NTK
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Národní technická knihovna
National Library of Technology

Introduction to Web of Science & Scopus

Eli Blažků, Jan Polášek

Outline

1. Introduction to citation databases
2. Searching by topic
3. Searching for journals and journal metrics
4. Searching for authors and author metrics
5. Summary
6. Getting assistance

1. Introduction to citation databases

Evaluating research impact

*"Hopefully, your PhD research will make an **impact** by advancing knowledge in your field or by contributing to real-world applications."*[1]

The results of research are usually presented in form of scientific articles, proceedings, and books.

One of the (limited) ways of measuring the impact of a researcher in their field is the **number of citations** for papers published in **quality, peer-reviewed scientific** journals.

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1) PhD On Track. (n.d.). Citation impact. https://www.phdontrack.net/share-and-publish/citation-impact/

Scientific communication & quality control

- Submitted papers are evaluated via a **rigorous peer review process** in quality scientific journals.
- Citation databases include resources (usually journals) in them according to selection criteria (Scopus criteria, Web of Science criteria).
- Citation information is then analyzed within citation databases and **citation metrics** for journals, articles, and authors are calculated.
- **Web of Science** and **Scopus** citation databases are currently used in the Czech academic performance evaluation system.

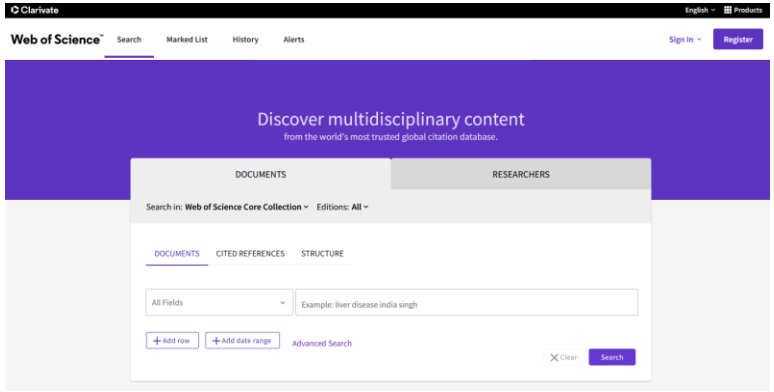
Citation metrics are important if you choose a career in academia, and they are also used to evaluate scientific institutions around the world.

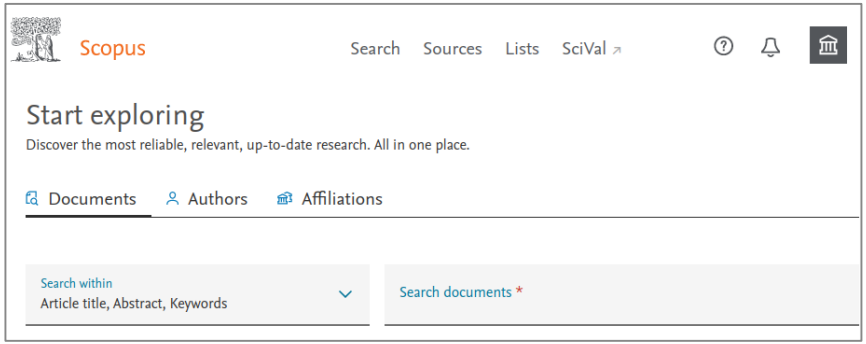
How can citation databases help you?

- In searching for reliable, peer-reviewed resources (better chances of avoiding low-quality/predatory journals)
- In checking journal metrics to make better decisions about where to publish (to build your academic reputation and get RIV points)
- In looking up author metrics (*h*-index counts) for proposals or one's own CV
- In identifying new trends and seminal articles in your field

Web of Science (WoS) and Scopus

- **Peer-reviewed scholarly literature:**
  - Journals, books, and conference proceedings
- **Content policy** and **selection criteria**:
  - **Evaluation of included literature** by standards, subject/content relevance, and impact
- **Citation information**:
  - Others who cite a work (times cited)
  - Views (usage count) and analysis
- Other citation metrics
- **No full texts, but links to full texts and abstracts**





Comparison of Web of Science (WoS) and Scopus

Features	WoS	Scopus
Developer/Producer	Clarivate Analytics	Elsevier
Coverage	1900 to present	1970 to present (with references)
Author identifier	Assigned automatically or created manually in Researcher Profile	Auto-generated Scopus Author ID
Alerts service	Yes	Yes
Export citations	Yes	Yes
Citation analysis	Yes	Yes
Main journal metrics	Journal Impact Factor	CiteScore
Author metrics	*h*-index	*h*-index

University of Michigan Library (2021). Comparing Citation Analysis Sources (UMICH)
Pranckutė, R. (2021). Web of Science (WoS) and Scopus: The Titans of Bibliographic Information in Today's Academic World. *Publications*, *9*(1), 12.

Limitations/risks

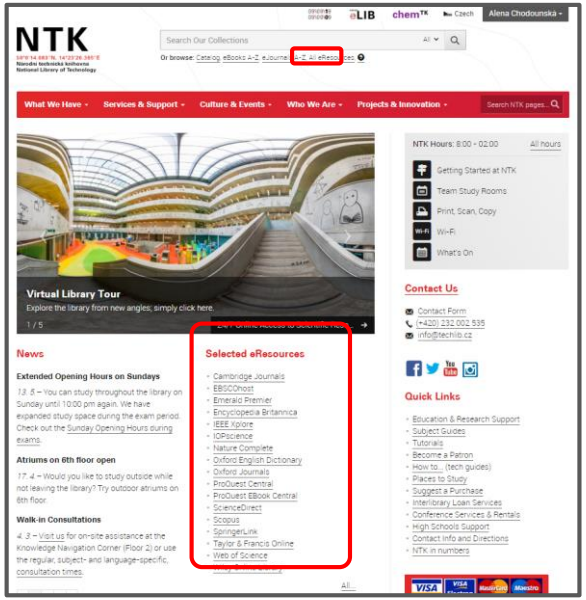
- Metrics: learning about the different kinds of metrics may be confusing at first
- Delay in indexing (up to 6 months after publication)
- No full texts, but links to full texts (abstracts are available)
- Beware of potential biases
  - Uncritical acceptance of the assumptions, reasoning, conclusions of indexed papers
  - An overly negative attitude ("the paper is not good") for papers with low numbers of citations or in journals not in WOS or Scopus
- Don't rely only on citation databases: not enough for a comprehensive literature search; quality research can be found in other places as well

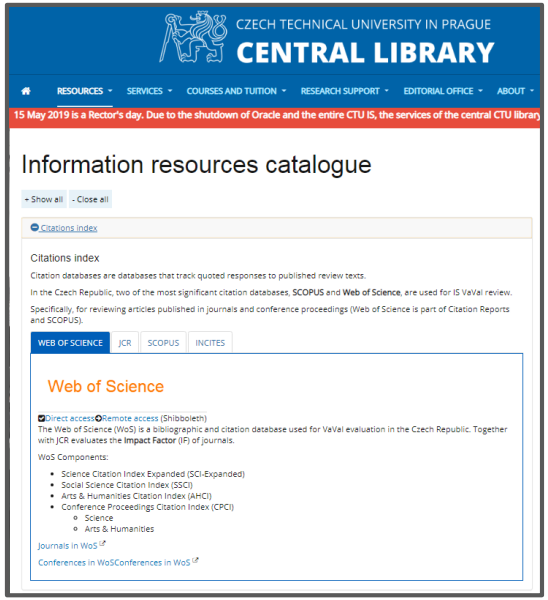
Access to WoS & Scopus

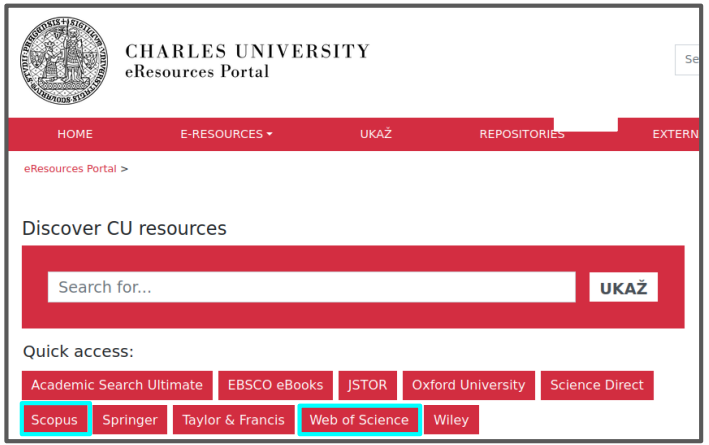
- Subscribed to via NTK and university libraries
- You have direct access within your university network (in your office or classrooms)
- For **off-campus access,** check with your library:
  - NTK, CTU, UCT & IOCB, Charles Univ., CZU

- The list of journals (including citation metrics) is open to all
  - Scopus sources
  - Web of Science Master Journal List (for access to impact factor information, registration is required)

Access via:







[National Library of Technology]

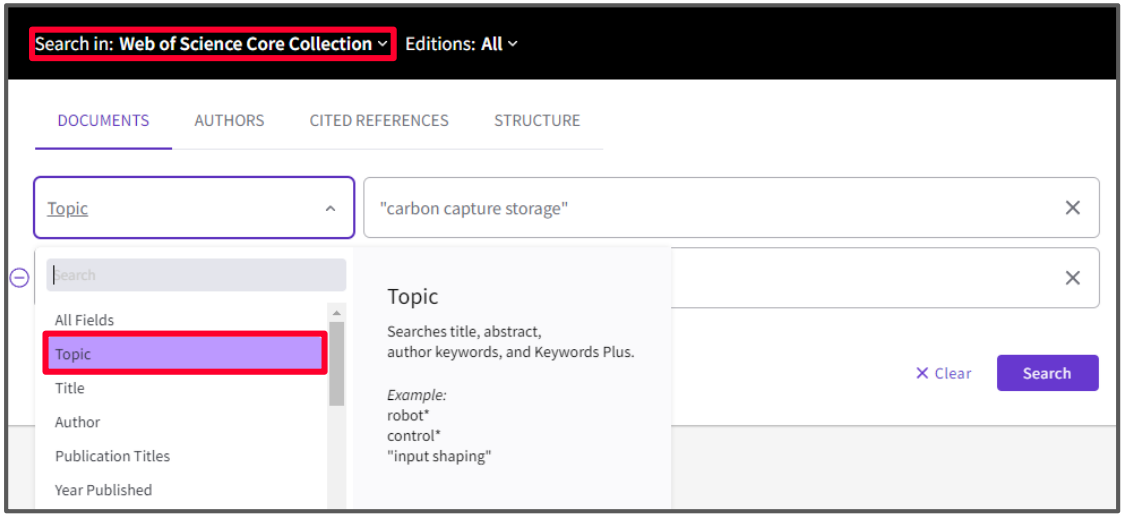
[CTU Central Library]

[Charles University Resources]

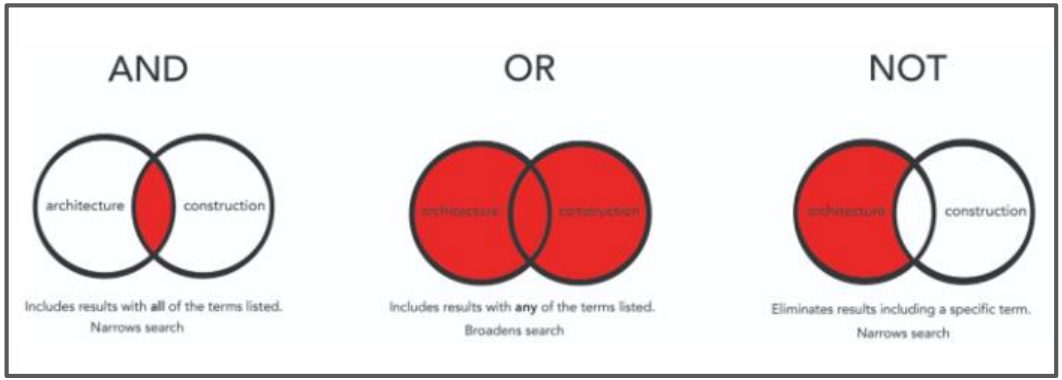
2. Searching by topic in citation databases

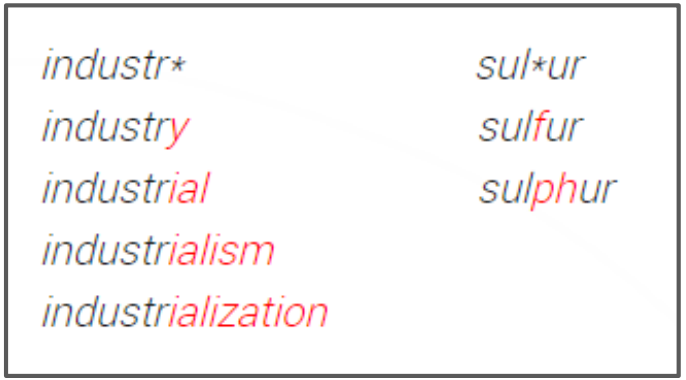
Finding scholarly literature

CASE STUDY #1: I need to find high quality sources for my dissertation about technologies for **carbon capture and utilization**



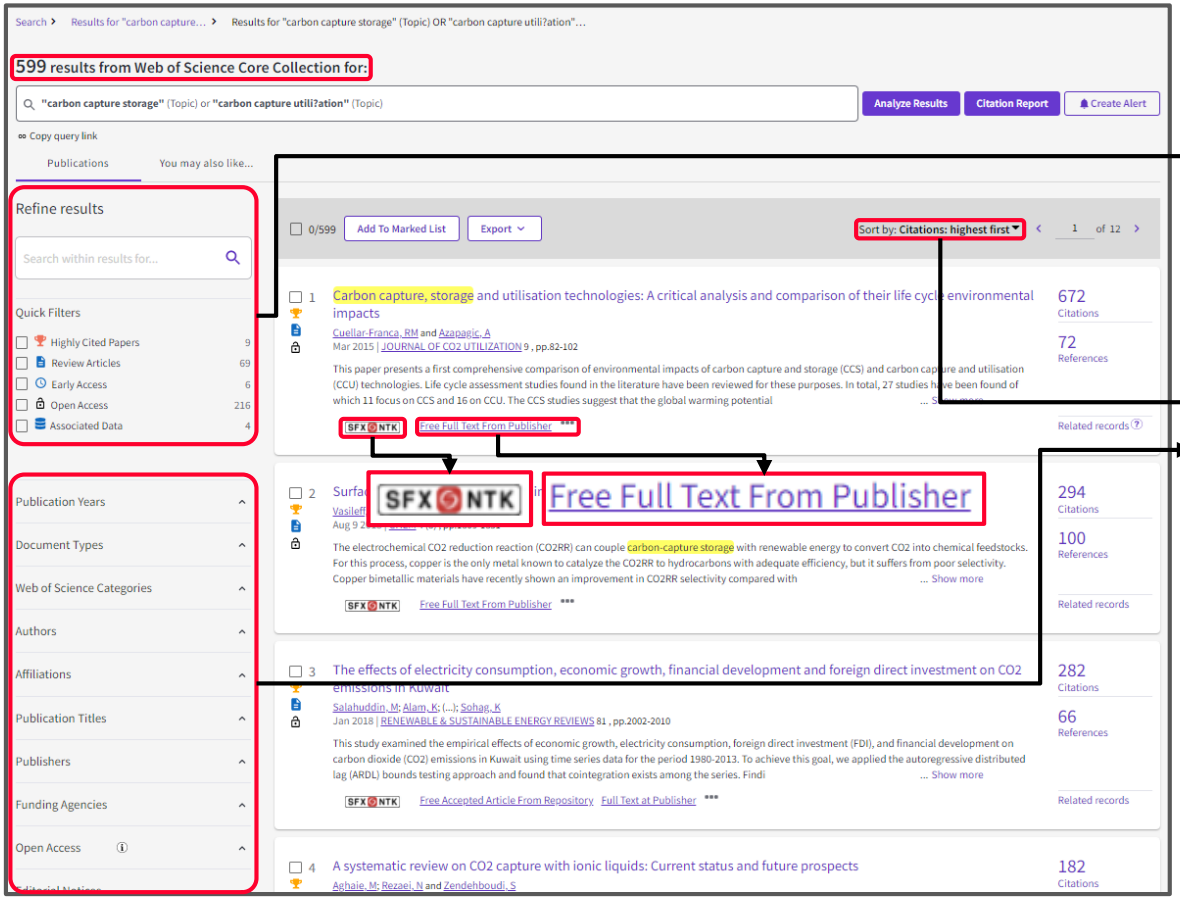
Database searching tips



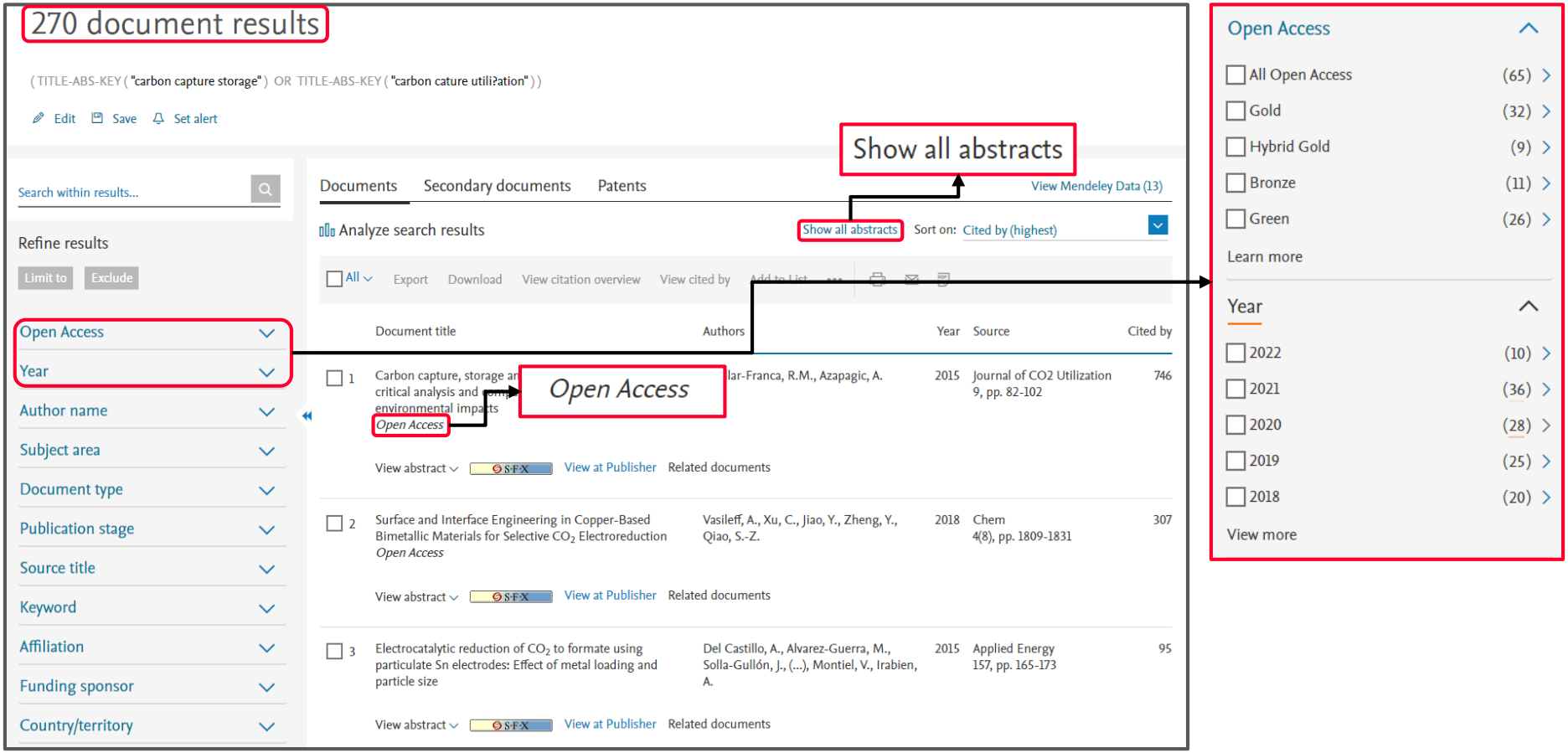


See more database searching tips: https://libguides.mit.edu/c.php?g=175963&p=1158594

Managing results - Web of Science

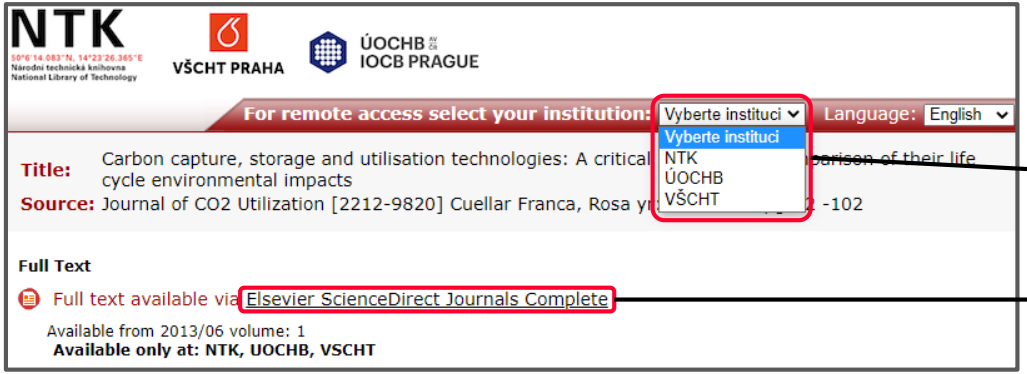


Managing results - Scopus



Getting full text

Web of Science	Scopus
SFX SFX NTK • Redirect link to resources subscribed to by your library. • You can be asked to choose your institution with NTK access (NTK, UCT Prague, or IOCB). See the picture below.	**SFX** S·F·X • Redirect link to resources subscribed to by your library. • You can be asked to choose your institution with NTK access (NTK, UCT Prague, IOCB). See the picture.
Free Full Text From Publisher • Direct "publisher link" to open access resources. (Search the article title in Google Scholar if the link is broken)	**View at Publisher** • Direct "publisher link" to the article published in both open access and subscription resources. Search for the title of the article in Google Scholar or contact your library for assistance.
Full Text at Publisher • Direct "publisher link" to the article. It will work just for articles subscribed to by your library. (Use library document delivery services if the link is broken)	

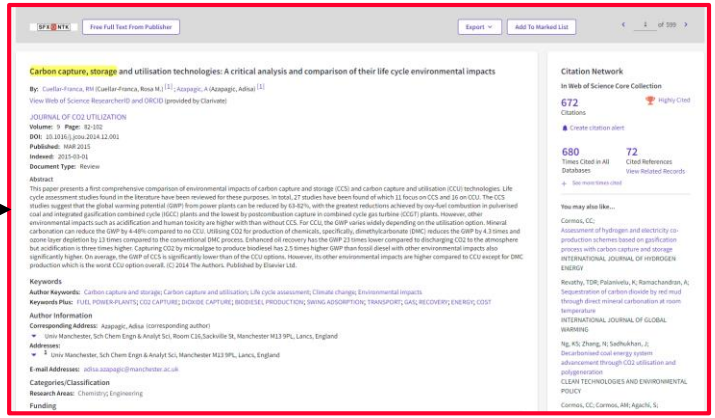


1. Choose your institution

2. Follow the link

Be aware of possible access embargoes

Article details (WoS)



1 Carbon capture, storage and utilisation technologies: A critical analysis and comparison of their life cycle environmental impacts

Cuellar-Franca, RM and Azapagic, A

Mar 2015 | JOURNAL OF CO2 UTILIZATION 9 , pp.82-102

This paper presents a first comprehensive comparison of environmental impacts of carbon capture and storage (CCS) and carbon capture and utilisation (CCU) technologies. Life cycle assessment studies found in the literature have been reviewed for these purposes. In total, 27 studies have been found of which 11 focus on CCS and 16 on CCU. The CCS studies suggest that the global warming potential ... Show more

672 Citations

72 References

SFX NTK Free Full Text From Publisher

Related records

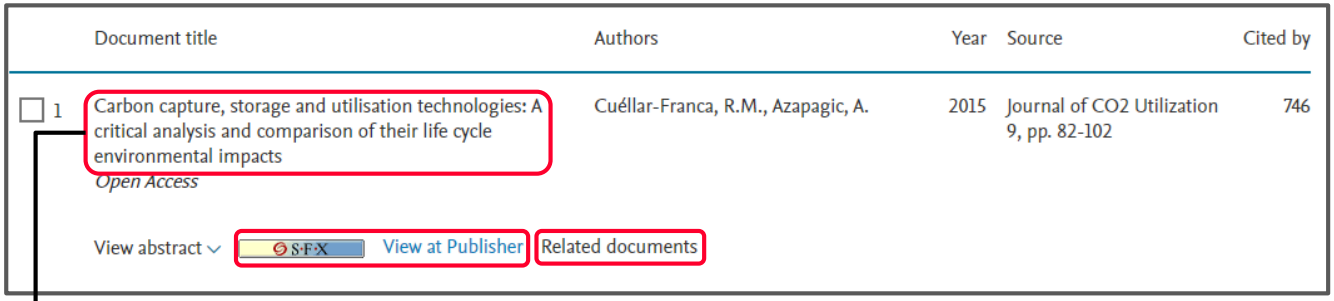
- Add to marked list
- Copy accession number
- Copy DOI
- Copy article link

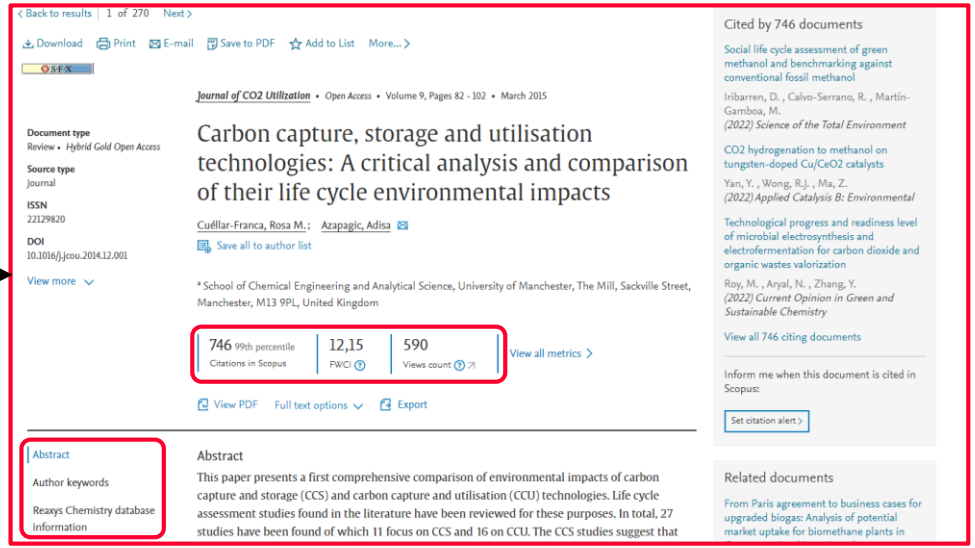
→ Save the article for later

- View Citing Articles
- View Related Records
- View Cited References

→ Get more possibly relevant results

Article details (Scopus)

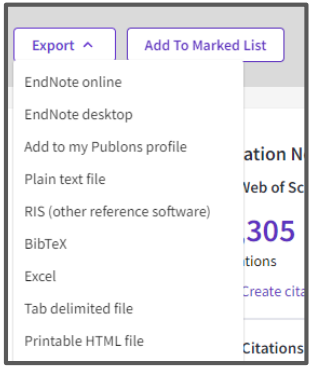




Integration with reference management tools

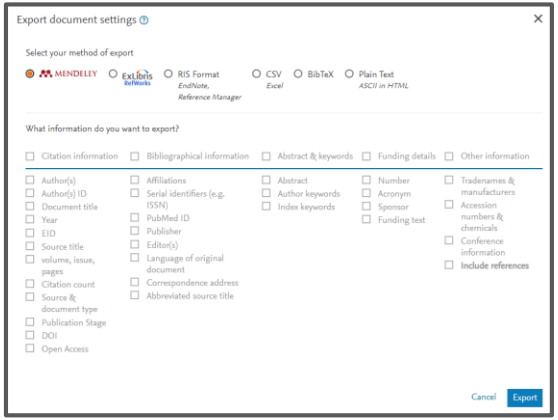
Web of Science

- Supports direct download of citations (and PDFs) to **EndNote**
- You can also save citations via the browser extension for your favorite reference management tools (e.g., Zotero or Mendeley) or you can export selected citations to an RIS file (that can be opened by other reference management tools)



SCOPUS

- Supports direct download of citations (and PDFs) to **Mendeley** and **RefWorks**
- You can also save citations via the browser extension for your favorite reference management tools (e.g., Zotero or EndNote) or you can export citations to an RIS file (that can be opened by other reference management tools)

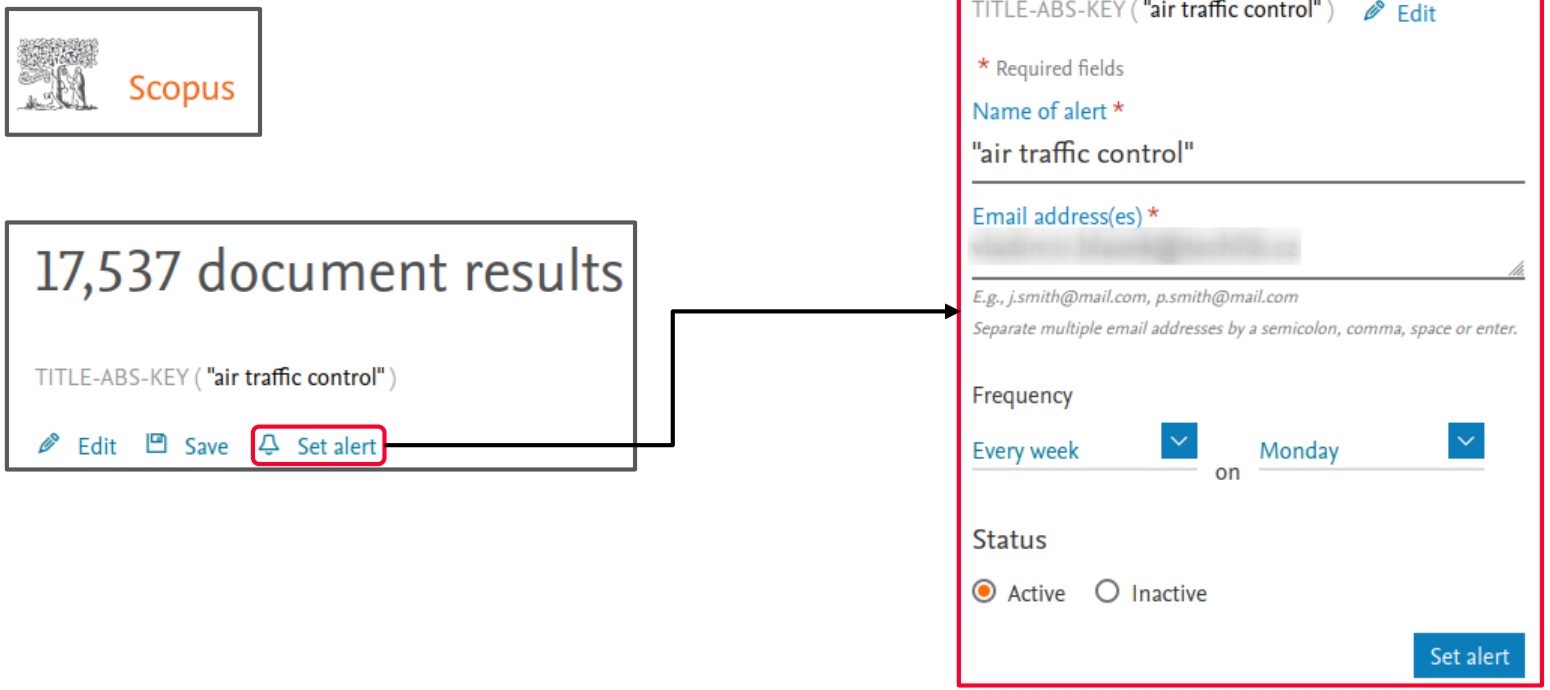


Personal accounts

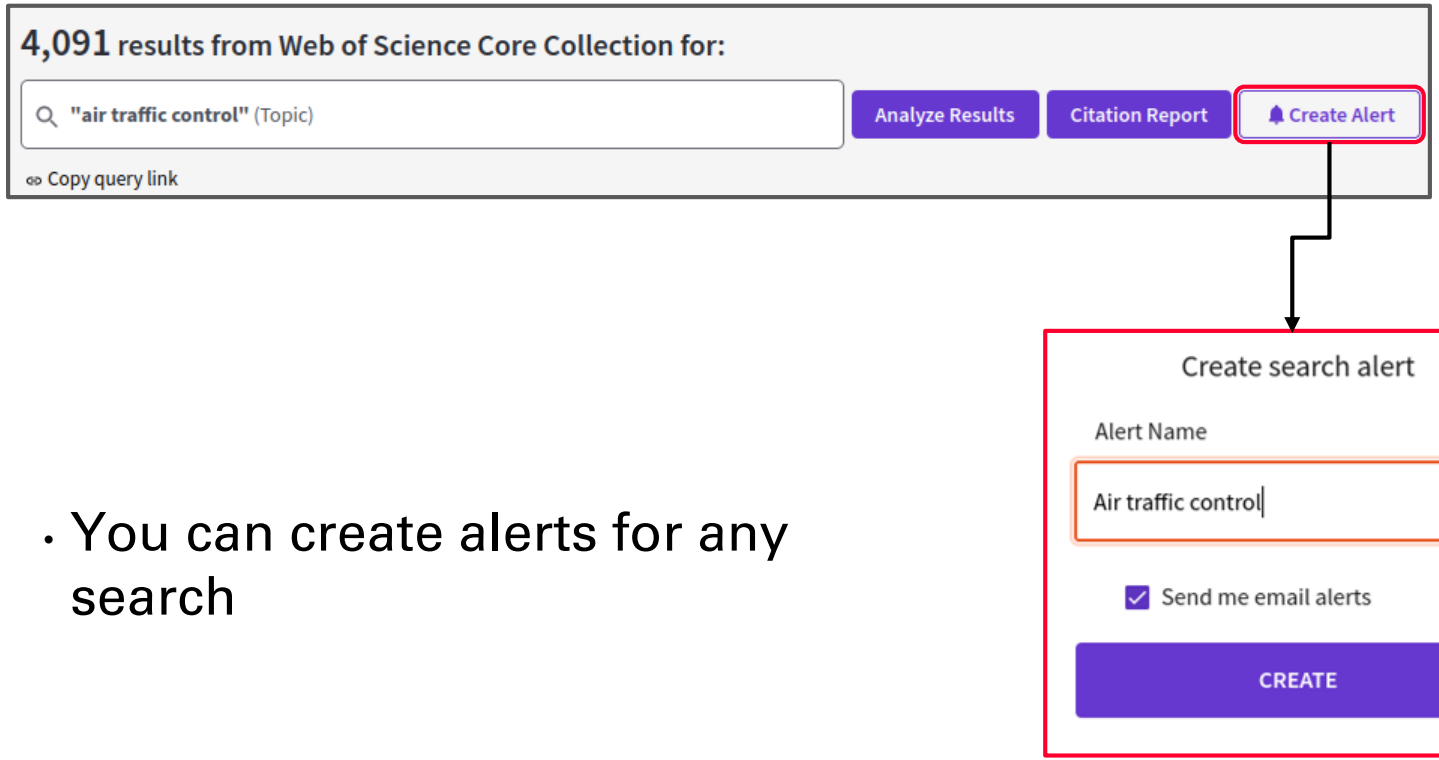
Creating personal accounts enables you to:

- **Save** your search history and lists of documents
- **Create alerts** for each search

Setting search alerts: Scopus



Setting search alerts: WoS



- You can create alerts for any search

3. Searching for journals

What are journal metrics?

- Measurements of quality/impact of a journal

- They assist in quantifying the importance of a journal

Journal metrics

Web of Science Journal Citation Reports:

- Journal Impact Factor

Scopus sources:

- CiteScore

Impact factor (WoS)

"The impact factor is a measure of the frequency with which the 'average article' in a journal has been cited in a particular year or period."

*"The impact factor of a journal is calculated by dividing the number of current year citations to the source items published in that journal during the **previous two years**."*[1]

$$\mathrm{IF}_{2017} = \frac{\mathrm{Citations}_{2016} + \mathrm{Citations}_{2015}}{\mathrm{Publications}_{2016} + \mathrm{Publications}_{2015}} = \frac{32389 + 41701}{880 + 902} = 41.577$$

Image source: https://en.wikipedia.org/wiki/Impact_factor

1) Garfield E. (1994, June 20), The Impact Factor. Originally published in the *Current Contents*, Available also at: https://clarivate.com/webofsciencegroup/essays/impact-factor/

CiteScore (Scopus)

CiteScore 2020 methodology

CiteScore 2020 counts the citations received in 2017-2020 to articles, reviews, conference papers, book chapters and data papers published in 2017-2020, and divides this by the number of publications published in 2017-2020.

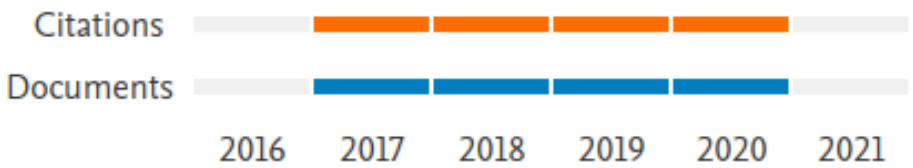


Image source: https://www.scopus.com/sources.uri?zone=TopNavBar&origin=searchbasic

CiteScore (Scopus) vs. Impact factor (WoS)

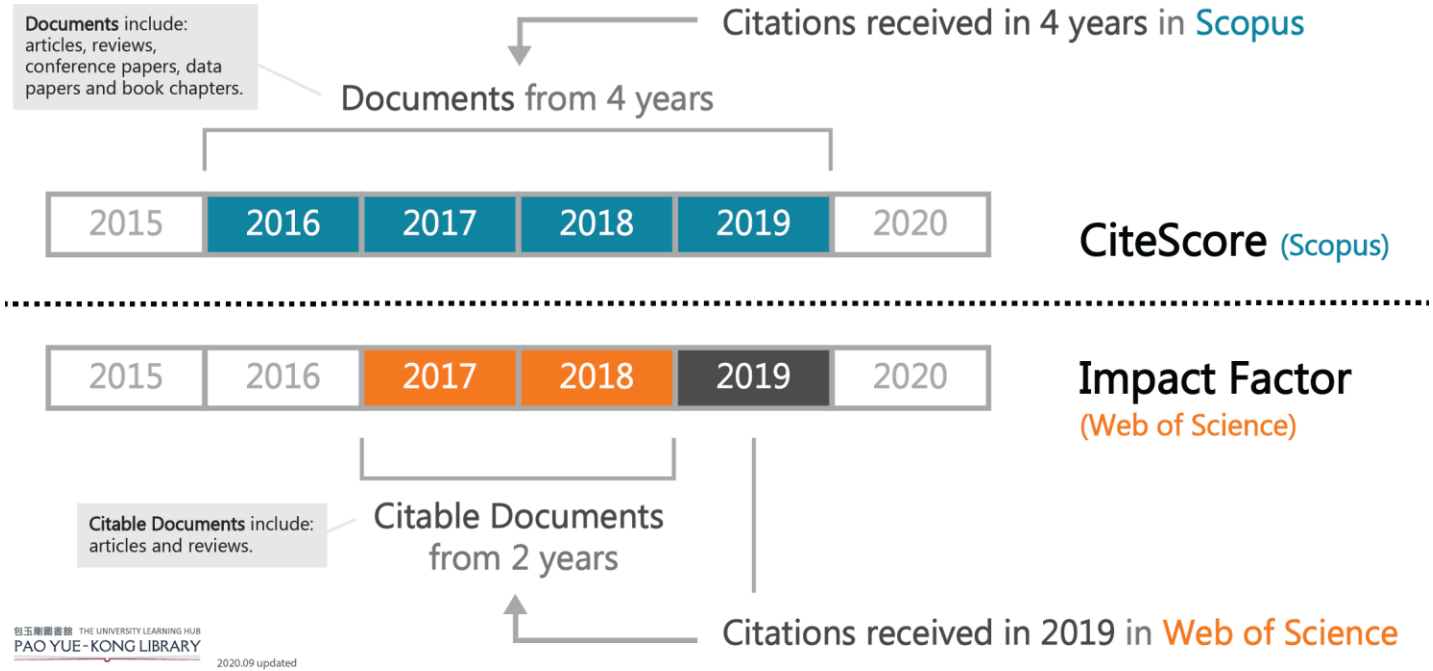
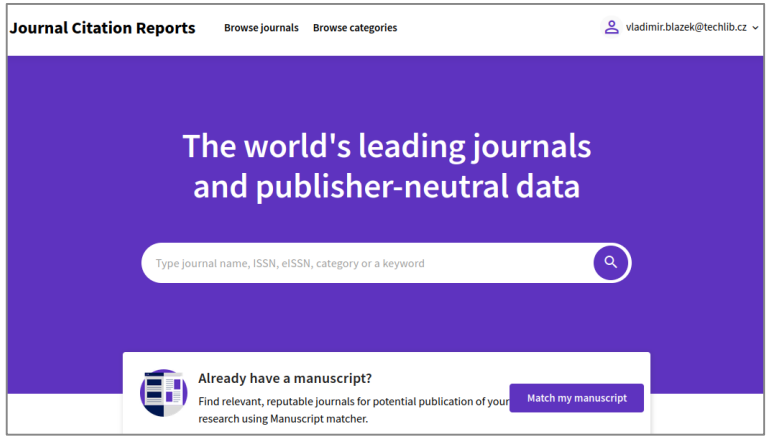


Image source: https://libguides.lb.polyu.edu.hk/journalimpact/citescore

Checking impact factor/CiteScore

CASE STUDY #2: I need to check the quality and reliability of the ***Journal of Modern Power Systems and Clean Energy***

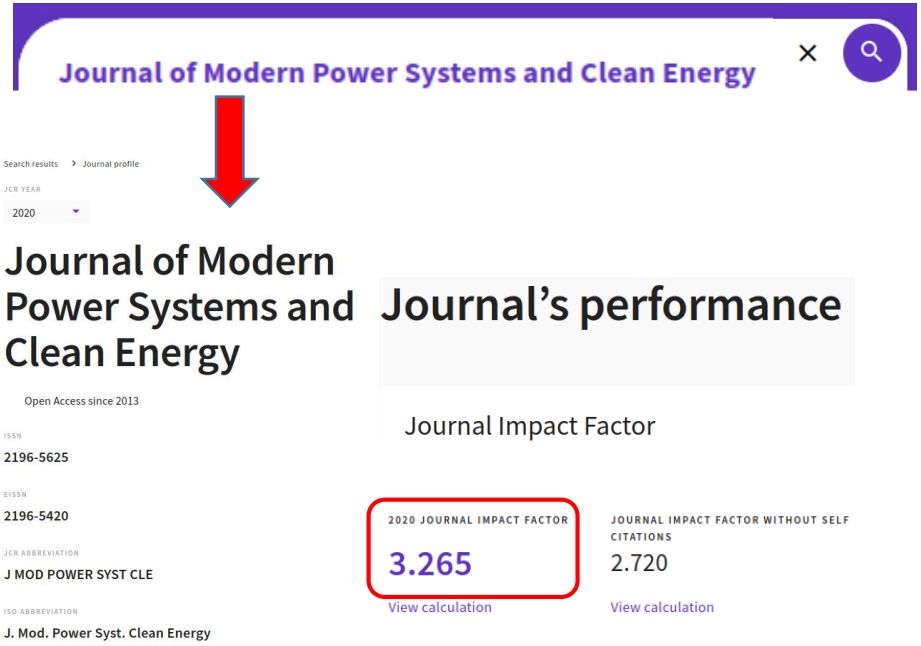
- **Journal Citation Reports** for WoS impact factor
- **Sources** for Scopus CiteScore



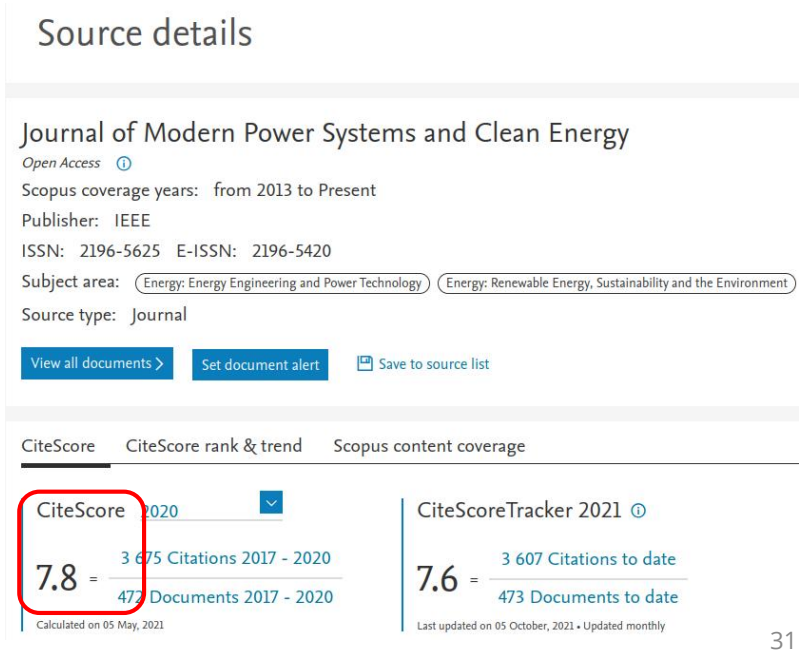
Checking impact factor/CiteScore

Journal of Modern Power Systems and Clean Energy

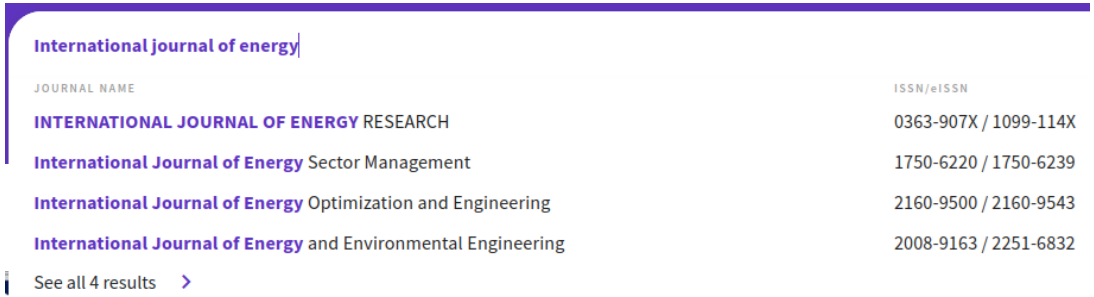
Web of Science™



Scopus



CASE STUDY #3: I need to check the quality and reliability of the *International Journal of Energy Engineering*



INTERNATIONAL JOURNAL OF ENERGY RESEARCH

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EISSN
1099-114X

JCR ABBREVIATION
INT J ENERG RES

ISO ABBREVIATION
Int. J. Energy Res.

2020 JOURNAL IMPACT FACTOR

5.164

View calculation

International Journal of Energy Sector Management

ISSN
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EISSN
1750-6239

JCR ABBREVIATION
INT J ENERGY SECT MA

ISO ABBREVIATION
Int. J. Energy Sect. Manag.

Emerging journal

International Journal of Energy Optimization and Engineering

ISSN
2160-9500

EISSN
2160-9543

JCR ABBREVIATION
INT J ENERGY OPTIM E

ISO ABBREVIATION
Int. J. Energy Optim. Eng.

Emerging journal

International Journal of Energy and Environmental Engineering

ISSN
2008-9163

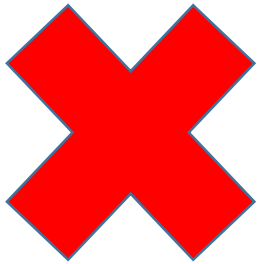
EISSN
2251-6832

JCR ABBREVIATION
INT J ENERGY ENVIR E

ISO ABBREVIATION
Int. J. Energy Environ. Eng.

Emerging journal

CASE STUDY #3: I need to check the quality and reliability of the ***International Journal of Energy Engineering***



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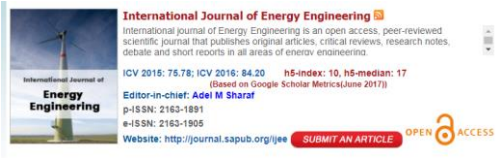


Link: http://www.sapub.org/journal/aimsandscope.aspx?journalid=1005

Publisher: Scientific & Academic Publishing (SAP)

ISSN:	2163-1905
WoS JCR:	**NO**
Scopus Sources:	**NO**
Beall's archive:	**YES**

International Journal of Energy Research

Link: https://onlinelibrary.wiley.com/journal/1099114x

Publisher: John Wiley & Sons Ltd.

ISSN:	1099-114X
WoS JCR:	**YES** (2017-IF 3.009)
Scopus Sources:	**YES** (2017-CS 2.72)
Beall's archive:	**NO**

Tracking a specific journal

- Be careful: one word or one letter can make a great difference
- Ulrichsweb: check journal details and ISSNs
- Beall's archive of potential predatory publishers and journals
  - Beware! The original list has not been updated since 2016
  - There are successors to Jeffrey Beall, but they prefer to remain anonymous

4. Searching for authors & *h*-index counts

Why use author identifiers?

- Names are sometimes confusing; there are different ways to write/transliterate them
- Names are not unique
- People can change their names

- Author identifiers give you the ability to reliably distinguish two authors with the same name or to track one author across multiple databases

Author identifiers

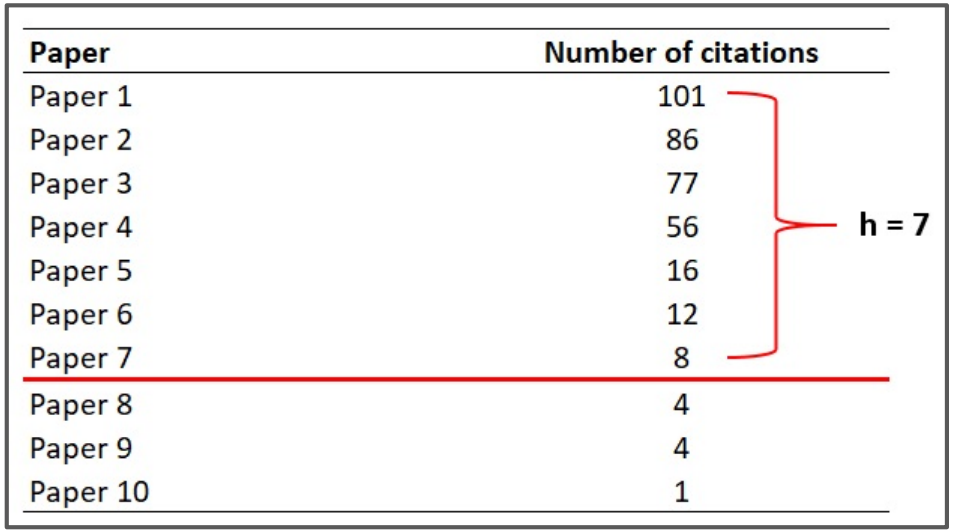
Features	ResearcherID	Scopus Author Identifier	ORCID (Open Researcher & Contributor ID)
How to get author identifier?	Author identifier will be created automatically with your first publication in WoS or created manually in Researcher Profile.	Author identifier will be generated automatically if you have at least one publication in Scopus. You can edit author profiles (Edit profile tool) or use Author Feedback Wizard or Support. Merging profiles is possible on the results page.	Create your profile at orcid.org. You can join all your author IDs in ORCID.
How to link your publication with your ID?	Edit your author profile in Researcher Profile in your account at Web of Science.	Imported automatically from Scopus, add manually in Edit profile.	You can import from many platforms (WoS, Scopus, arXiv) or add manually.
Supporting platforms	Web of Science	Scopus	Open non-profit initiative

- Link all papers published under different variants of your name
- Distinguish papers written by other authors with the same name
- Create your author profiles

h-index

"The h-index is based on a list of publications ranked in descending order by the Times Cited. The value of h is equal to the number of papers (N) in the list that have N or more citations. (...)

A researcher (or a set of papers) has an h-index of N if he/she has published N papers that have N or more citations each. The h-index is based on Times Cited data from the database. It will not include citations from non-indexed resources." [1]



Paper	Number of citations	
Paper 1	101	h = 7
Paper 2	86	
Paper 3	77	
Paper 4	56	
Paper 5	16	
Paper 6	12	
Paper 7	8	
Paper 8	4	
Paper 9	4	
Paper 10	1	

Image source: https://toptipbio.com/h-index-how-to-calculate-yours/

1) Clarivate Analytics (2019, February 5), *Web of Science: h-index information*. Available at: https://support.clarivate.com/ScientificandAcademicResearch/s/article/Web-of-Science-h-index-information?language=en_US

h-index: potential traps

- The source or records for analysis:
  - Web of Science **vs.** Scopus **vs.** Google Scholar
- The number and accuracy of records in a dataset:
  - Basic search **vs.** ORCID search **vs.** author profile
- Exclude self-citations of selected author **vs.** exclude self-citations of all co-authors

Tracking an author in WoS

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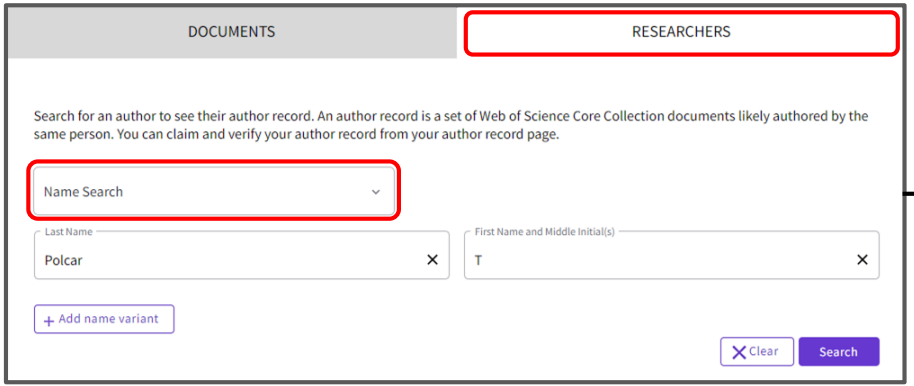
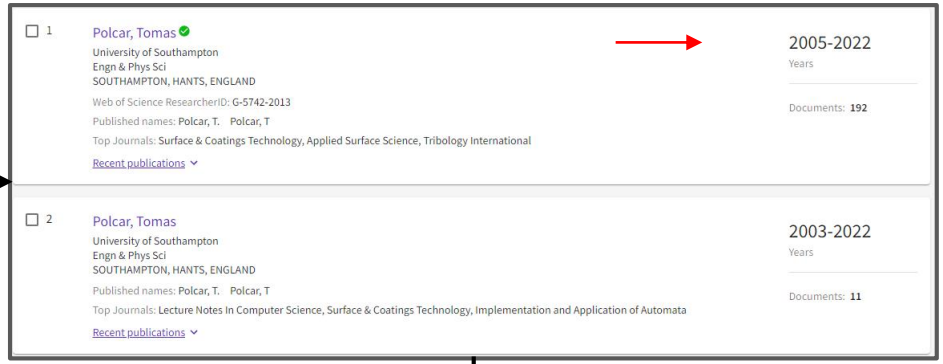
https://usermap.cvut.cz/profile/795f78c3-fa72-446c-a953-4c02c7de9283

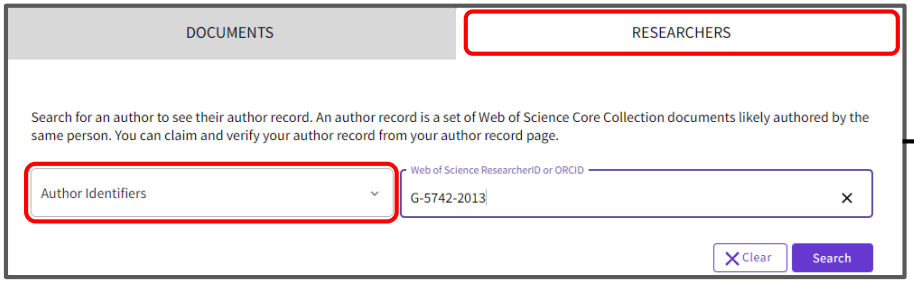
CASE STUDY #4:
I want to find papers by
Prof. Tomáš Polcar
(and check his *h*-index)

Author search: WoS

203 results
Including all articles authored by people with the name "Polcar T", regardless of field



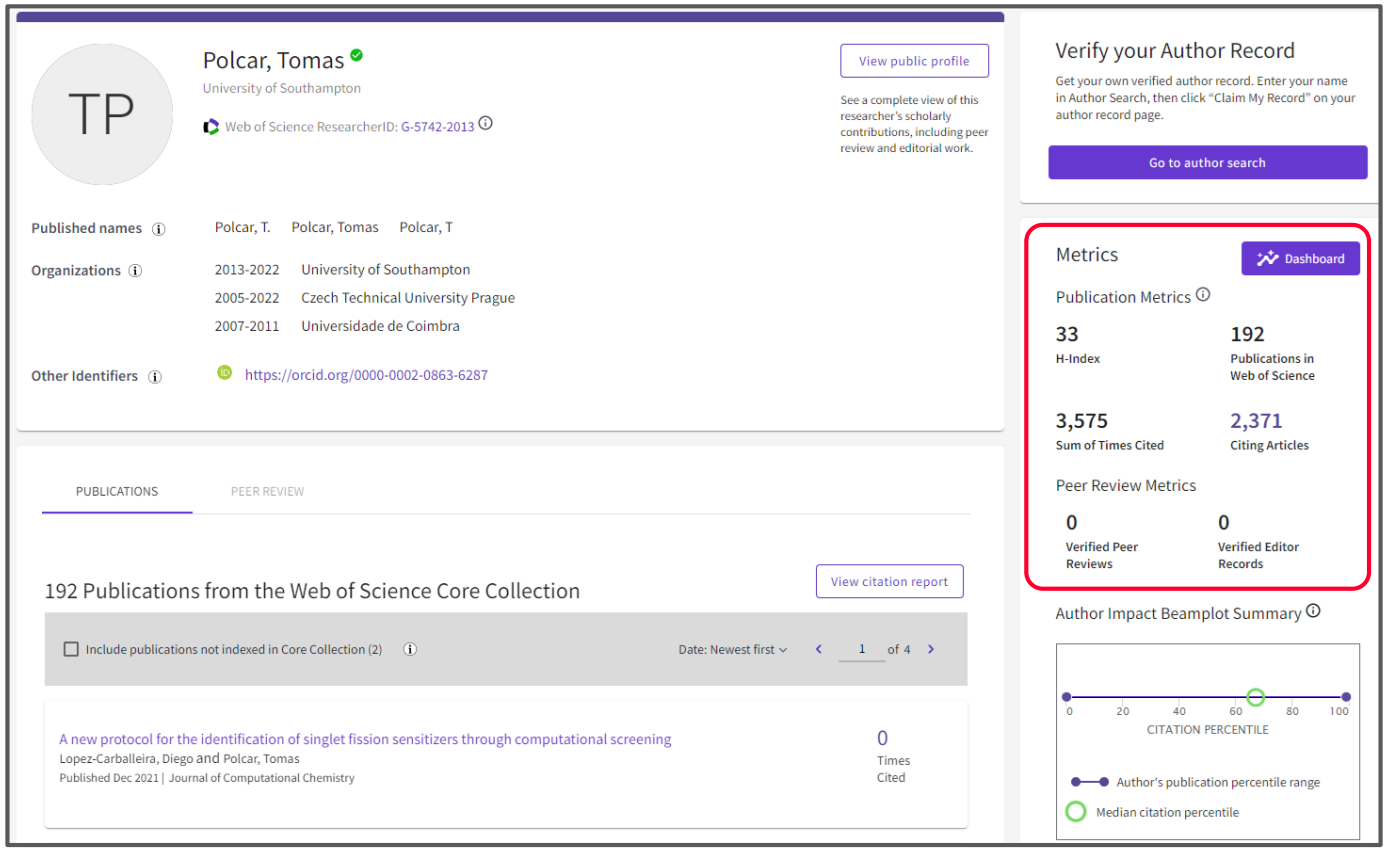




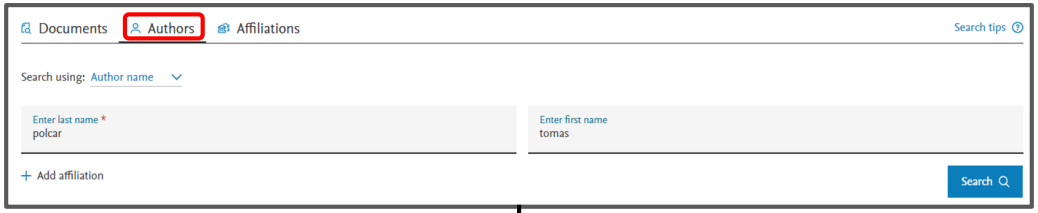
192 records
Including all articles connected to Prof. Polcar via his ResearcherID

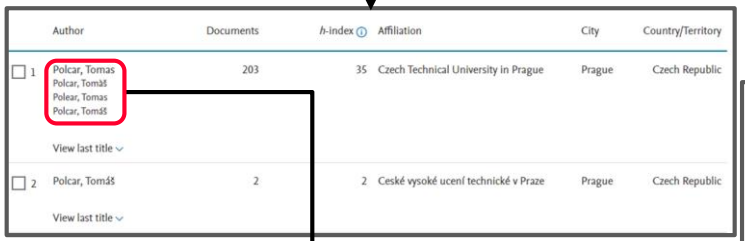
192 records
Author profile
based on analysis of records (name, field, affiliation, and so on)

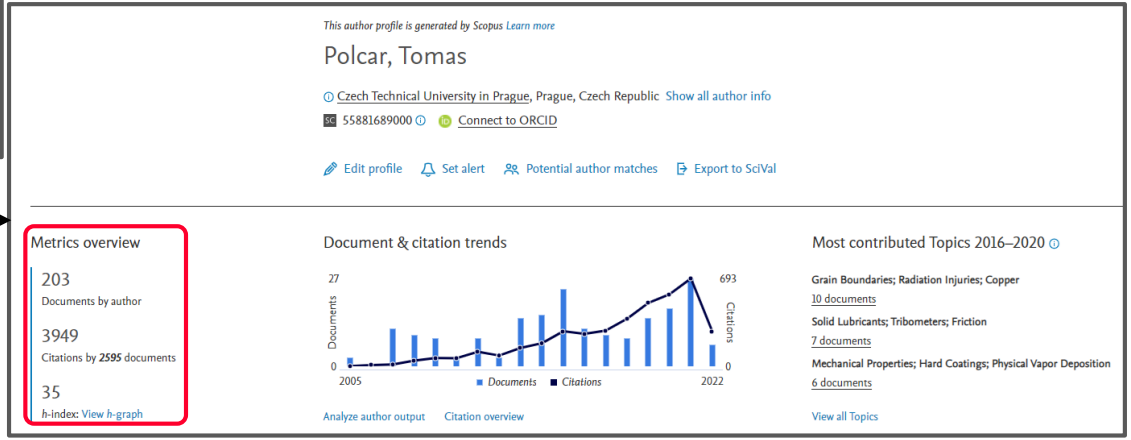
Author search: WoS



Author search: Scopus







Google Scholar metrics

Milan Jirásek

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Czech Technical University in Prague
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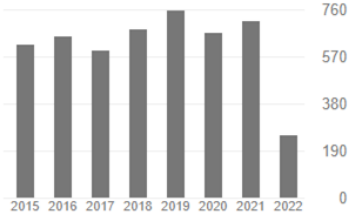
Fracture Failure Plasticity Damage Creep

TITLE	CITED BY	YEAR
Nonlocal integral formulations of plasticity and damage: survey of progress ZP Bažant, M Jirásek Journal of engineering mechanics 128 (11), 1119-1149	1362	2002
Inelastic Analysis of Structures M Jirasek, ZP Bazant Wiley	1029	2002
Comparative study on finite elements with embedded discontinuities M Jirásek Computer methods in applied mechanics and engineering 188 (1-3), 307-330	582	2000
Damage-plastic model for concrete failure P Grassl, M Jirásek International journal of solids and structures 43 (22-23), 7166-7196	571	2006
Nonlocal models for damage and fracture: comparison of approaches M Jirasek International Journal of Solids and Structures 35 (31-32), 4133-4145	469	1998
Comparison of integral-type nonlocal plasticity models for strain-softening materials M Jirásek, S Rolshoven International journal of engineering science 41 (13-14), 1553-1602	278	2003
Meso-scale approach to modelling the fracture process zone of concrete subjected to uniaxial tension P Grassl, M Jirásek International Journal of Solids and Structures 47 (7-8), 957-968	249	2010

Cited by VIEW ALL

	All	Since 2017
Citations	9694	3673
h-index	44	29
i10-index	82	56



45
Public access VIEW ALL

2 articles not available
5 articles available

Based on funding mandates

Co-authors

5. Summary

What you learned today:

- What citation databases are and how you can use them to support my research activities
- How you can identify seminal and/or review articles in my field quickly and easily
- How you can get PDFs and stay organized while working with citation databases
- Evaluating what journals are important in my field
- How you can find various journal metrics (e.g. Impact factor and CiteScore)
- What an h-index is, how you can find mine/that of others, and what an h-index is used for

Summary of advantages

- **Contain high-quality, peer-reviewed articles**
- You can use the number of citations to identify seminal articles
- Searching for authors and evaluating them
- Searching for journals and their metrics
- Creating alerts to track new trends

Keep in mind

- **Access to full texts** can be problematic
- To make your research more comprehensive, also **use other search tools** (e.g., Google Scholar, an academic library discovery system)
- **Delay** in indexing sometimes (up to 6 months after publication for some journals)

Image source: By sci-hub.tw/misc/img/raven_1.png Derivative of the "Ominous" raven screenprint by Kate McLelland (2011), Fair use, https://en.wikipedia.org/w/index.php?curid=48743375

6. Getting assistance

STEMskiller

https://www.techlib.cz/en/84109-stemskiller

SKILL SET MAP FOR MENTORS OF EARLY CAREER RESEARCHERS

Definitions, annotations, and links to high-quality open educational resources in English useful in guiding students towards excellence. [Read more...]

Competencies are grouped into four areas, with subsections:

1. Research and scholarship
2. Learning, teaching, and supervising
3. Career management
4. Engagement, involvement, collaboration, transdisciplinarity, and inquisitiveness

You can also browse topics A-Z

Contribute to our effort:

- Provide peer review for annotations
- Propose high-quality open resources in English

Our team is ready to help you

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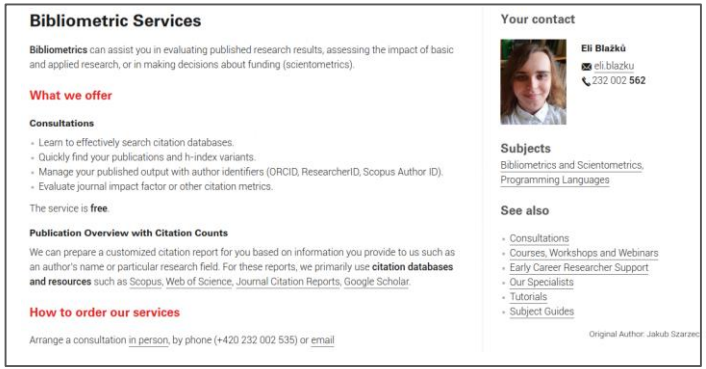
- Learning more about scholarly communications
- Getting full texts of hard-to-access papers
- Informal peer discussion about academic careers and life as a doctoral student, with other doctoral students

- www.techlib.cz
- info@techlib.cz



Bibliometric Services

Bibliometrics can assist you in evaluating published research results, assessing the impact of basic and applied research, or in making decisions about funding (scientometrics).

What we offer

Consultations

- Learn to effectively search citation databases.
- Quickly find your publications and h-index variants.
- Manage your published output with author identifiers (ORCID, ResearcherID, Scopus Author ID).
- Evaluate journal impact factor or other citation metrics.

The service is **free**.

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We can prepare a customized citation report for you based on information you provide to us such as an author's name or particular research field. For these reports, we primarily use **citation databases and resources** such as Scopus, Web of Science, Journal Citation Reports, Google Scholar.

How to order our services

Arrange a consultation in person, by phone (+420 232 002 535) or email

Your contact

Eli Blažků
eli.blazku
232 002 **562**

Subjects
Bibliometrics and Scientometrics, Programming Languages

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- Consultations
- Courses, Workshops and Webinars
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Original Author: Jakub Szarzec

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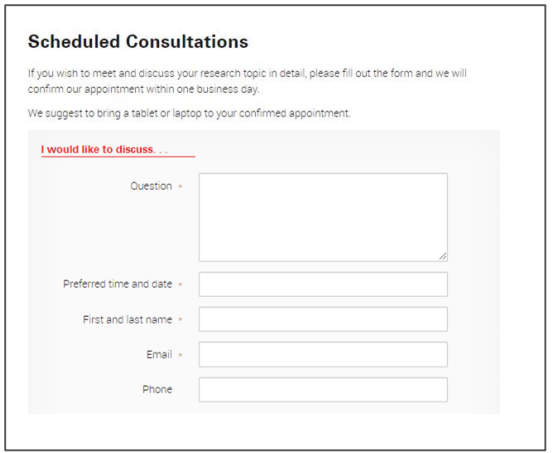

Scheduled Consultations

If you wish to meet and discuss your research topic in detail, please fill out the form and we will confirm our appointment within one business day.

We suggest to bring a tablet or laptop to your confirmed appointment.

I would like to discuss. . .

Question *
Preferred time and date *
First and last name *
Email *
Phone

https://www.techlib.cz/en/83401-scheduled-consultations

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Thank you

Questions?