value="Save History / Create Alert"/> <input type="button" value="Open Saved History"/>		<input type="radio"/> AND <input type="radio"/> OR <input type="button" value="Combine"/>	<input type="button" value="Select All"/> <input type="button" value="Delete"/>
# 5	9,756	#4 OR #1 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=2015-2019</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 4	5,746	CU=ARMENIA <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=2015-2019</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 3	4,938	AD = TBILISI <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=2015-2019</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 2	4,927	CU = GEORGIA AND AD = TBILISI <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=2015-2019</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 1	5,229	CU = GEORGIA <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, ESCI Timespan=2015-2019</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
				<input type="radio"/> AND <input type="radio"/> OR <input type="button" value="Combine"/>	<input type="button" value="Select All"/> <input type="button" value="Delete"/>



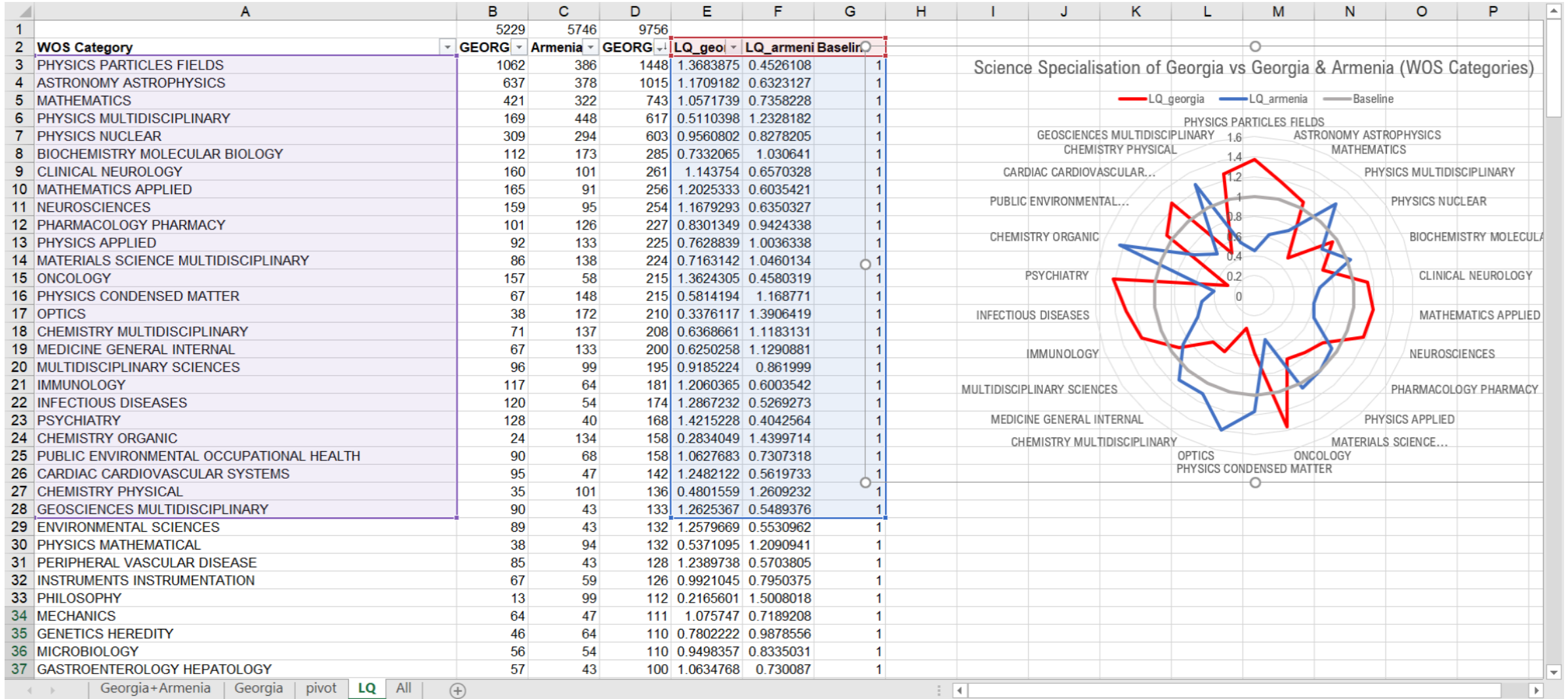
Reminder: How to calculate the Location Quotients



Calculate and plot

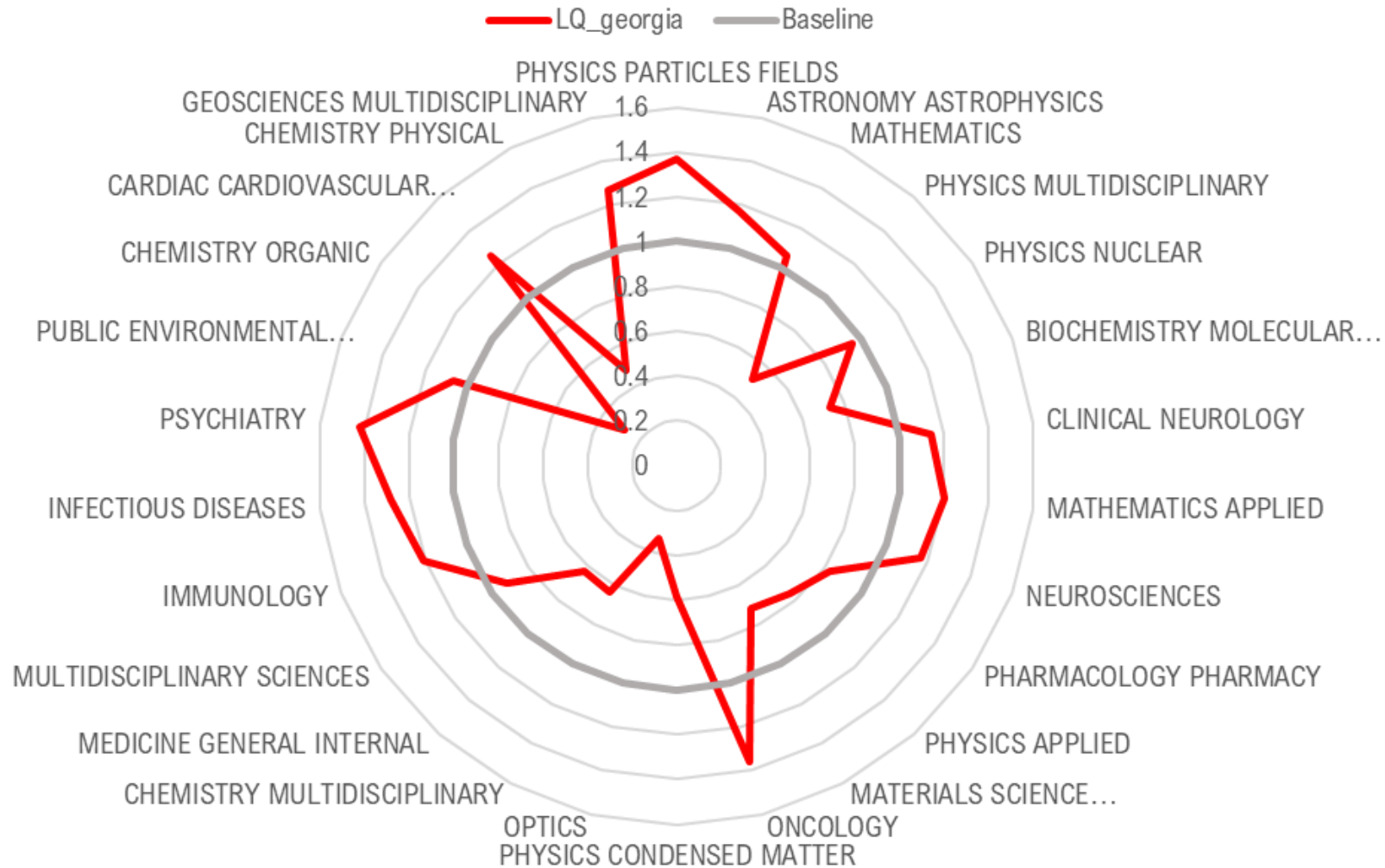


Standard practice for spider plots to sort the baseline data in decreasing order



Done!

Science Specialisation of Georgia vs Georgia & Armenia (WOS Categories)



Part III

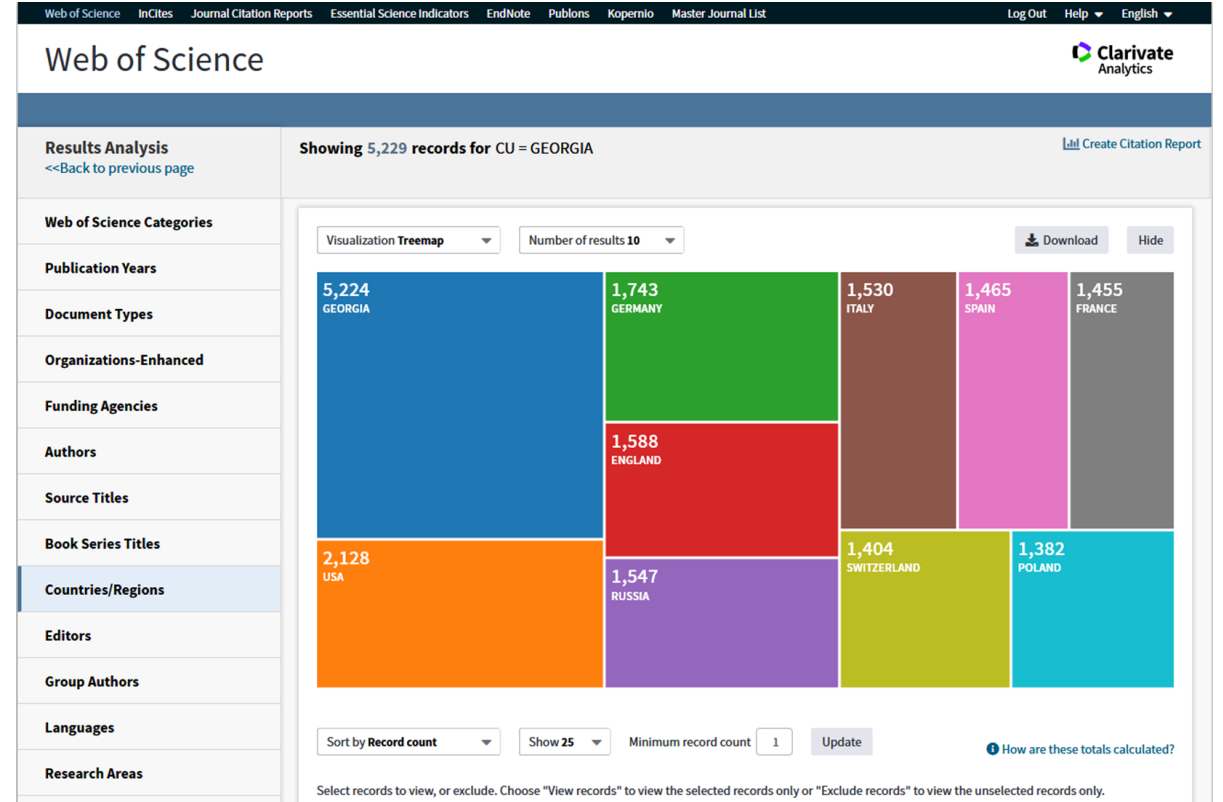
IDENTIFICATION OF KEY ACTORS & PRELIMINARY INTERNATIONALISATION ANALYSIS



Institutions' contribution to scientific publications

Organizations-Enhanced	records	% of 5229
IVANE JAVAKHISHVILI TBILISI STATE UNIVERSITY	2332	44.597
ILIA STATE UNIVERSITY	1421	27.175
RUSSIAN ACADEMY OF SCIENCES	1265	24.192
UNIVERSITY OF CALIFORNIA SYSTEM	1257	24.039
HELMHOLTZ ASSOCIATION	1252	23.943
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS	1230	23.523
UNIVERSITY OF BELGRADE	1186	22.681
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS CSIC	1182	22.605
CHINESE ACADEMY OF SCIENCES	1181	22.586
ISTITUTO NAZIONALE DI FISICA NUCLEARE INFN	1181	22.586
CHARLES UNIVERSITY PRAGUE	1171	22.394
UNITED STATES DEPARTMENT OF ENERGY DOE	1171	22.394
UNIVERSITY OF BOLOGNA	1167	22.318
LOMONOSOV MOSCOW STATE UNIVERSITY	1164	22.26
BOSTON UNIVERSITY	1162	22.222
NATIONAL KAPODISTRIAN UNIVERSITY OF ATHENS	1160	22.184
NATIONAL RESEARCH CENTRE KURCHATOV INSTITUTE	1158	22.146
STATE UNIVERSITY OF NEW YORK SUNY SYSTEM	1158	22.146
OHIO STATE UNIVERSITY	1153	22.05
UNIVERSITE PARIS SACLAY	1152	22.031
UNIVERSITY OF CHICAGO	1146	21.916
JOINT INSTITUTE FOR NUCLEAR RESEARCH RUSSIA	1145	21.897
SAPIENZA UNIVERSITY ROME	1145	21.897
UNIVERSITY OF WISCONSIN MADISON	1145	21.897
UNIVERSITY OF WISCONSIN SYSTEM	1145	21.897
CNRS NATIONAL INSTITUTE OF NUCLEAR AND PARTICLE PHYSICS IN2P3	1142	21.84
UNIVERSITY OF ILLINOIS SYSTEM	1140	21.801
UNIVERSITY OF IOWA	1140	21.801
AUTONOMOUS UNIVERSITY OF MADRID	1133	21.668
UNIVERSITY OF PISA	1133	21.668
EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH CERN	1131	21.629
HUNGARIAN ACADEMY OF SCIENCES	1130	21.61

Details on international collaborations



Search results CU = GEORGIA

Web of Science InCites Journal Citation Reports Essential Science Indicators EndNote Publons Kopernio Master Journal List Sign In Help English

Web of Science Clarivate Analytics

Search Tools Searches and alerts Search History Marked List

Results: 5,721 (from Web of Science Core Collection)

You searched for: CU=GEORGIA ...More

Create an alert

Refine Results

Search within results for...

Filter results by:

- Highly Cited in Field (159)
- Hot Papers in Field (9)
- Open Access (2,802)

Refine

Publication Years

- 2019 (1,325)
- 2018 (1,211)
- 2017 (1,079)
- 2016 (1,101)
- 2015 (1,005)

more options / values...

Refine

Web of Science Categories

Sort by: Date Times Cited Usage Count Relevance More

1 of 573

Select Page Export... Add to Marked List

Analyze Results Create Citation Report

- Electrophysiological correlates of visual backward masking in patients with major depressive disorder
By: Favrod, Ophelie; da Cruz, Janir R.; Roishvili, Maya; et al.
PSYCHIATRY RESEARCH-NEUROIMAGING Volume: 294 Article Number: 111004 Published: DEC 30 2019
Full Text from Publisher View Abstract Times Cited: 1 (from Web of Science Core Collection) Usage Count
- Rationale and design of the AFFIRM-AHF trial: a randomised, double-blind, placebo-controlled trial comparing the effect of intravenous ferric carboxymaltose on hospitalisations and mortality in iron-deficient patients admitted for acute heart failure
By: Ponikowski, Piotr; Kirwan, Bridget-Anne; Anker, Stefan D.; et al.
EUROPEAN JOURNAL OF HEART FAILURE Volume: 21 Issue: 12 Pages: 1651-1658 Published: DEC 2019 Early Access: DEC 2019
Free Full Text from Publisher View Abstract Times Cited: 5 (from Web of Science Core Collection) Usage Count
- Structure of Mixed Reverse Microemulsions Based on Sodium Bis (2-Ethylhexyl) Sulfosuccinate and Sodium Cholate
By: Tikanadze, Irma; Kurtanidze, Manoni; Rukhadze, Marina; et al.
JOURNAL OF SURFACTANTS AND DETERGENTS Volume: 23 Issue: 2 Pages: 339-346 Published: MAR 2020 Early Access: DEC 2019
Full Text from Publisher View Abstract Times Cited: 0 (from Web of Science Core Collection) Usage Count
- Development of the method of production of the ultrafine macrohomogeneous composite powder
By: Mestvirishvili, Zviadi; Kvatchadze, Vakhtang; Bairamashvili, Irakli; et al.
MATERIALS SCIENCE AND TECHNOLOGY Volume: 36 Issue: 3 Pages: 327-333 Published: FEB 11 2020 Early Access: DEC 2019
Full Text from Publisher View Abstract Times Cited: 0 (from Web of Science Core Collection) Usage Count

Web of Science Clarivate Analytics

Results Analysis <<Back to previous page

Showing 5,721 records for CU=GEORGIA Create Citation Report

Web of Science Categories

Publication Years

Document Types

Organizations-Enhanced

Funding Agencies

Authors

Source Titles

Book Series Titles

Meeting Titles

Countries/Regions

Editors

Group Authors

Languages

Research Areas

Grant Numbers

Organizations

Visualization Treemap Number of results 10 Download Hide

2,541 IVANE JAVAKHISHVILI TBILISI STATE UNIVERSITY

1,268 RUSSIAN ACADEMY OF SCIENCES

1,240 GEORGIAN TECHNICAL UNIVERSITY

1,233 CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS

1,186 UNIVERSITY OF BELGRADE

1,263 HELMHOLTZ ASSOCIATION

1,471 ILIA STATE UNIVERSITY

1,258 UNIVERSITY OF CALIFORNIA SYSTEM

1,183 CHINESE ACADEMY OF SCIENCES

1,183 CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS CSIC

Sort by Record count Show 10 Minimum record count 1 Update How are these totals calculated?

Select records to view, or exclude. Choose "View records" to view the selected records only or "Exclude records" to view the unselected records only.

Select	Field: Organizations-Enhanced	Record Count	% of 5,721	Bar Chart
<input checked="" type="checkbox"/>	IVANE JAVAKHISHVILI TBILISI STATE UNIVERSITY	2,541	44.415 %	<div style="width: 44.415%;"></div>
<input type="checkbox"/>	ILIA STATE UNIVERSITY	1,471	25.712 %	<div style="width: 25.712%;"></div>
<input type="checkbox"/>	RUSSIAN ACADEMY OF SCIENCES	1,268	22.164 %	<div style="width: 22.164%;"></div>
<input type="checkbox"/>	HELMHOLTZ ASSOCIATION	1,263	22.077 %	<div style="width: 22.077%;"></div>
<input type="checkbox"/>	UNIVERSITY OF CALIFORNIA SYSTEM	1,258	21.989 %	<div style="width: 21.989%;"></div>
<input type="checkbox"/>	GEORGIAN TECHNICAL UNIVERSITY	1,240	21.675 %	<div style="width: 21.675%;"></div>
<input type="checkbox"/>	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS	1,233	21.552 %	<div style="width: 21.552%;"></div>
<input type="checkbox"/>	UNIVERSITY OF BELGRADE	1,186	20.731 %	<div style="width: 20.731%;"></div>
<input type="checkbox"/>	CHINESE ACADEMY OF SCIENCES	1,183	20.678 %	<div style="width: 20.678%;"></div>
<input type="checkbox"/>	CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS CSIC	1,183	20.678 %	<div style="width: 20.678%;"></div>

(12,323 Organizations-Enhanced value(s) outside display options.)
(8 records (0.140%) do not contain data in the field being analyzed.)

Exclude Selected View Selected

Select a download option (tab-delimited text file)

Data rows displayed in table All data rows (up to 100,000) Download



The subset of 2541 records for IVANE JAVAKHISHIVILI UNIVERSITY

Web of Science

Results: 2,541 (from Web of Science Core Collection)

You searched for: CU=GEORGIA

Tools | Searches and alerts | Search History | Marked List

Sort by: Date | Times Cited | Usage Count | Relevance | More

Select Page | Export... | Add to Marked List | **Analyze Results** | Create Citation Report

- Structure of Mixed Reverse Microemulsions Based on Sodium Bis (2-Ethylhexyl) Sulfosuccinate and Sodium Cholate
By: Tikasadze, Irma; Kurtanidze, Manoni; Bukhadze, Marina; et al.
JOURNAL OF SURFACTANTS AND DETERGENTS Volume: 23 Issue: 2 Pages: 339-346 Published: MAR 2020
Early Access: DEC 2019
Full Text from Publisher | View Abstract
- Development of the method of production of the ultrafine macrohomogeneous composite powder
By: Mestvirishvili, Zviad; Kvachadze, Vakhtang; Bainamashvili, Irakli; et al.
MATERIALS SCIENCE AND TECHNOLOGY Volume: 36 Issue: 3 Pages: 327-333 Published: FEB 11 2020
Early Access: DEC 2019
Full Text from Publisher | View Abstract
- Search for low mass vector resonances decaying into quark-antiquark pairs in proton-proton collisions at root s=13 TeV
By: Sirunyan, A. M.; Tumasyan, A.; Adam, W.; et al.
Group Author(s): CMS Collaboration
PHYSICAL REVIEW D Volume: 100 Issue: 11 Article Number: 112007 Published: DEC 20 2019
Free Full Text from Publisher | View Abstract
- Probing the chiral magnetic wave in pPb and PbPb collisions at root S-NN=5.02 TeV using charge-dependent azimuthal anisotropies
By: Sirunyan, A. M.; Tumasyan, A.; Adam, W.; et al.
Group Author(s): CMS Collaboration
PHYSICAL REVIEW C Volume: 100 Issue: 6 Article Number: 064908 Published: DEC 18 2019
Free Full Text from Publisher | View Abstract
- The first observation of electrochemistry of graphene/cysteine/copper composite
By: Nioradze, Nikoloz; Dolidze, Tinatin; Shushanian, Mikhael; et al.
JOURNAL OF ELECTROANALYTICAL CHEMISTRY Volume: 855 Article Number: 113490 Published: DEC 15 2019

The major research areas for IVANE JAVAKHISHIVILI UNIVERSITY

Web of Science

Results Analysis <<Back to previous page

Showing 2,541 records for CU=GEORGIA ...More

Visualization Treemap | Number of results 10 | Download | Hide

1,029	PHYSICS PARTICLES FIELDS	324	MATHEMATICS	142	MATHEMATICS APPLIED	133	PHYSICS MULTIDISCIPLINARY
428	ASTRONOMY ASTROPHYSICS	304	PHYSICS NUCLEAR	78	ENGINEERING ELECTRICAL ELECTRONIC	46	PHYSICS CONDENSED MATTER
				69	PHYSICS APPLIED	42	MATERIALS SCIENCE MULTIDISCIPLINARY

Sort by Record count | Show 10 | Minimum record count 1 | Update | How are these totals calculated?

Select records to view, or exclude. Choose "View records" to view the selected records only or "Exclude records" to view the unselected records only.

Select	Field: Web of Science Categories	Record Count	% of 2,541	Bar Chart
<input type="checkbox"/>	PHYSICS PARTICLES FIELDS	1,029	40.496 %	█
<input type="checkbox"/>	ASTRONOMY ASTROPHYSICS	428	16.844 %	█
<input type="checkbox"/>	MATHEMATICS	324	12.751 %	█
<input type="checkbox"/>	PHYSICS NUCLEAR	304	11.964 %	█
<input type="checkbox"/>	MATHEMATICS APPLIED	142	5.588 %	█
<input type="checkbox"/>	PHYSICS MULTIDISCIPLINARY	133	5.234 %	█
<input type="checkbox"/>	ENGINEERING ELECTRICAL ELECTRONIC	78	3.070 %	█
<input type="checkbox"/>	PHYSICS APPLIED	69	2.715 %	█
<input type="checkbox"/>	PHYSICS CONDENSED MATTER	46	1.810 %	█
<input type="checkbox"/>	MATERIALS SCIENCE MULTIDISCIPLINARY	42	1.653 %	█

(159 Web of Science Categories value(s) outside display options.)
(1 records (0.039%) do not contain data in the field being analyzed.)

Select a download option (tab-delimited text file)
 Data rows displayed in table
 All data rows (up to 100,000) | Download

Exclude Selected | View Selected



Summary of what you learned today

1. What do you really want to know regarding the knowledge sector in your territory and how scientometrics can help
2. How to get initial insights about the evolution of scientific production in a geographic area
3. How to benchmark your science production and impact
4. How to calculate specialization in science
5. How to identify the key actors in a geographic area and their scientific profiles





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