Spring 2025

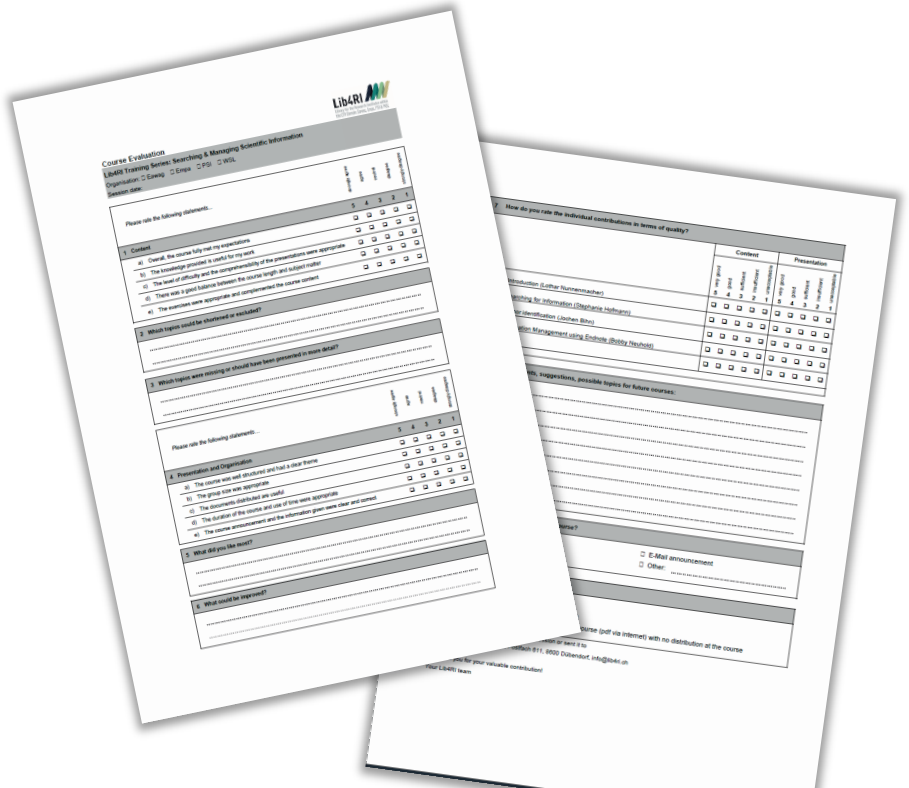
Lib4RI Training Series: Module 1 - Searching Scientific Information

Bobby Neuhold & Stephanie Hofmann

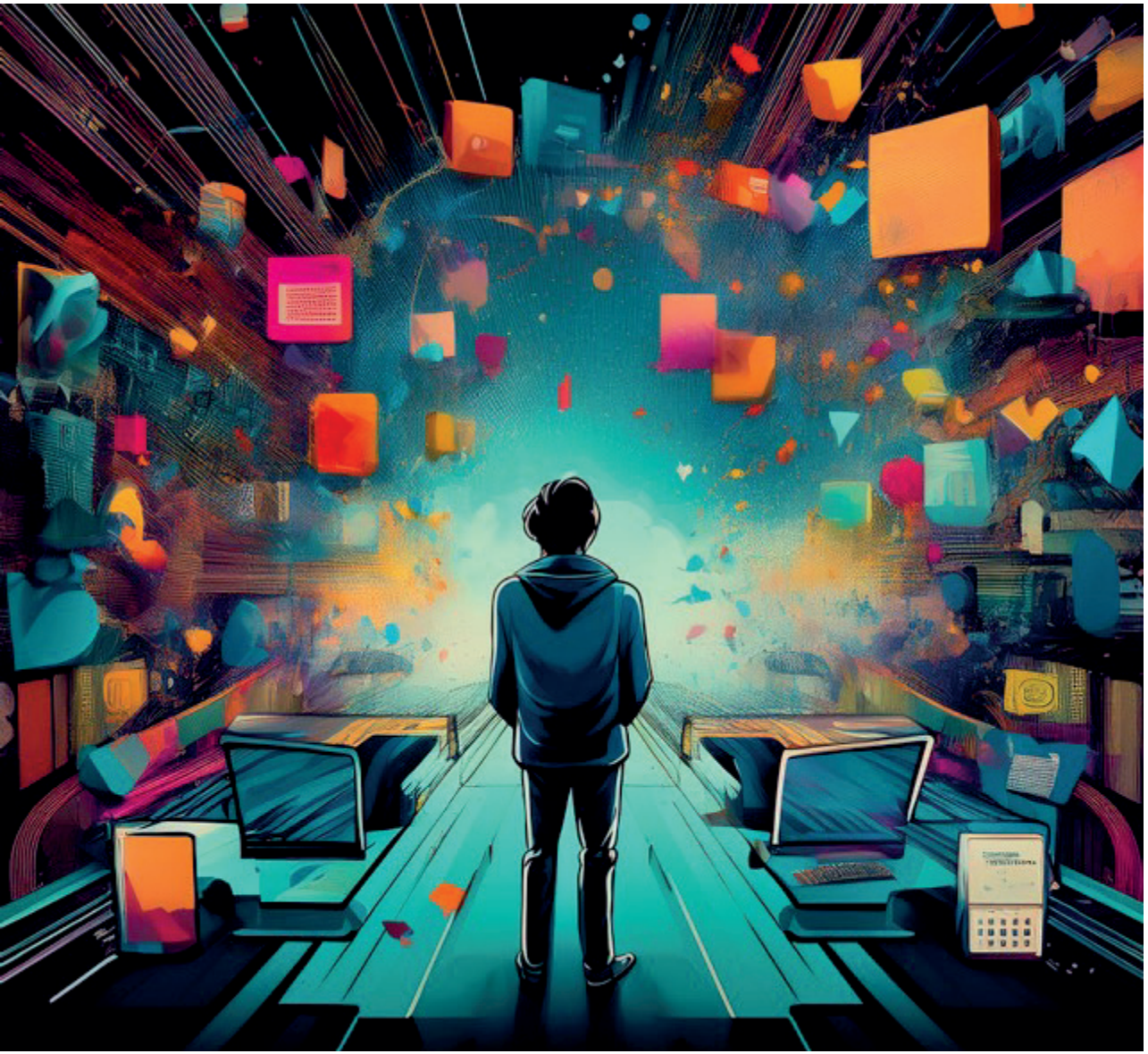
Before we start

The **course slides** and supplementary material are available online on our website at [www.lib4ri.ch > Learn > Trainings > Searching & Managing Scientific Information > Course description > Module 1]

Help us improve our training by returning the **feedback** form in front of you!



Basic Search

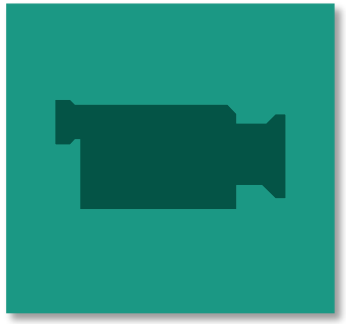


Basic Search

1. Finding (scientific) information
2. How to start
3. Where to find what
4. AI powered tools

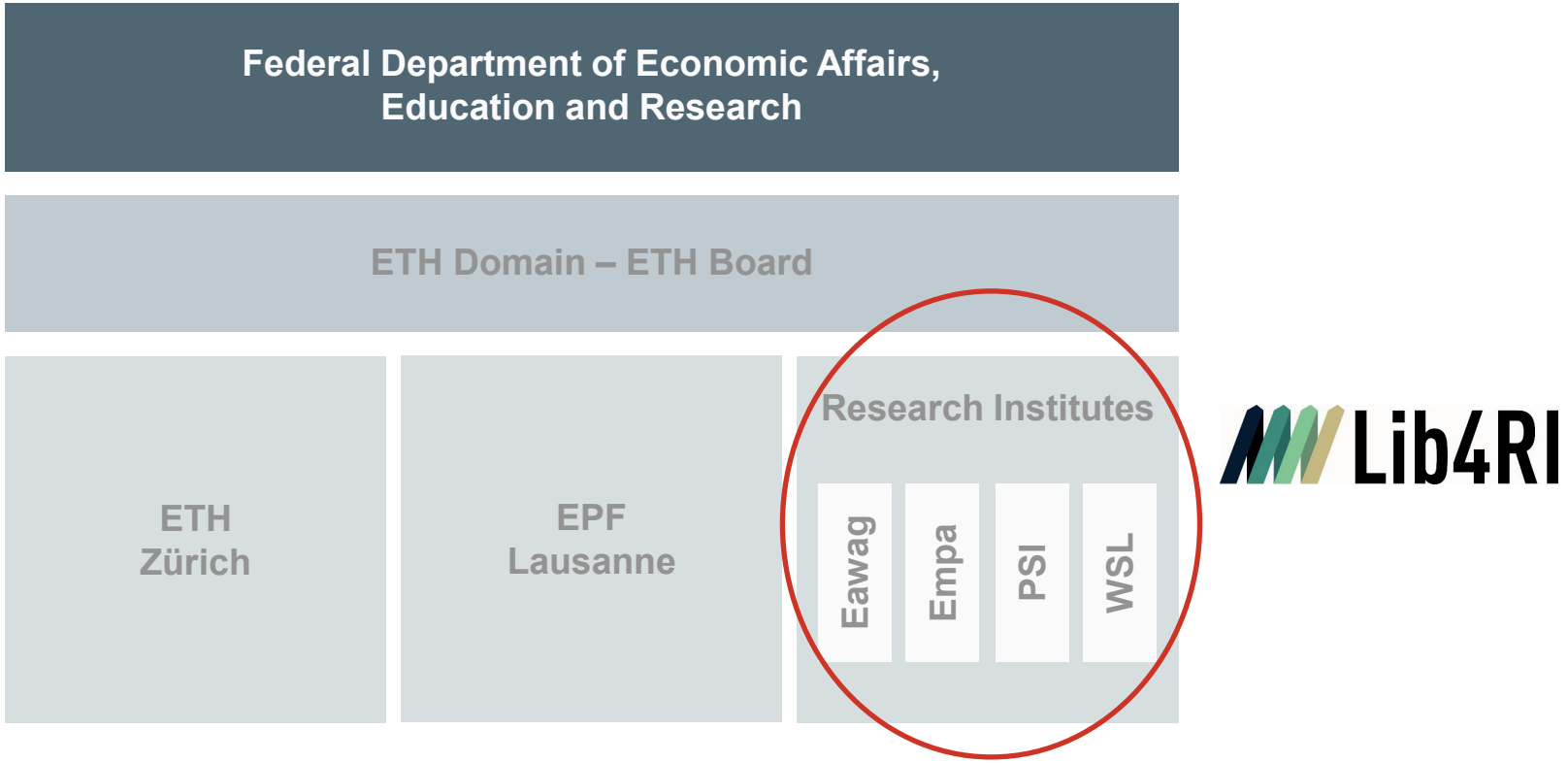
Finding (scientific) information

Lib4RI – what is that?



Lib4RI – what is that?

Library for the Research Institutes within the ETH Domain: Eawag, Empa, PSI & WSL



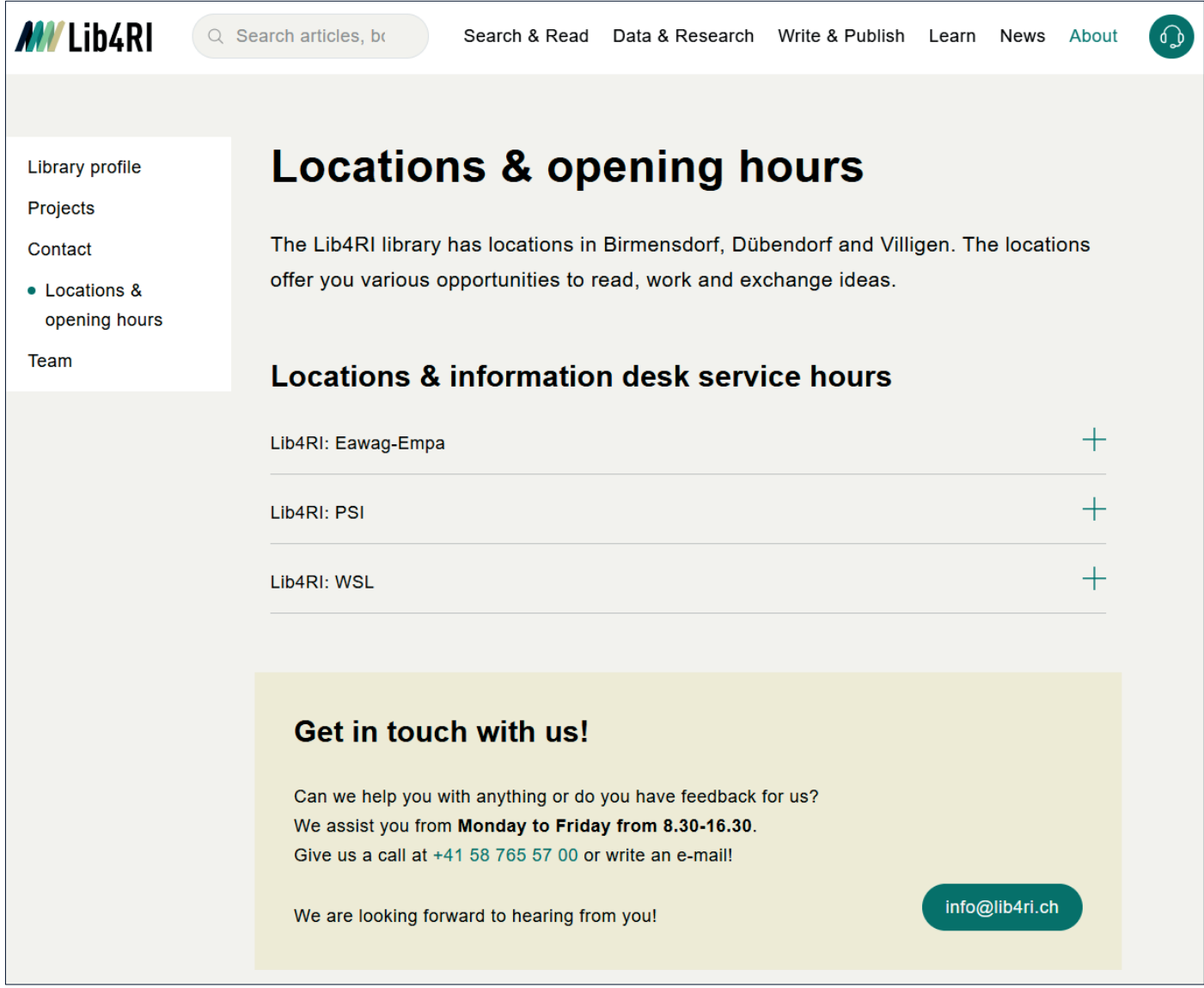
Lib4RI

Lib4RI – overview

- Library locations:
  - Eawag-Empa: Dübendorf
  - PSI: Villigen
  - WSL: Birmensdorf

24h / 7d for staff

- Electronic media:
  - Web: www.lib4ri.ch
  - Access controlled by IP range
  - VPN (Shibboleth)



Lib4RI - locations

WSL (Birmensdorf)

PSI (Villigen)

Eawag-Empa (Dübendorf)

Lib4RI – in figures (as of 31.12.2024)

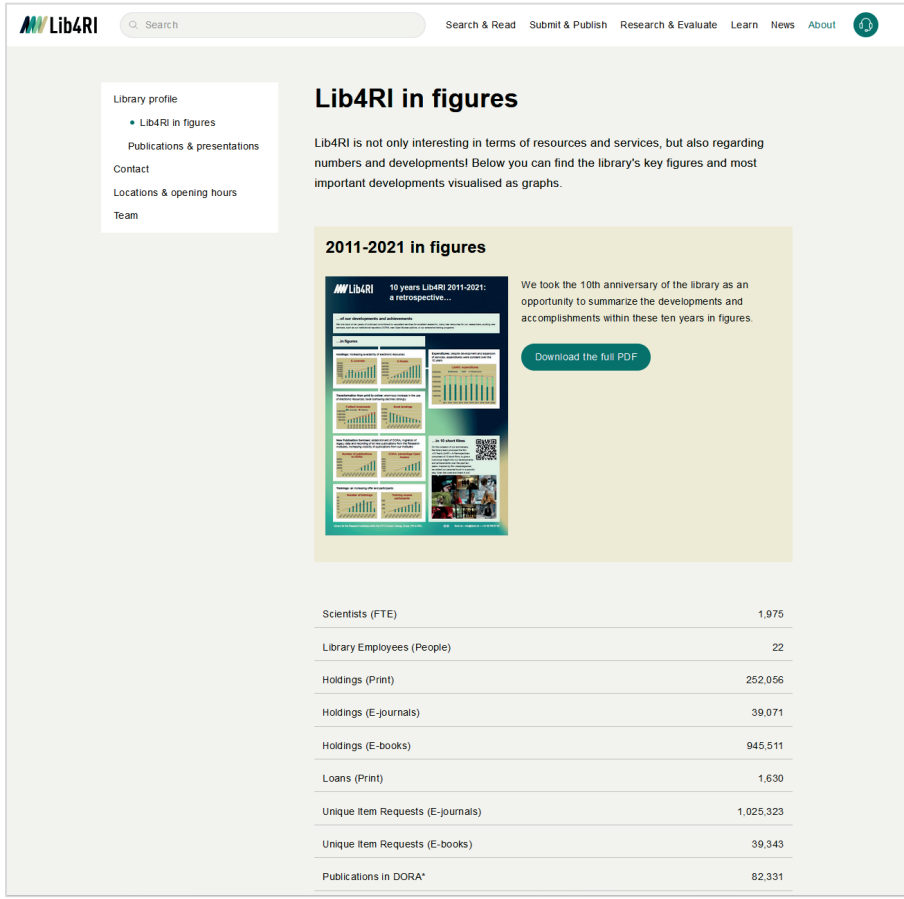
1’058’322 Unique Item Requests (Journals)
44’742 Unique Item Requests (E-Books)
1’064’283 Full Text Downloads in DORA
378 Participants in Trainings
1’302 Document Deliveries
1’465 Book Loans

4’307 FTE staff
1’502 FTE scientists
636 PhD students

51’218 Licensed e-journals
801’540 Licensed e-books
241’240 Print Volumes
102 Print Subscriptions

Library: **18** People
15.1 FTEs

CHF 5.45 Mio Expenditure Total
CHF 3.17 Mio Expenditure Materials



Lib4RI in figures on the Lib4RI website

Search & Read

- Databases
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- Reference works
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- More resources (Maps, etc.)
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Research & Evaluate

- Research data management
- Text data mining

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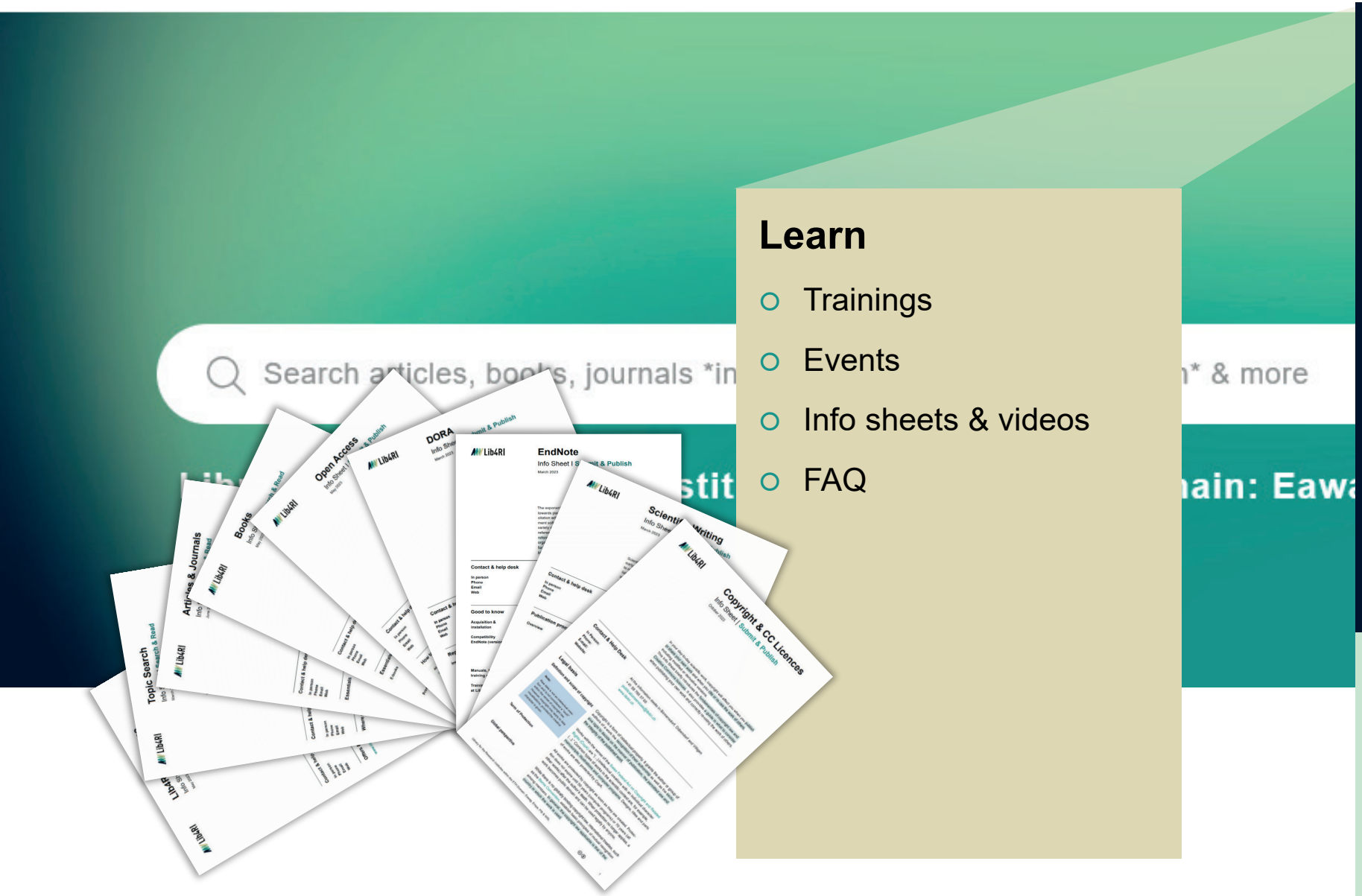

Learn

- Trainings
- Events
- Info sheets & videos
- FAQ

Library for the Research Institutes within the ETH Domain: Eawag, Empa, PSI & WSL

Digital Library Desk

Want to share your screen? See the person you're talking to? Contact us via digital library desk! We will be with you shortly.

Monday-Friday	8:30 -11:30 12:30 -16:30

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Contact options

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Lib4RI - Team

How to start …

References

References

[1] Degussa Corporation, Environmental Uses of Hydrogenperoxide (H_2O
[2] R. Venkatadri, R.W. Peters, Chemical oxidation technologies: ultraviol
reagent and titanium dioxide-assisted photocatalysis, Hazard. Waste Ha
[3] L'air Liquide, Department Chimique, H_2O_2, Antipollution Clean Techn
[4] E.J. Calabrese, P.T. Kostecki, Petroleum Contaminated Soil, Remediatio
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[6] M. Kitis, C.D. Adams, G.T. Daigger, The effects of Fenton's reagent pre
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[10] G.V. Buxton, C.L. Greenstock, Critical review of rate constants for rea
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[11] C. Walling, A. Goosen, Mechanism of the ferric ion catalysed decompo
of organic substrate, J. Am. Chem. Soc. 95 (9) (1973) 2987–2991.

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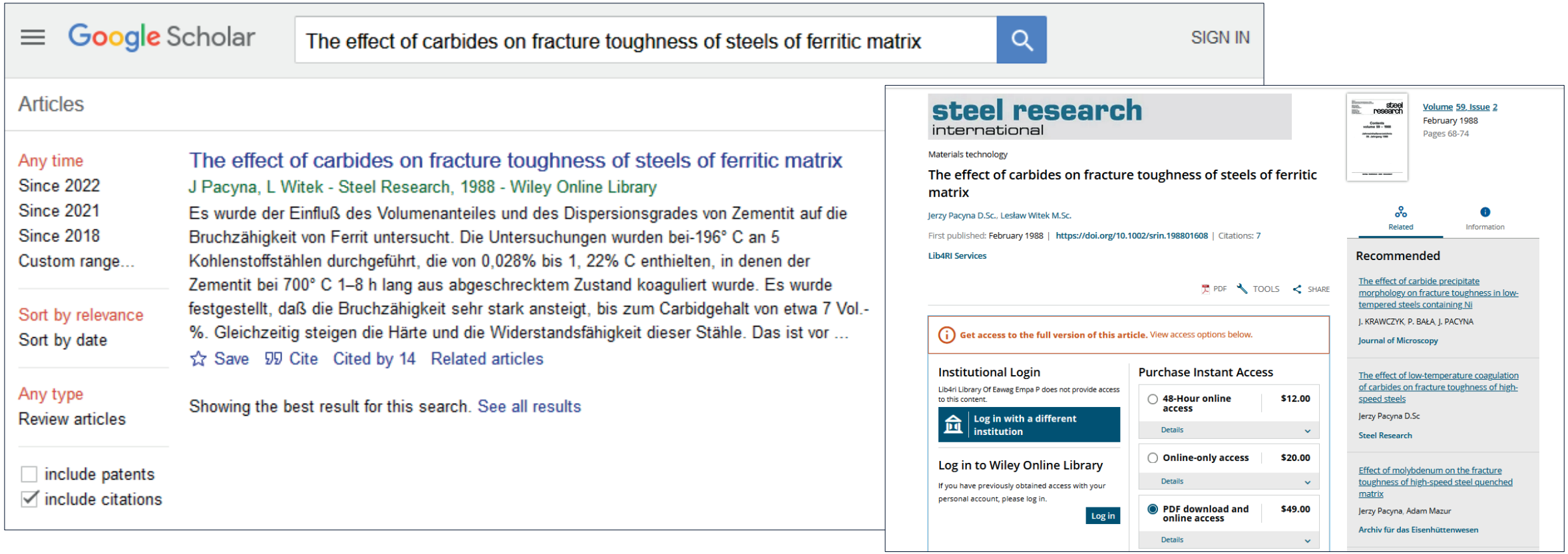
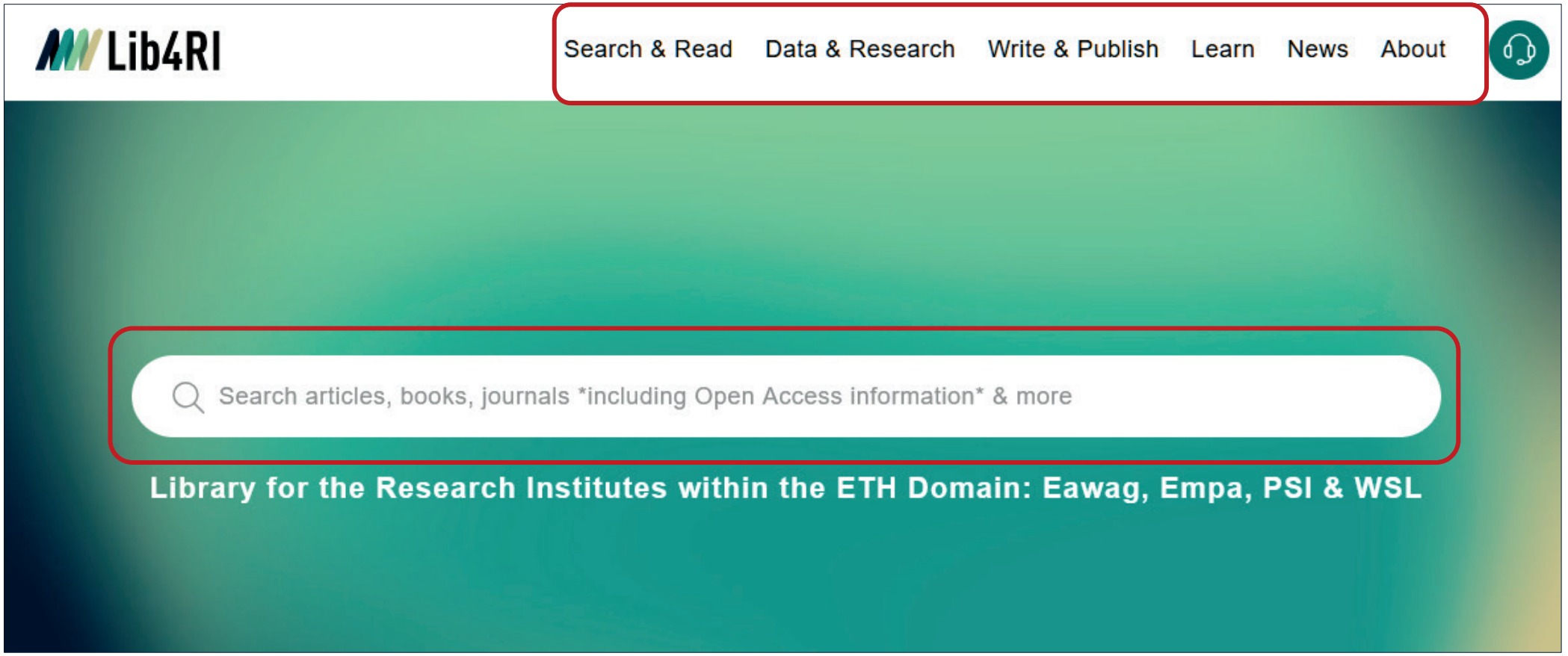
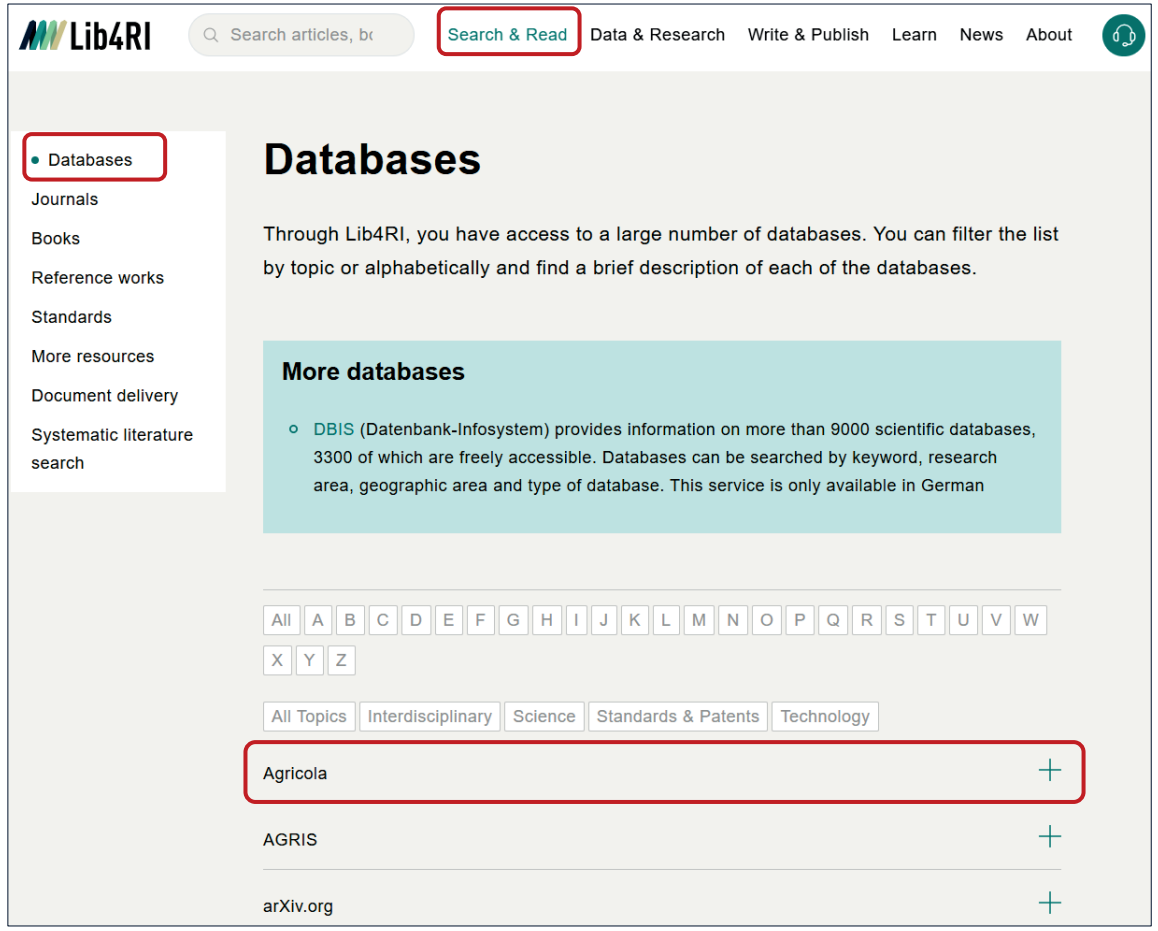
Quick Search - Google Scholar



The shortcut you need – www.lib4ri.ch



Databases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More databases
DBIS (Datenbank-Infosystem) provides information on more than 9000 scientific databases, 3300 of which are freely accessible. Databases can be searched by keyword, research area, geographic area and type of database. This service is only available in German
All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
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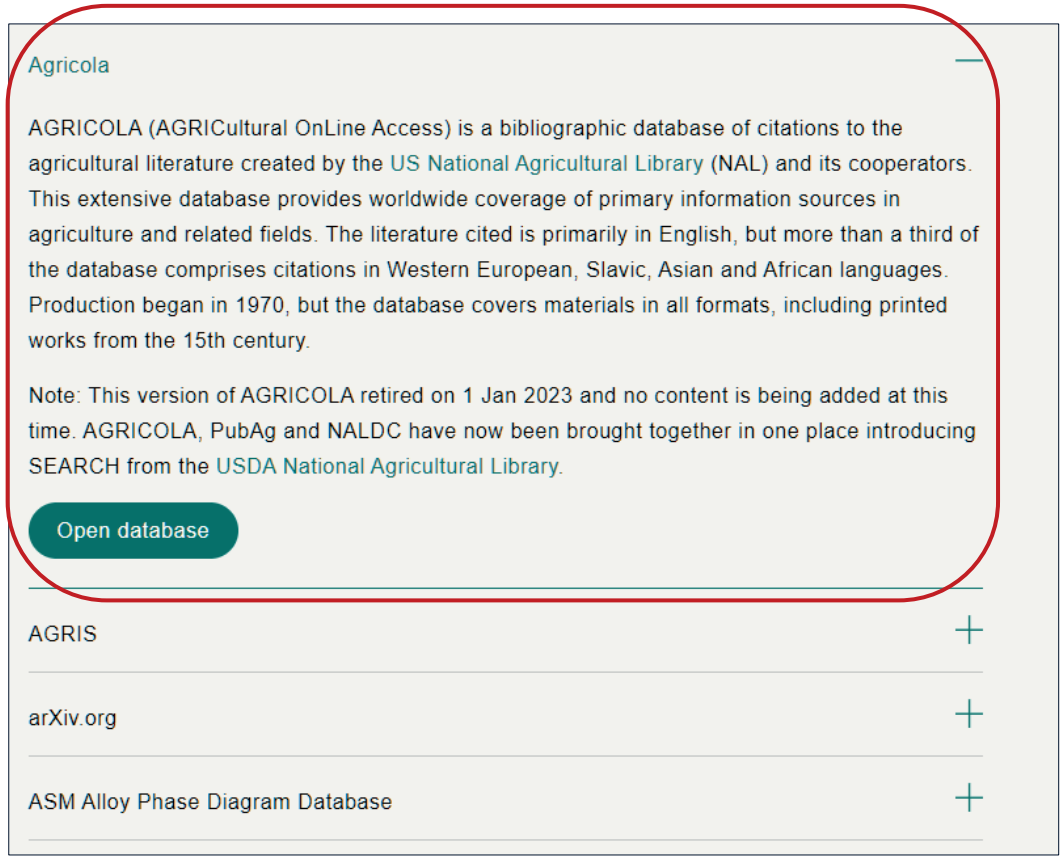
AGRIS
arXiv.org


Agricola
AGRICOLA (AGRICultural OnLine Access) is a bibliographic database of citations to the agricultural literature created by the US National Agricultural Library (NAL) and its cooperators. This extensive database provides worldwide coverage of primary information sources in agriculture and related fields. The literature cited is primarily in English, but more than a third of the database comprises citations in Western European, Slavic, Asian and African languages. Production began in 1970, but the database covers materials in all formats, including printed works from the 15th century.
Note: This version of AGRICOLA retired on 1 Jan 2023 and no content is being added at this time. AGRICOLA, PubAg and NALDC have now been brought together in one place introducing SEARCH from the USDA National Agricultural Library.
Open database
AGRIS
arXiv.org
ASM Alloy Phase Diagram Database

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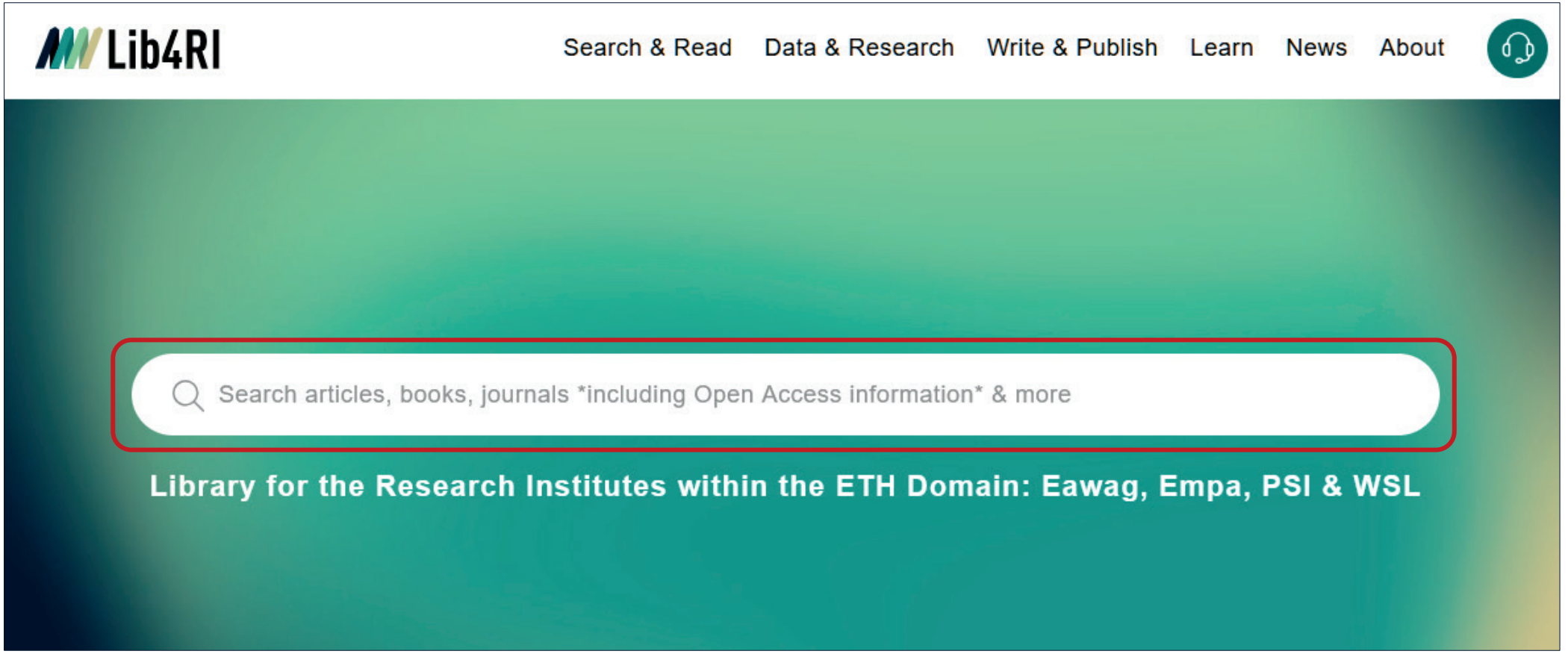
Where to find what – main publication types

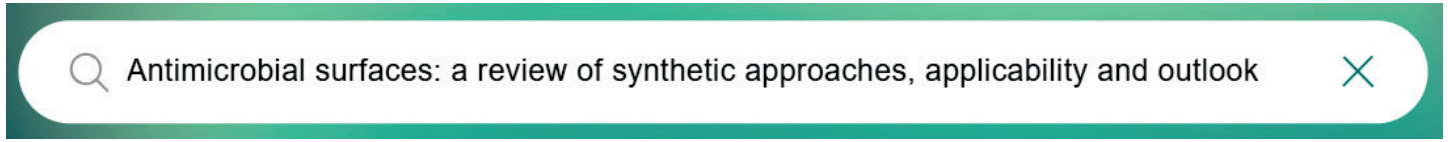
Identifying publication type

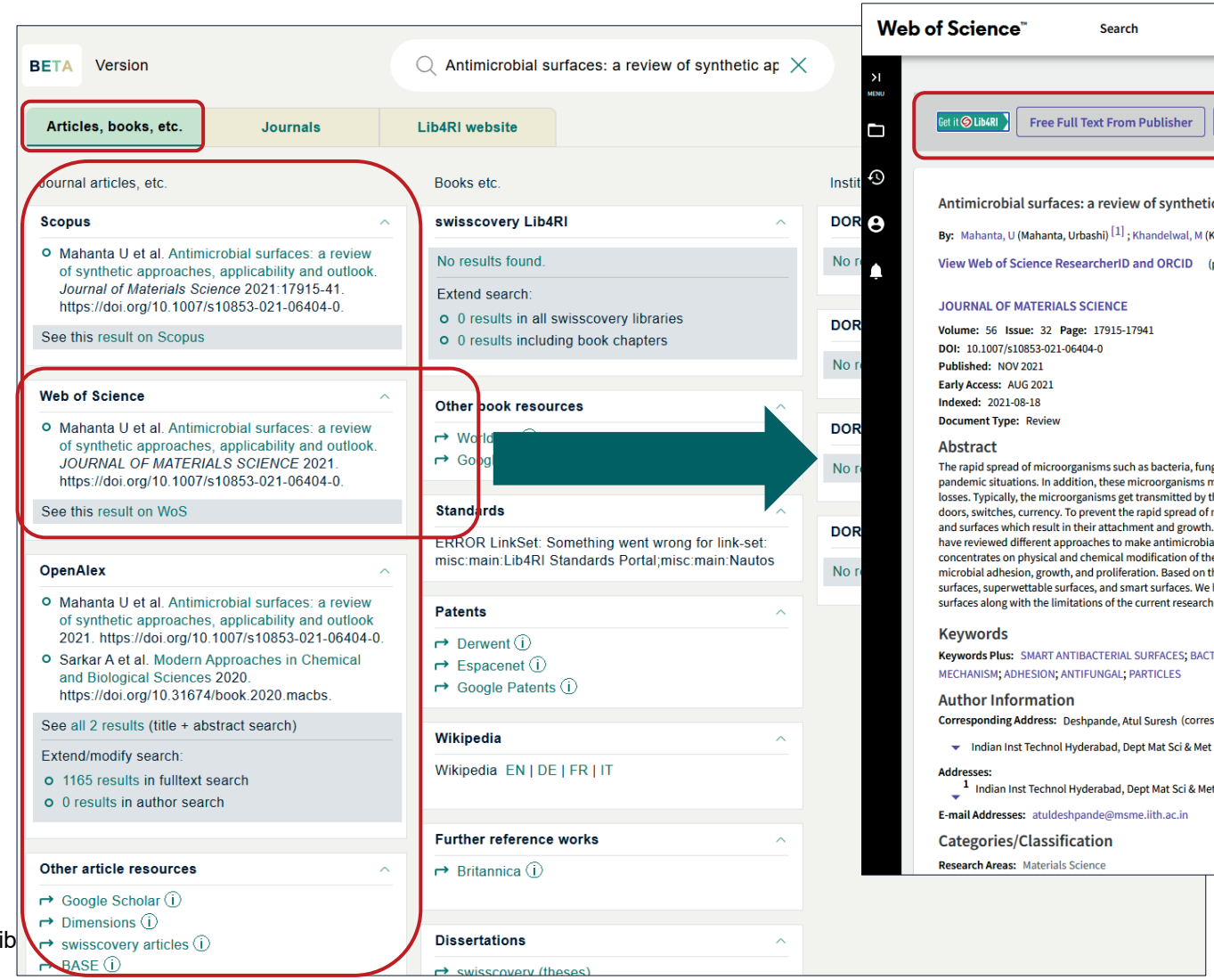
1. Miles, R.E., 1974, On the Elimination of Edge Effects in Planar Sampling, in Stochastic Geometry: John Wiley & Sons, London, p 228-247
2. Arvantis, L.G. and G.W. Fowler. (1979) “Some Aspects of Biased Sampling Estimators.” Forest Resource Inventories Workshop Proceedings, Vol. 1, Fort Collins, 298-309.
3. Kahru A. Ecotoxicological tests in non-ecotoxicological research: Contribution to 3Rs. Use of luminescent photobacteria for evaluating the toxicity of 47 MEIC reference chemicals. ALTEX. 2006;23:302–308.
4. ISO 11348-3:2007 Water quality - Determination of the inhibitory effect of water samples on the light emission of Vibrio fischeri (Luminescent bacteria test) - Part 3: Method using freeze-dried bacteria

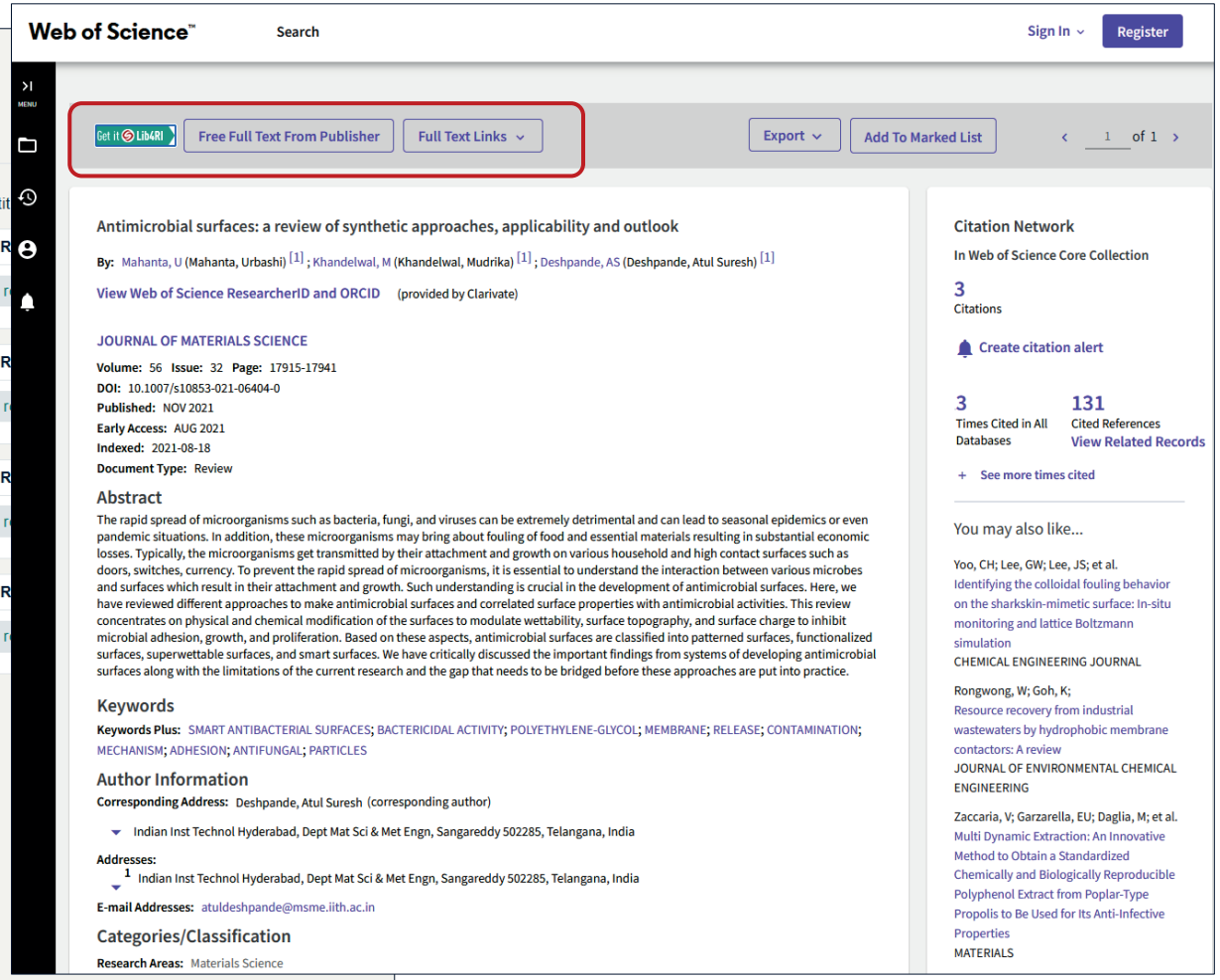
www.lib4ri.ch



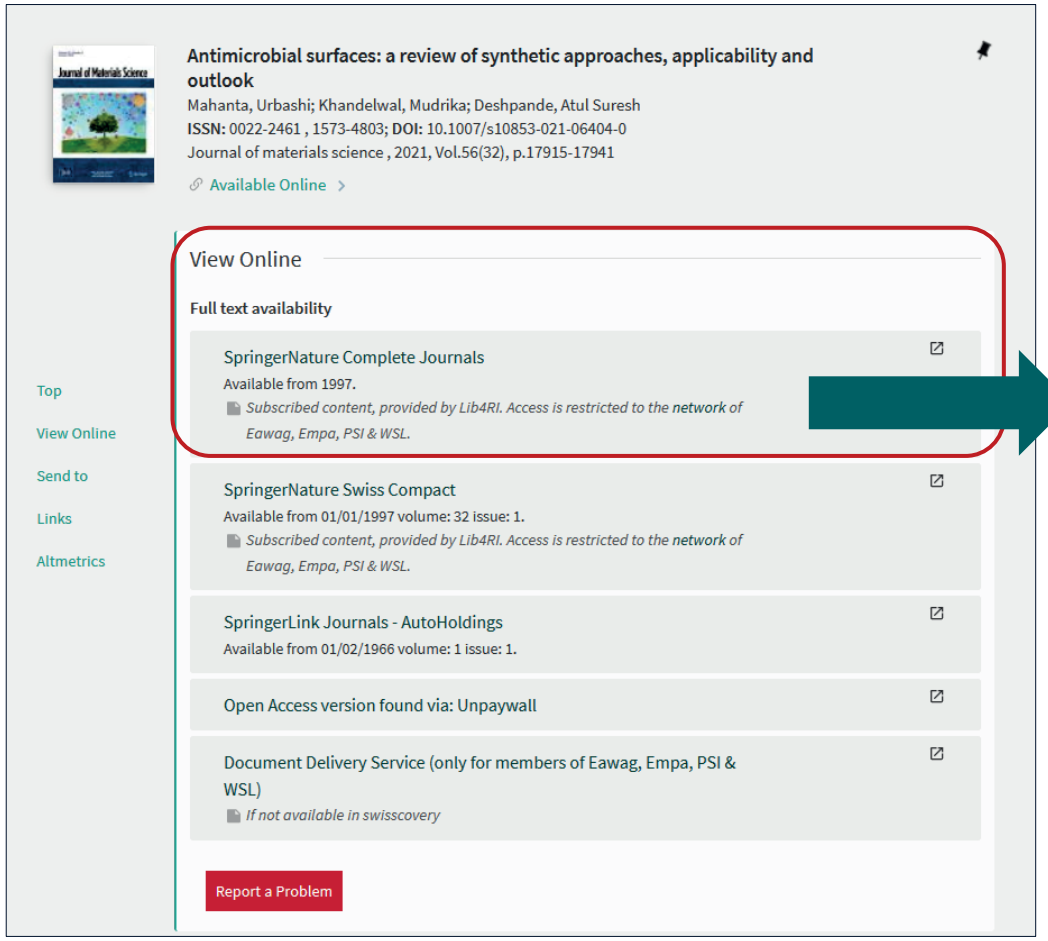
Searching articles

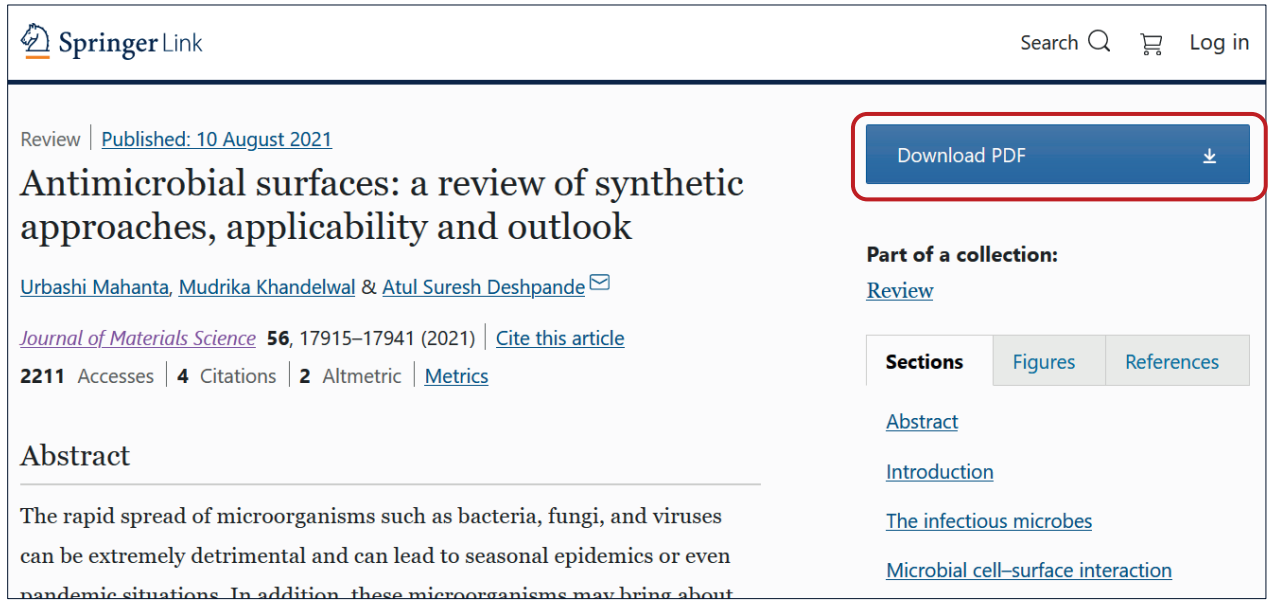






Fulltext with Get it Lib4RI





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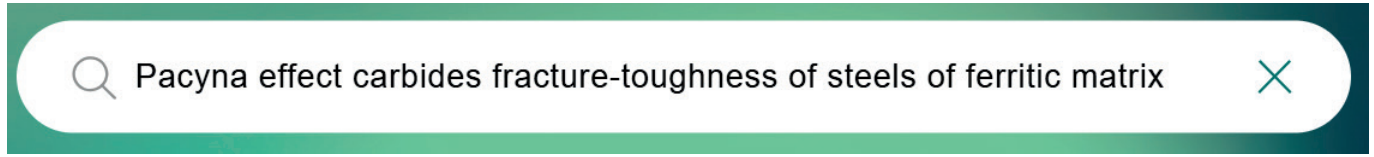

Journal articles, etc.

Scopus

No results found.

Web of Science

- PACYNA J, WITEK L. THE EFFECT OF CARBIDES ON FRACTURE-TOUGHNESS OF STEELS OF FERRITIC MATRIX. *STEEL RESEARCH* 1988.

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OpenAlex

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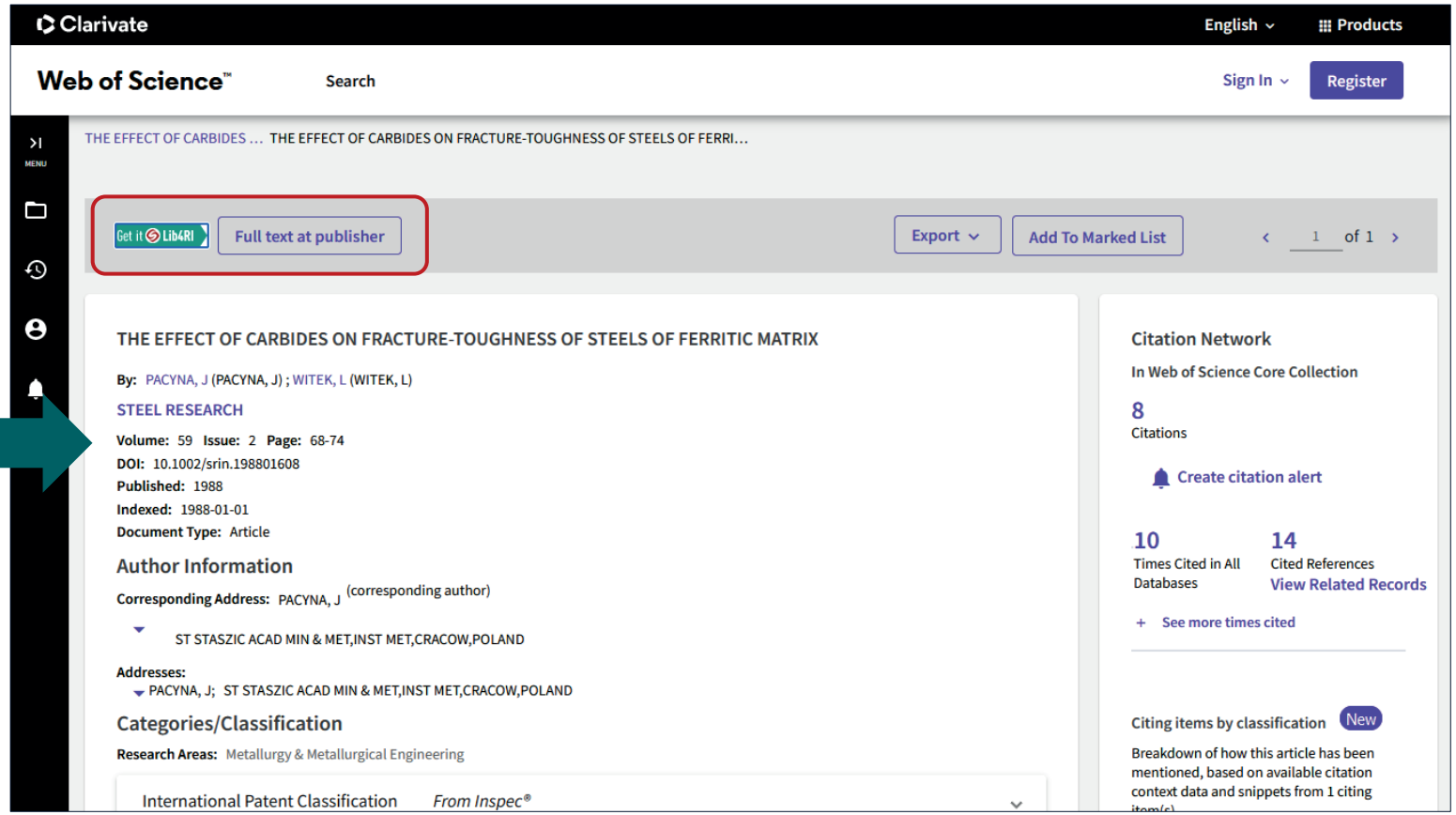
Extend/modify search:

- 2 results in fulltext search
- 0 results in author search



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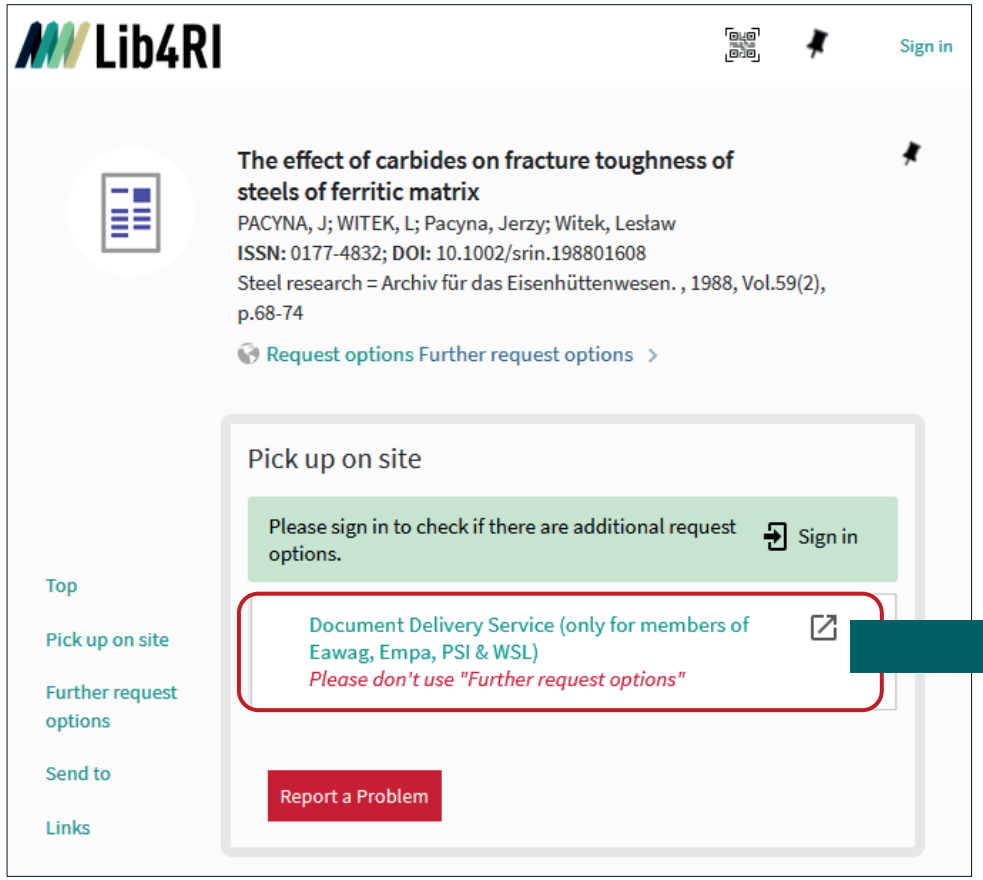
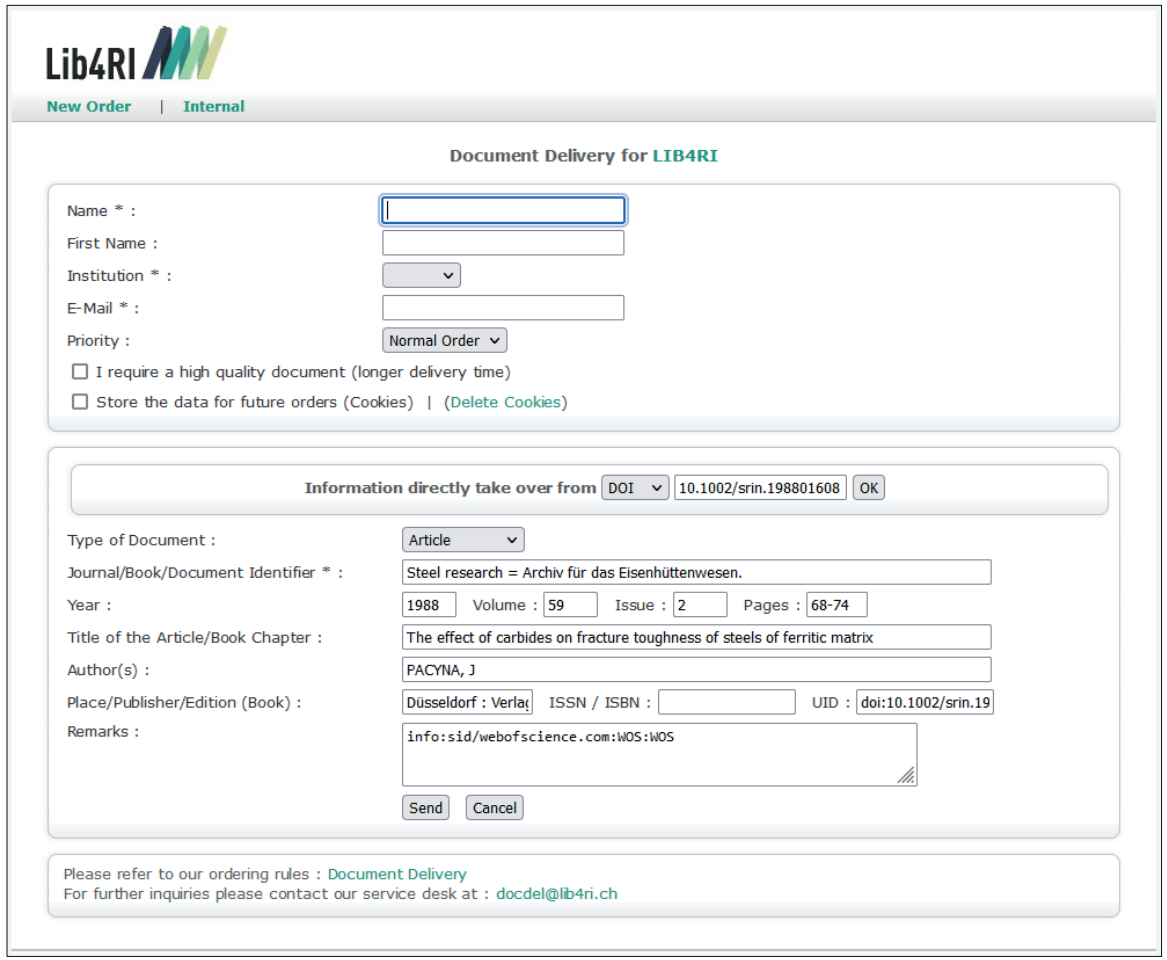
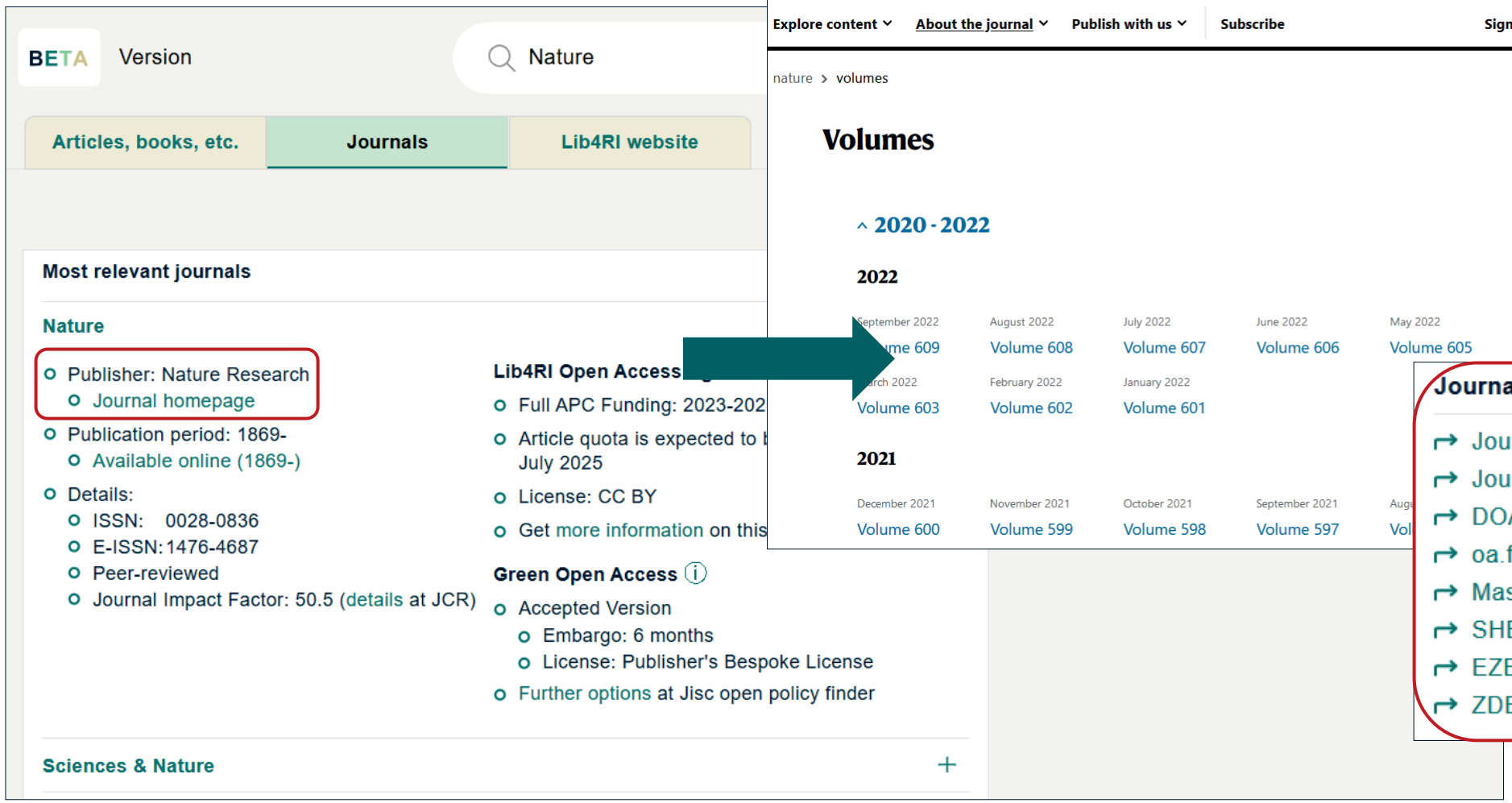
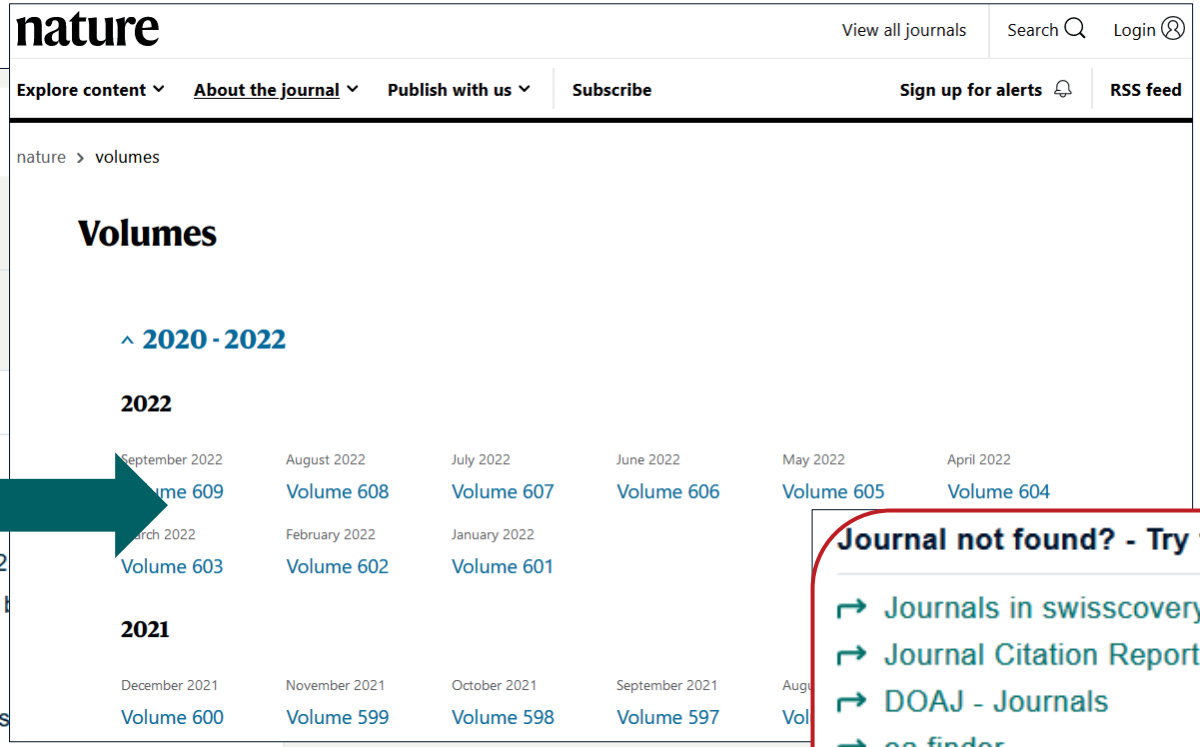


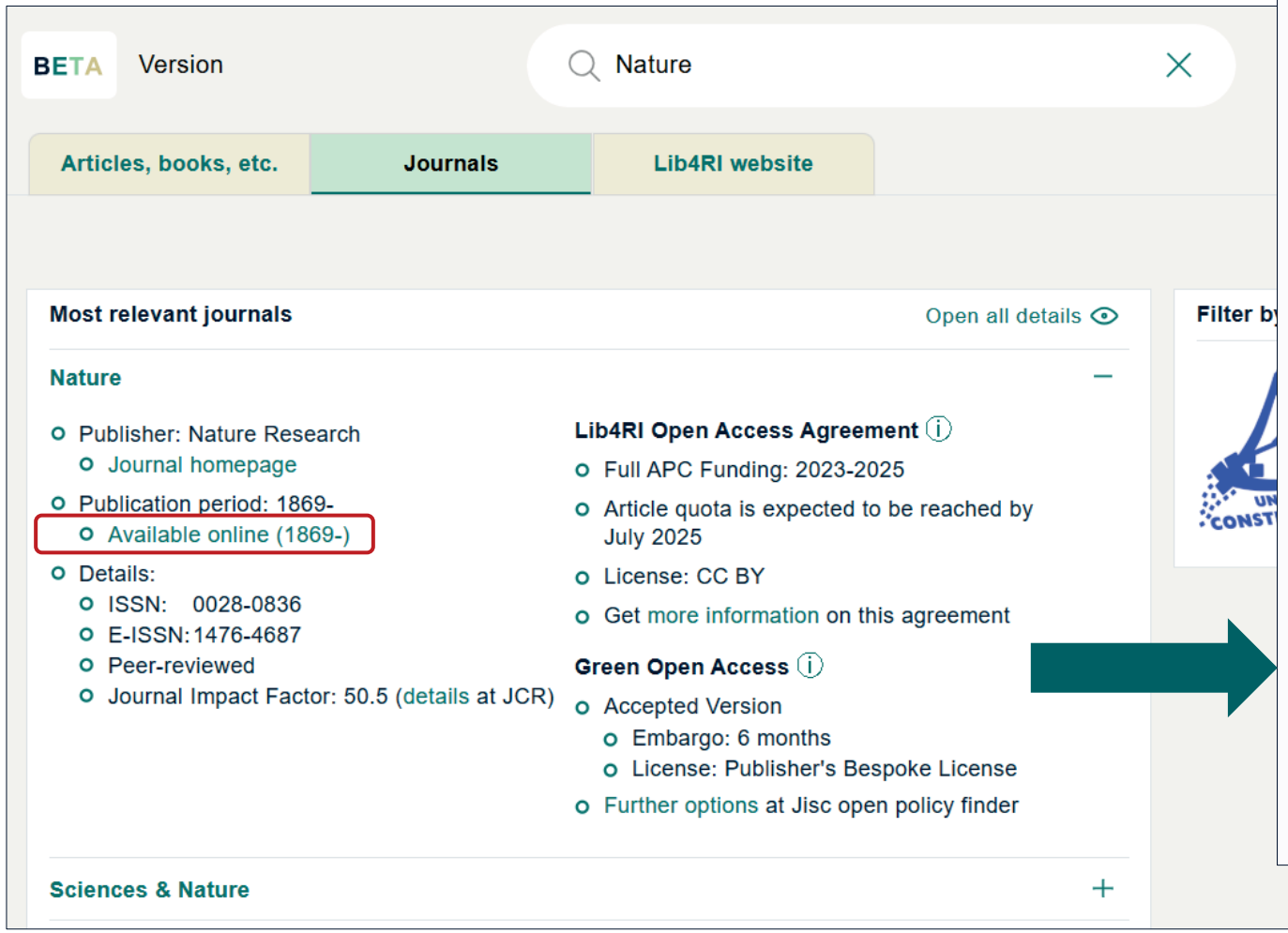


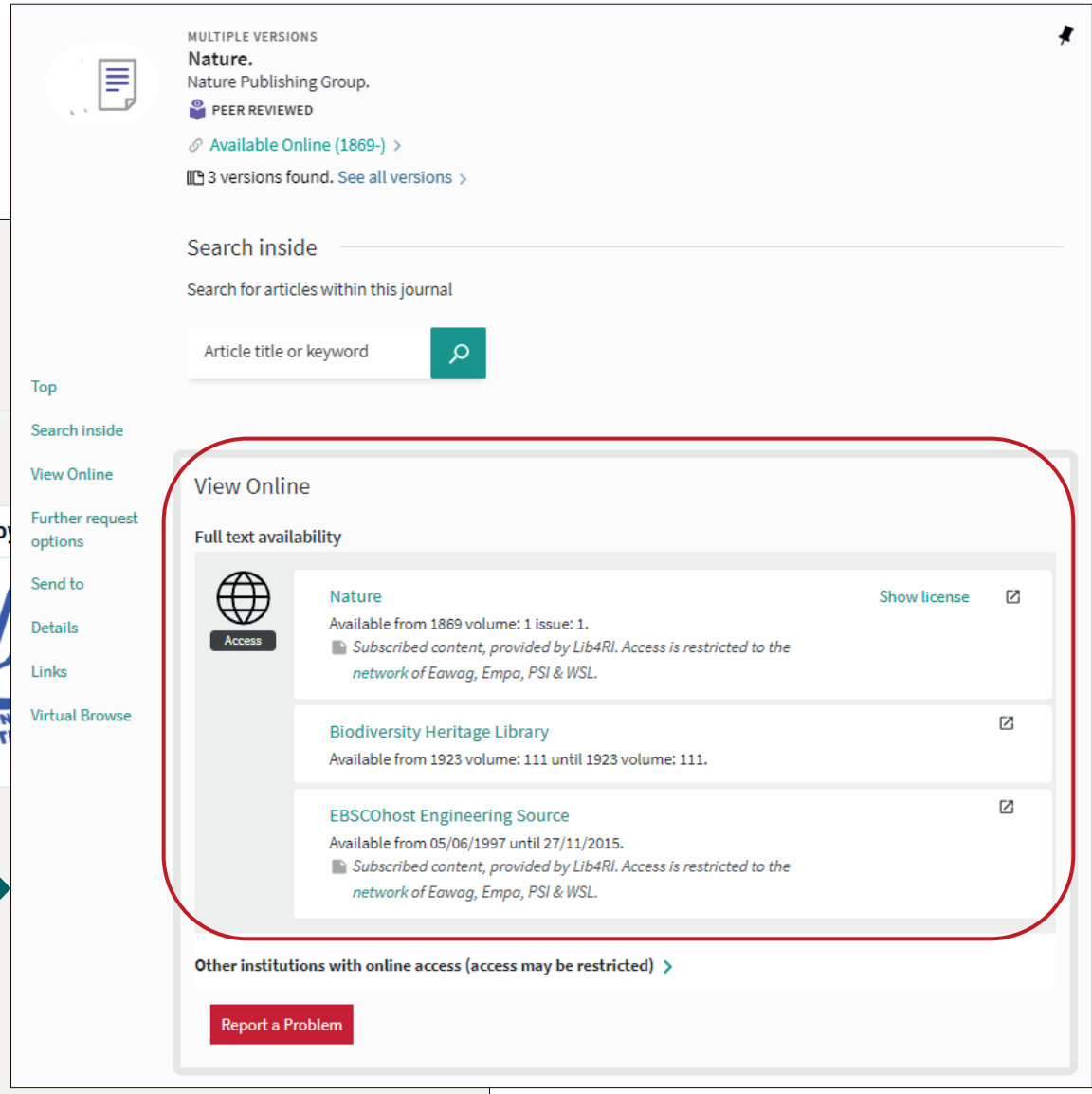
Searching journals



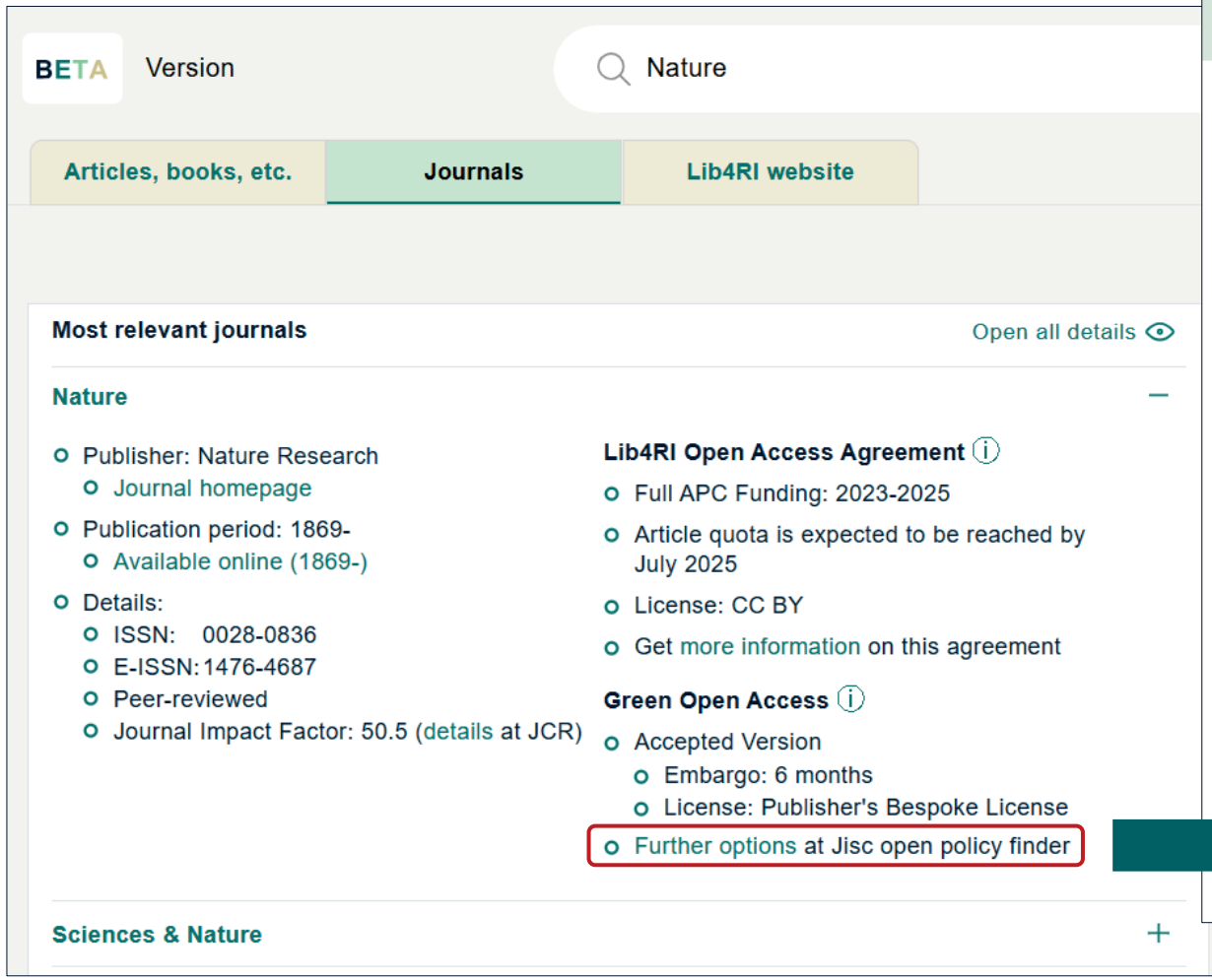


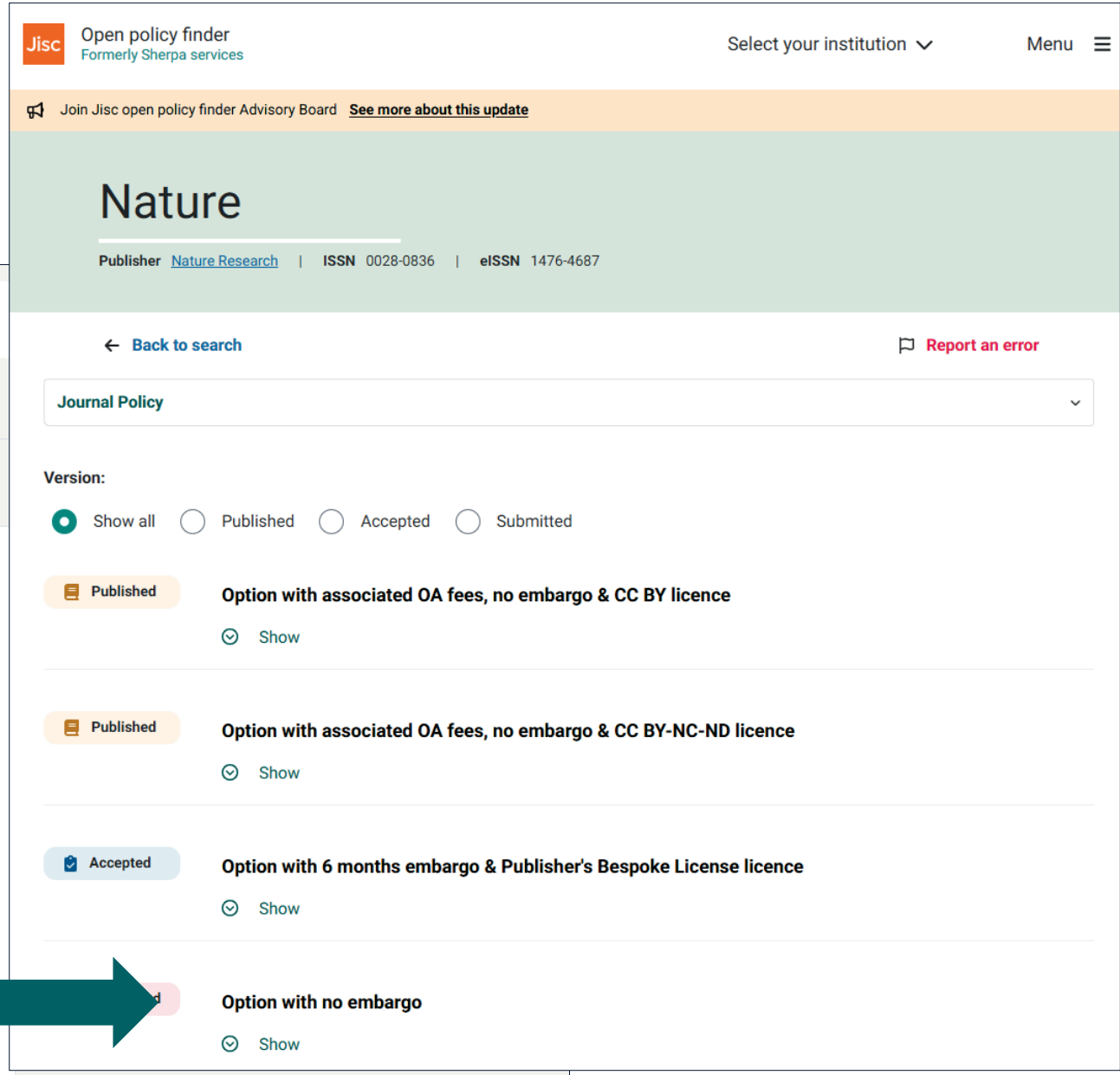
Searching journals





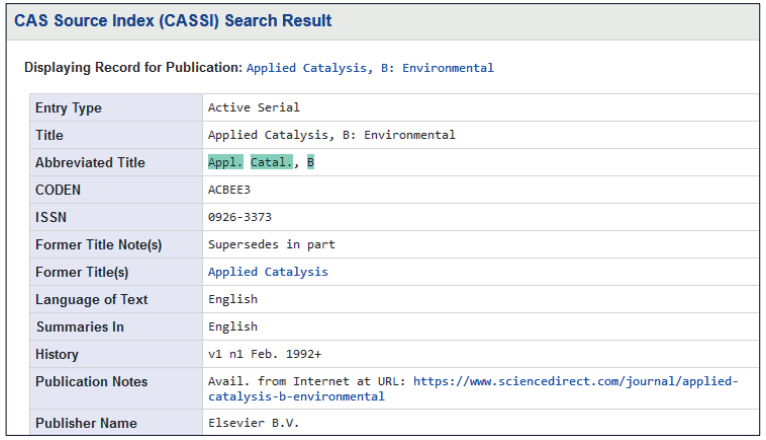
Searching journals





Searching journals – useful websites

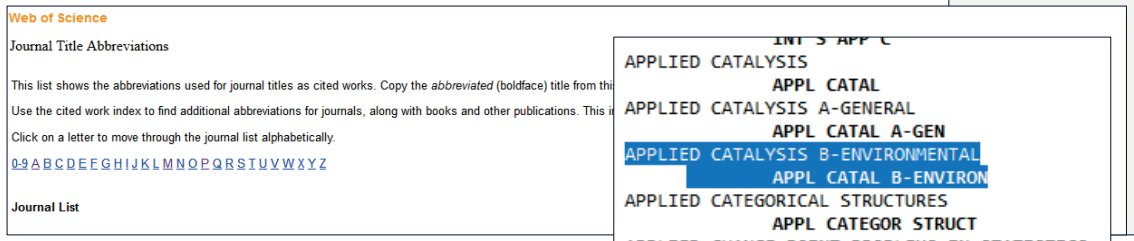
[5] L. Simonot, G. Maire, A comparative study of LaCoO3, Co3O4 and LaCoO3—Co3O4: I. Preparation, characterisation and catalytic properties for the oxidation of CO, Appl. Catal. B: Environ. 11 (2) (1997) 167–179.



CAS Source Index (CASSI) Search Result

Displaying Record for Publication: Applied Catalysis, B: Environmental

Entry Type	Active Serial
Title	Applied Catalysis, B: Environmental
Abbreviated Title	Appl. Catal., B
CODEN	ACBEE3
ISSN	0926-3373
Former Title Note(s)	Supersedes in part
Former Title(s)	Applied Catalysis
Language of Text	English
Summaries In	English
History	v1 n1 Feb. 1992+
Publication Notes	Avail. from Internet at URL: https://www.sciencedirect.com/journal/applied-catalysis-b-environmental
Publisher Name	Elsevier B.V.



Web of Science

Journal Title Abbreviations

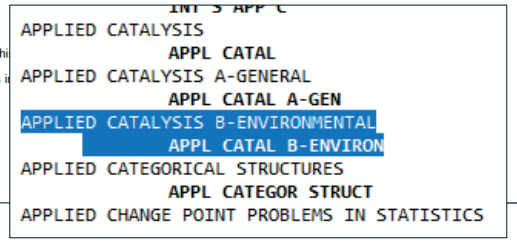
This list shows the abbreviations used for journal titles as cited works. Copy the *abbreviated* (boldface) title from thi

Use the cited work index to find additional abbreviations for journals, along with books and other publications. This i

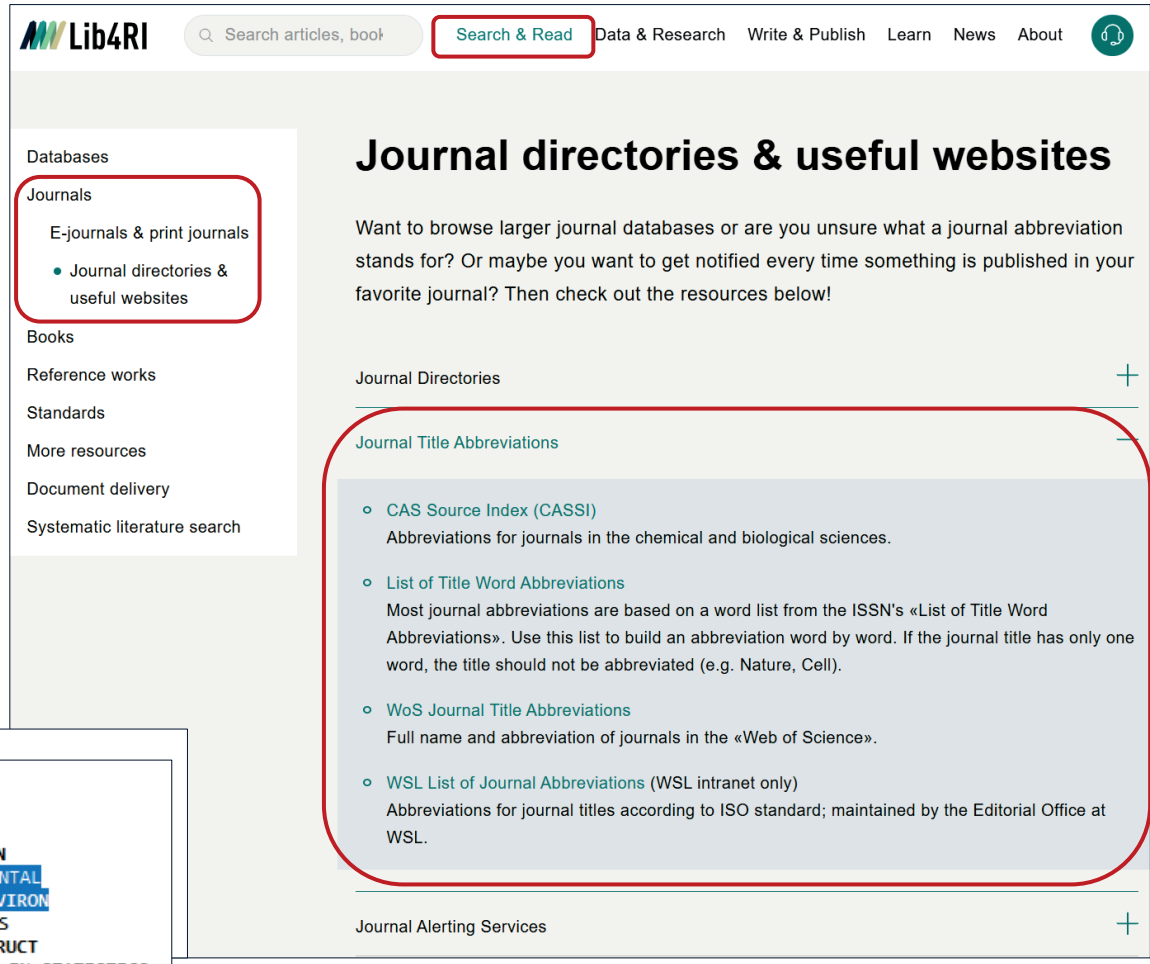
Click on a letter to move through the journal list alphabetically.

0-9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Journal List



APPLIED CATALYSIS
APPL CATAL
APPLIED CATALYSIS A-GENERAL
APPL CATAL A-GEN
APPLIED CATALYSIS B-ENVIRONMENTAL
APPL CATAL B-ENVIRON
APPLIED CATEGORICAL STRUCTURES
APPL CATEGOR STRUCT
APPLIED CHANGE POINT PROBLEMS IN STATISTICS



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Want to browse larger journal databases or are you unsure what a journal abbreviation stands for? Or maybe you want to get notified every time something is published in your favorite journal? Then check out the resources below!

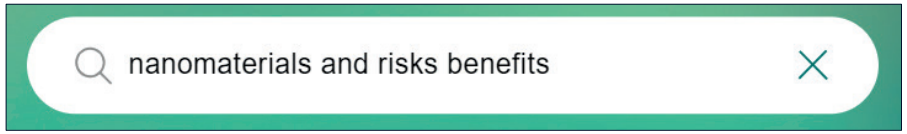
Journal Directories

Journal Title Abbreviations

- CAS Source Index (CASSI)
  Abbreviations for journals in the chemical and biological sciences.
- List of Title Word Abbreviations
  Most journal abbreviations are based on a word list from the ISSN's «List of Title Word Abbreviations». Use this list to build an abbreviation word by word. If the journal title has only one word, the title should not be abbreviated (e.g. Nature, Cell).
- WoS Journal Title Abbreviations
  Full name and abbreviation of journals in the «Web of Science».
- WSL List of Journal Abbreviations (WSL intranet only)
  Abbreviations for journal titles according to ISO standard; maintained by the Editorial Office at WSL.

Journal Alerting Services

Searching e-books



Books etc.

swisscovery Lib4RI

- Linkov I, Steevens J. *Nanomaterials : risks and benefits*. Springer; 2009.
- Perrett S et al. *Biological and Bio-inspired Nanomaterials : Properties and Assembly Mechanisms*. Springer Singapore; 2019.
- Brayner R et al. *Nanomaterials: A Danger or a Promise? : A Chemical and Biological Perspective*. Springer London; 2013.
- Bachheti RK, Husen A. *Nanomaterials for Environmental and Agricultural Sectors*. Springer Nature Singapore; 2023.
- Rai M, Biswas JK. *Nanomaterials: Ecotoxicity, Safety, and Public Perception*. Springer International Publishing; 2018.
- Bachheti RK et al. *Metal and Metal-Oxide Based Nanomaterials : Synthesis, Agricultural, Biomedical and Environmental Interventions*. Springer Nature Singapore; 2024.
- Rai M, Nguyễn TA. *Nanomaterials recycling*. Elsevier; 2022.
- Nalwa HS, Zhao Y. *Nanotoxicology : interactions of nanomaterials with biological systems*. American Scientific Publ; 2007.
- Puzyn T, Leszczyński J. *Towards efficient designing of safe nanomaterials : innovative merge of computational approaches and experimental techniques*. RSC Pub; 2012.
- Gomes C de SF, Rautureau M. *Minerals latu sensu and human health : benefits, toxicity and pathologies*. Springer; 2021.

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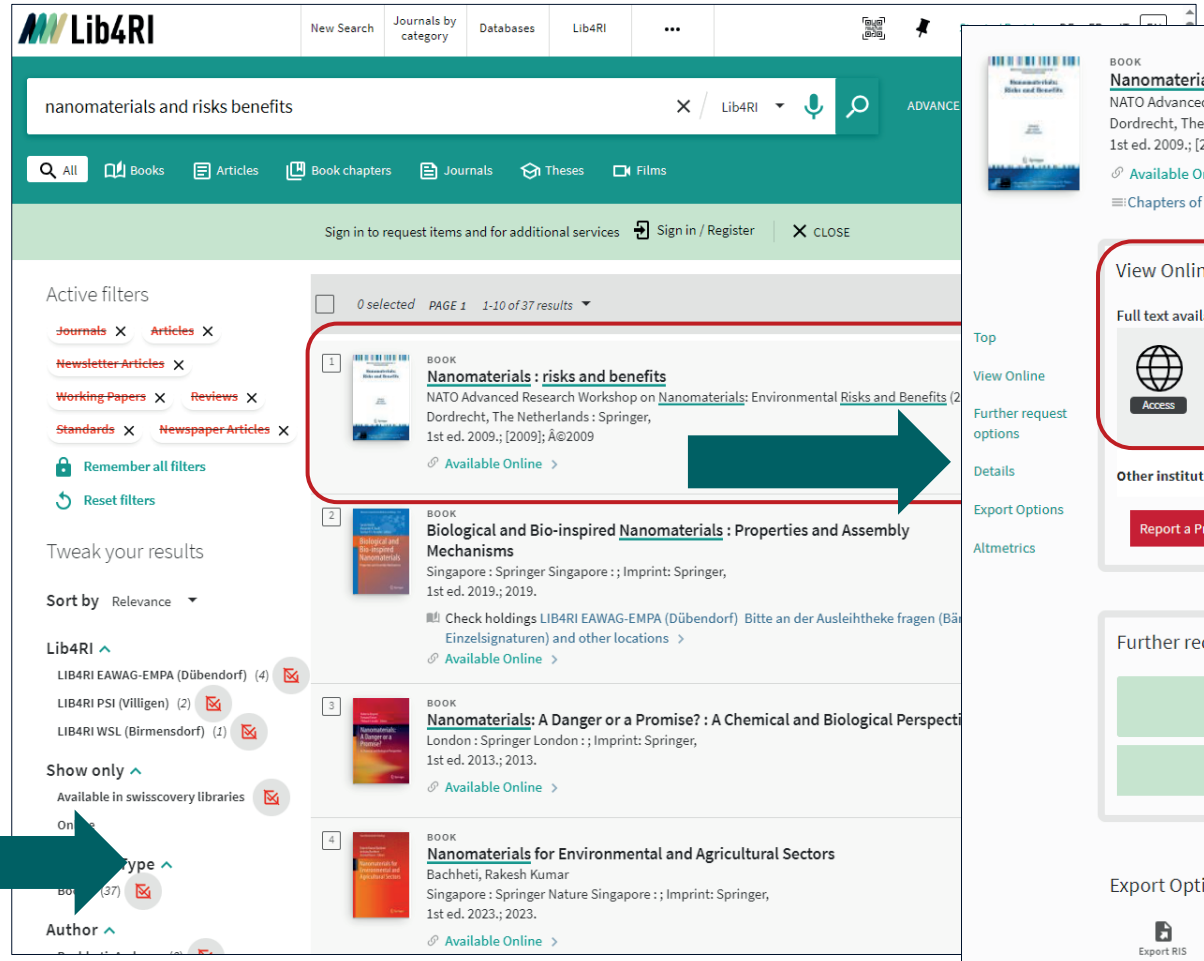
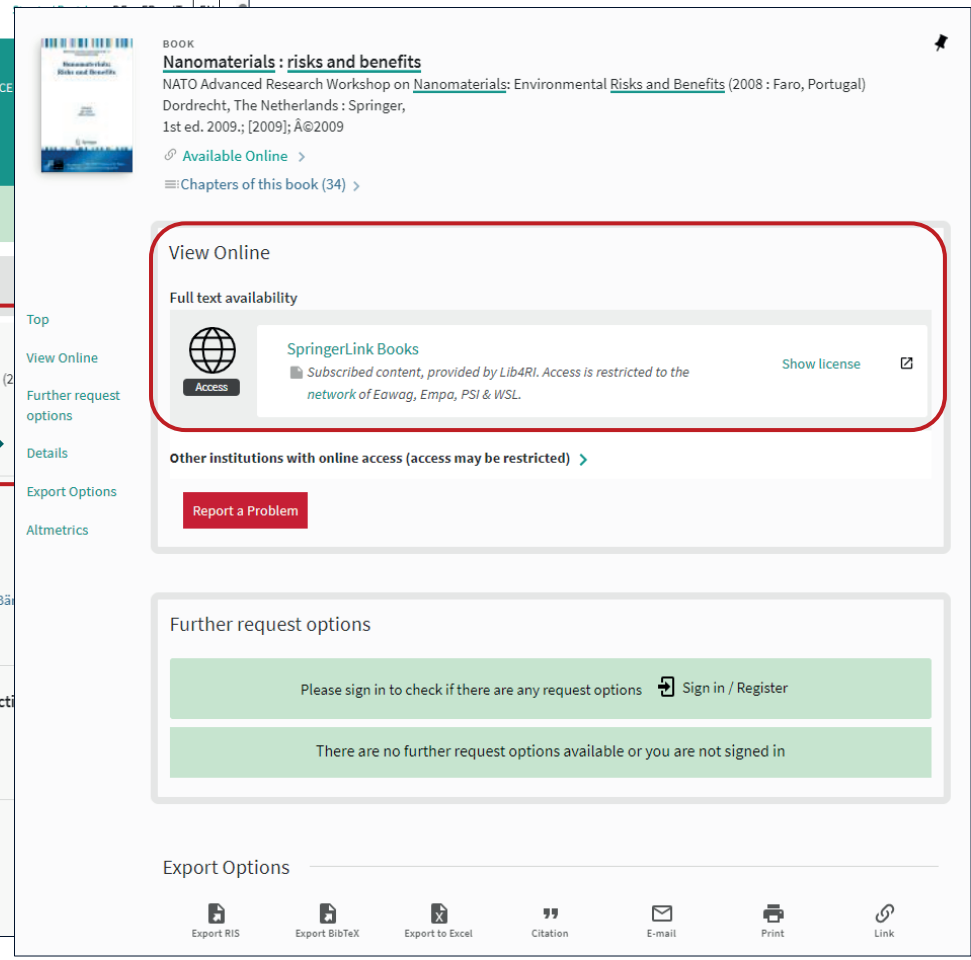
- 473 results including book chapters





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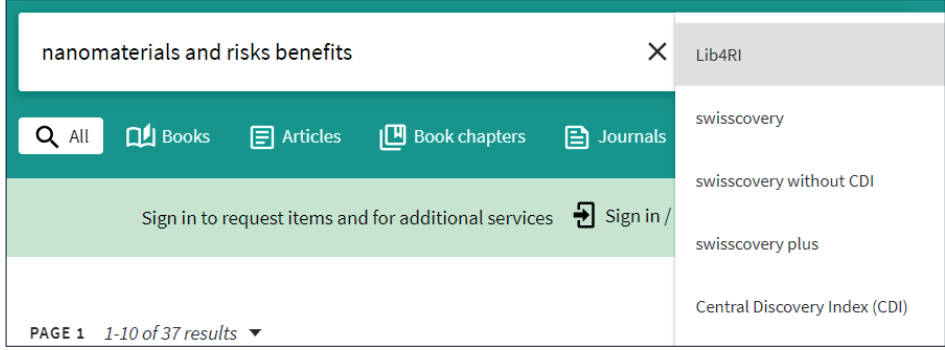

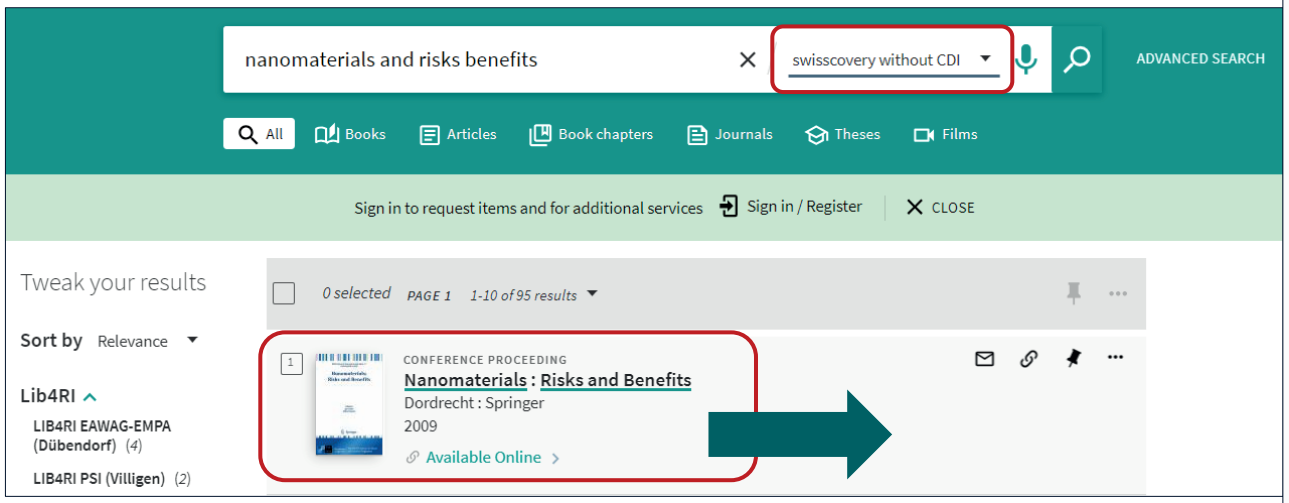

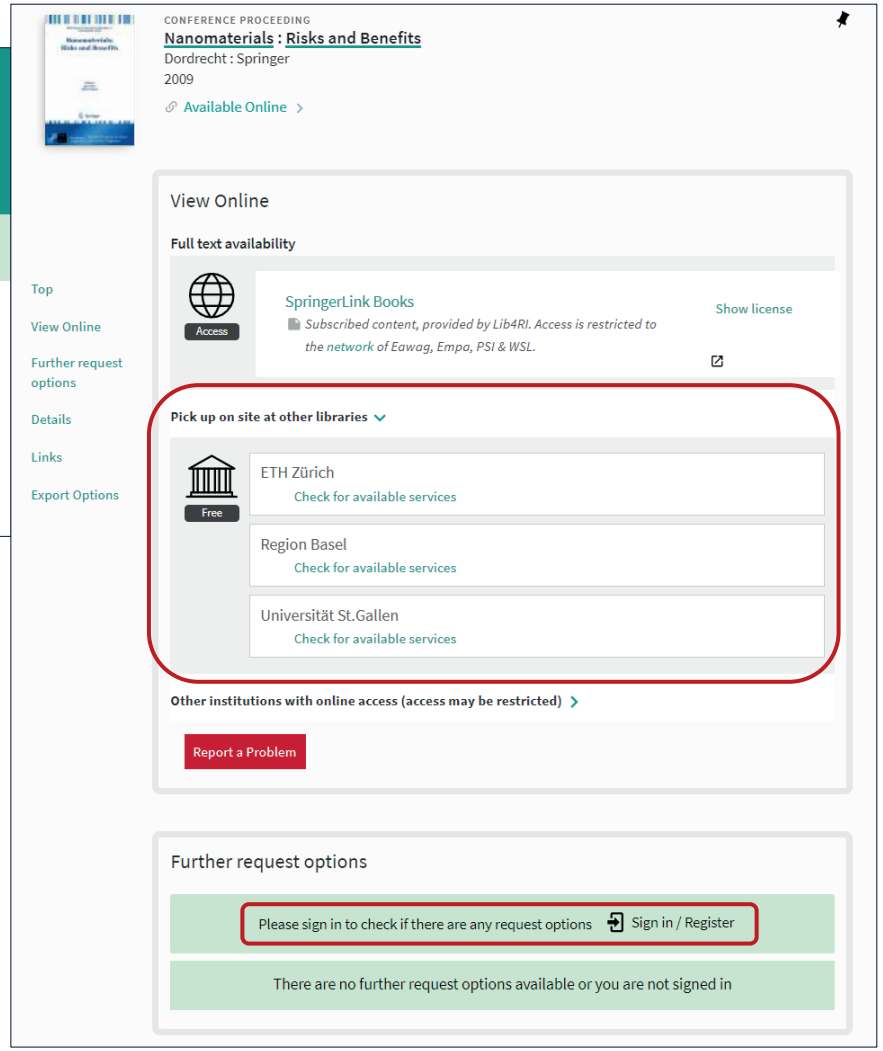

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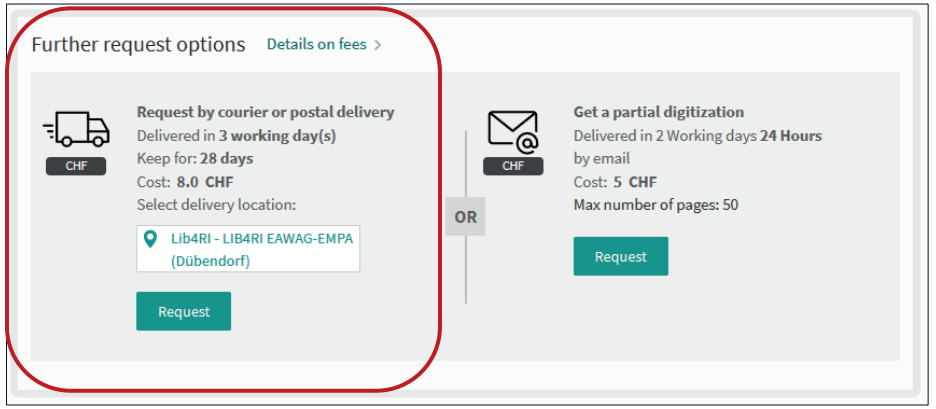

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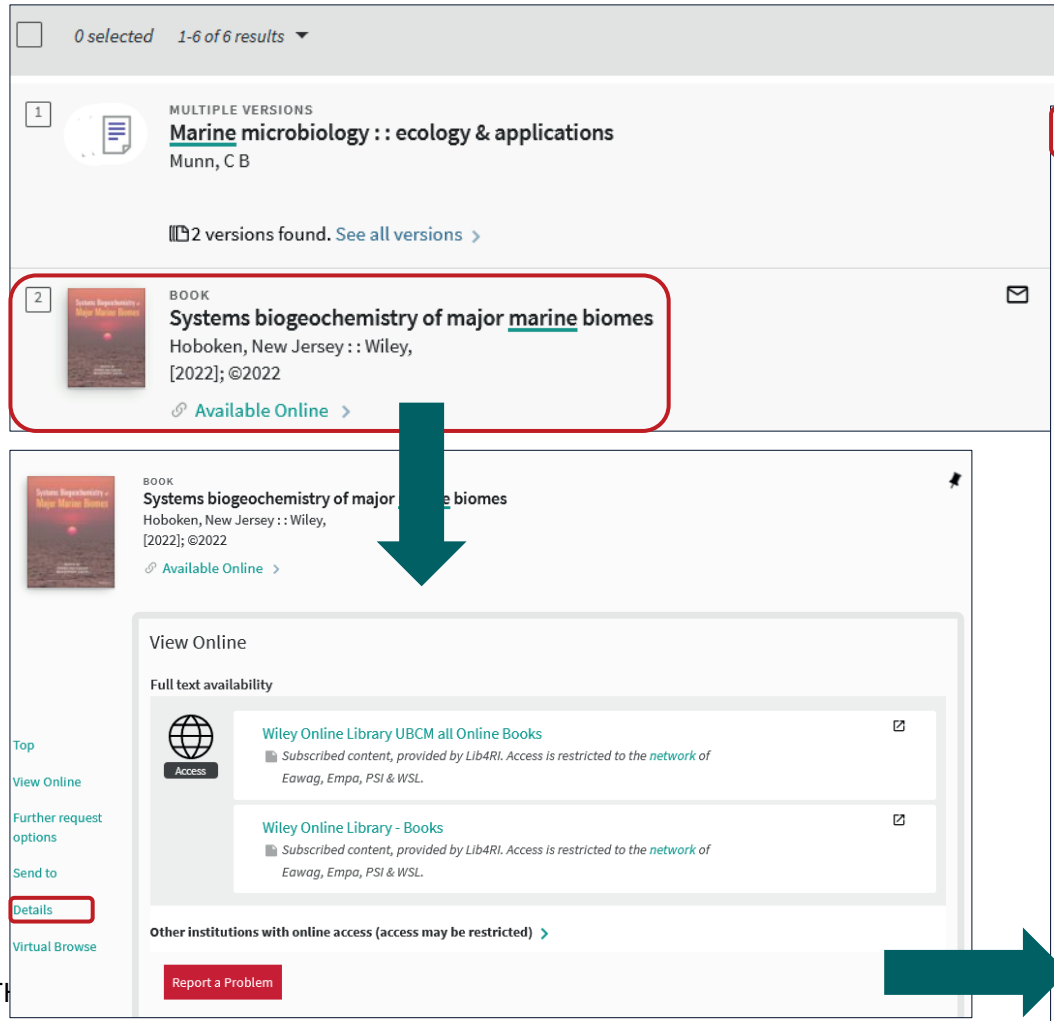

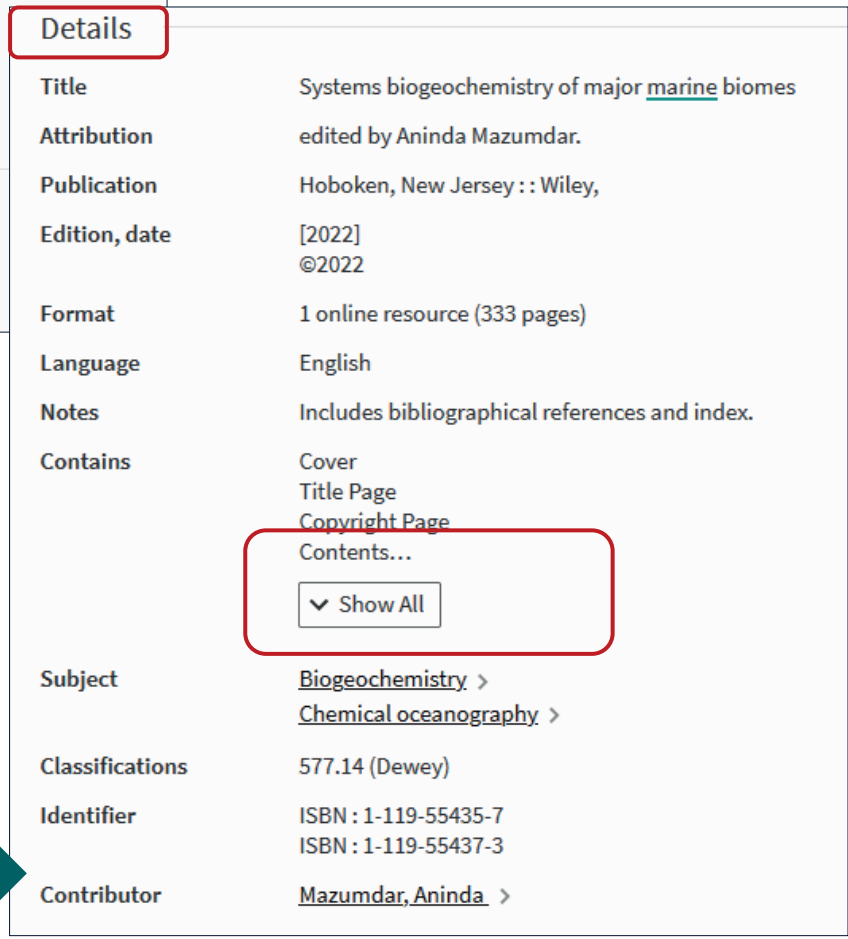

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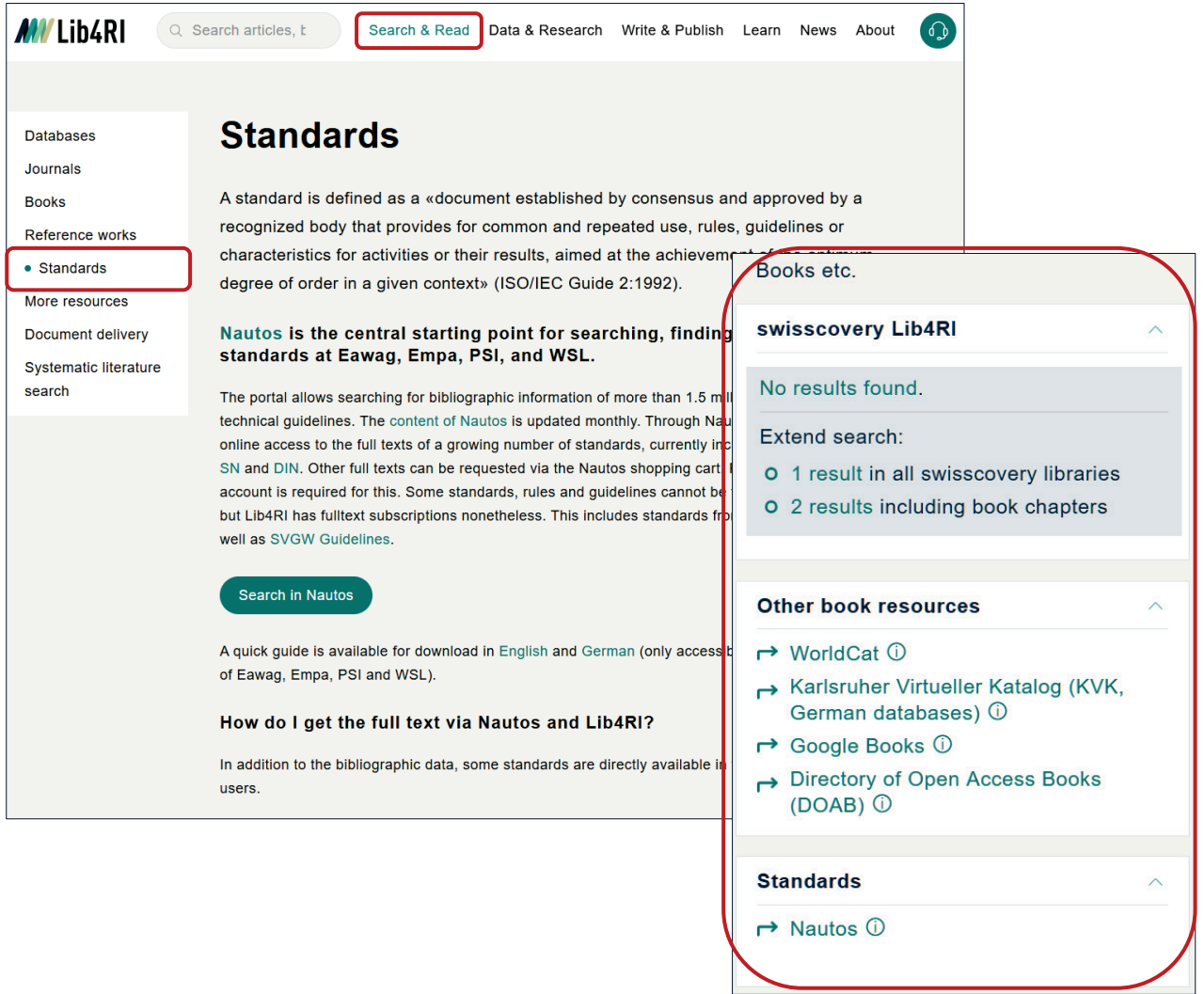

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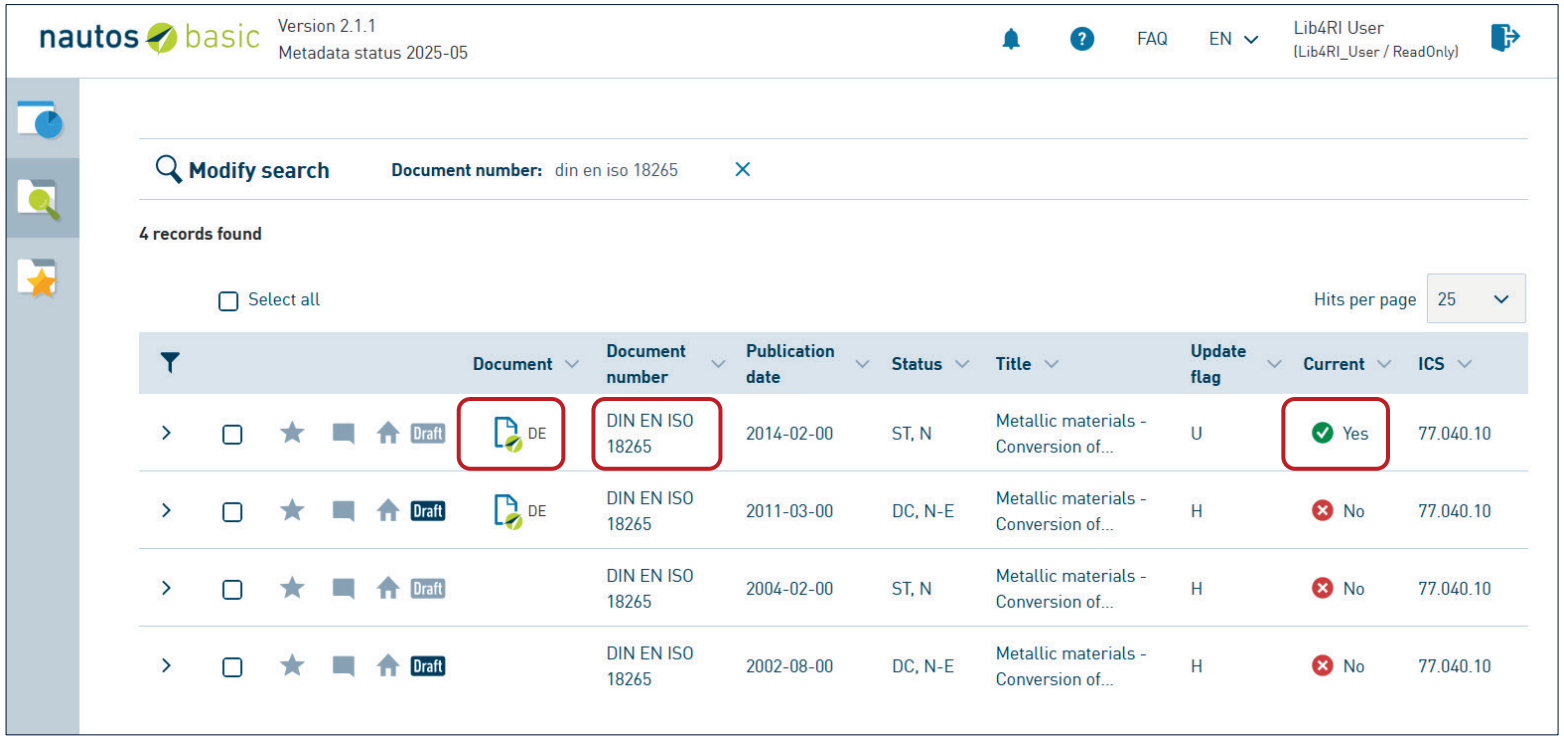

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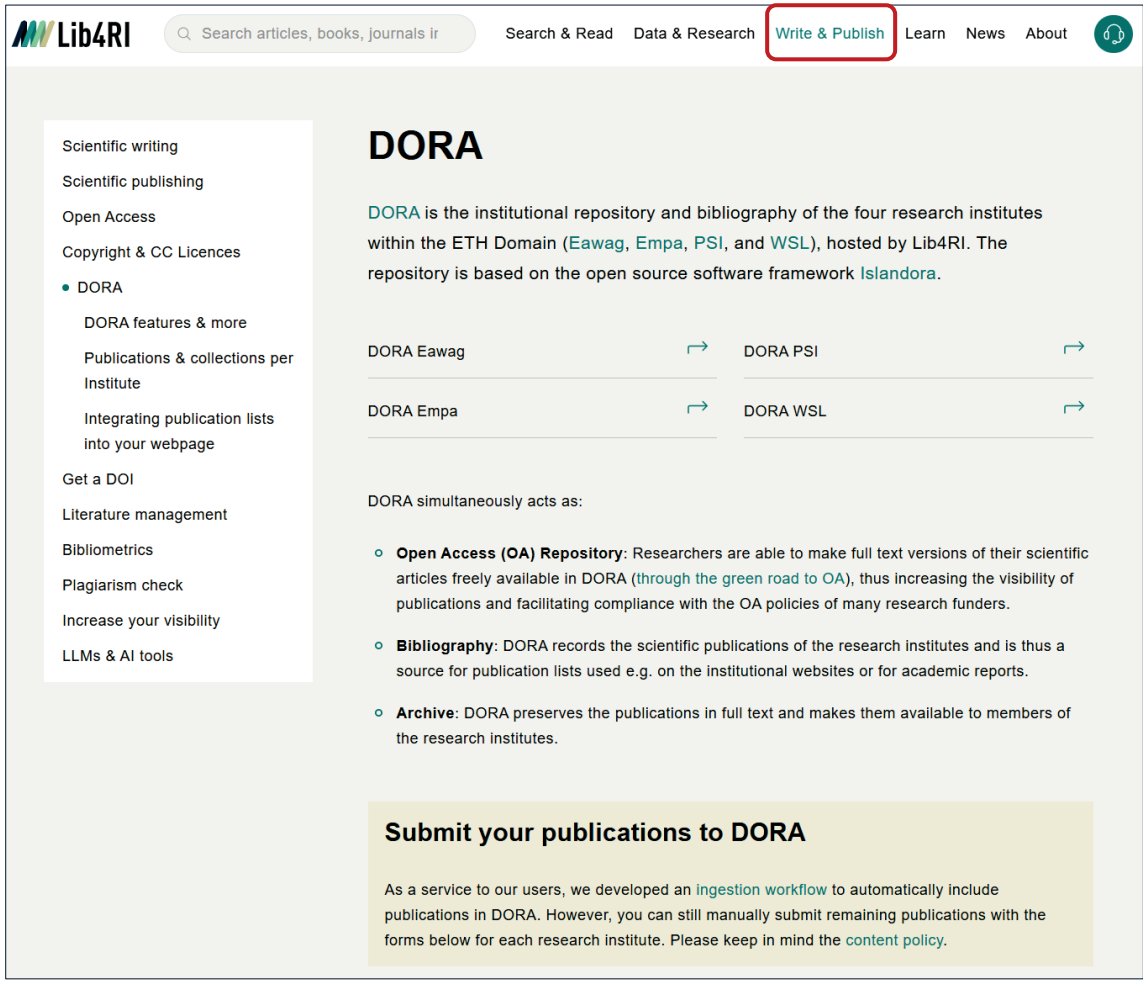

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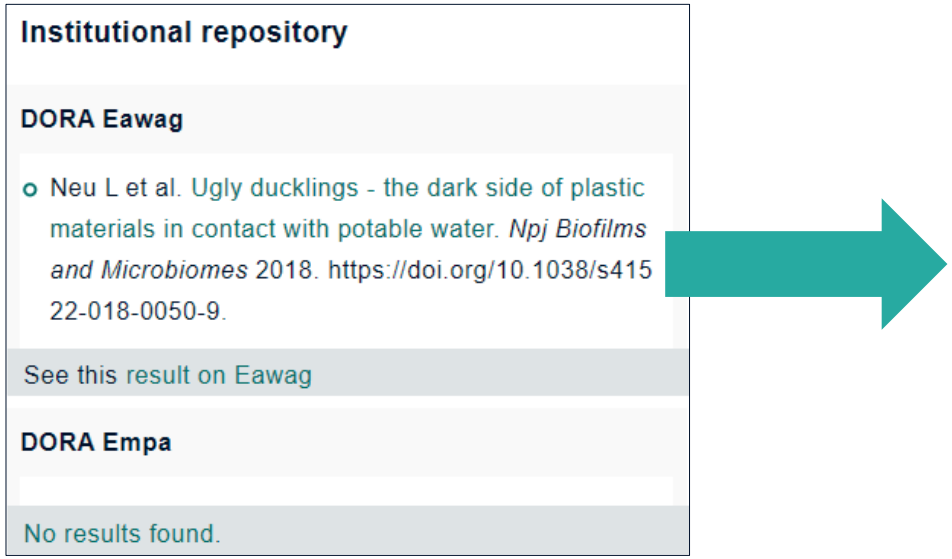
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Neu L et al. Ugly ducklings - the dark side of plastic materials in contact with potable water. Npj Biofilms and Microbiomes 2018. https://doi.org/10.1038/s41522-018-0050-9.
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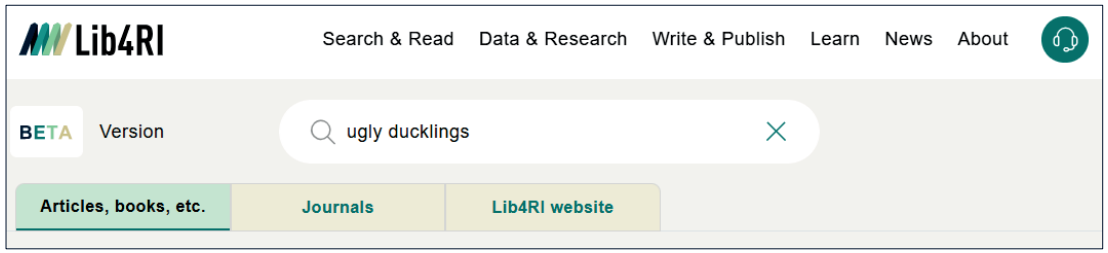
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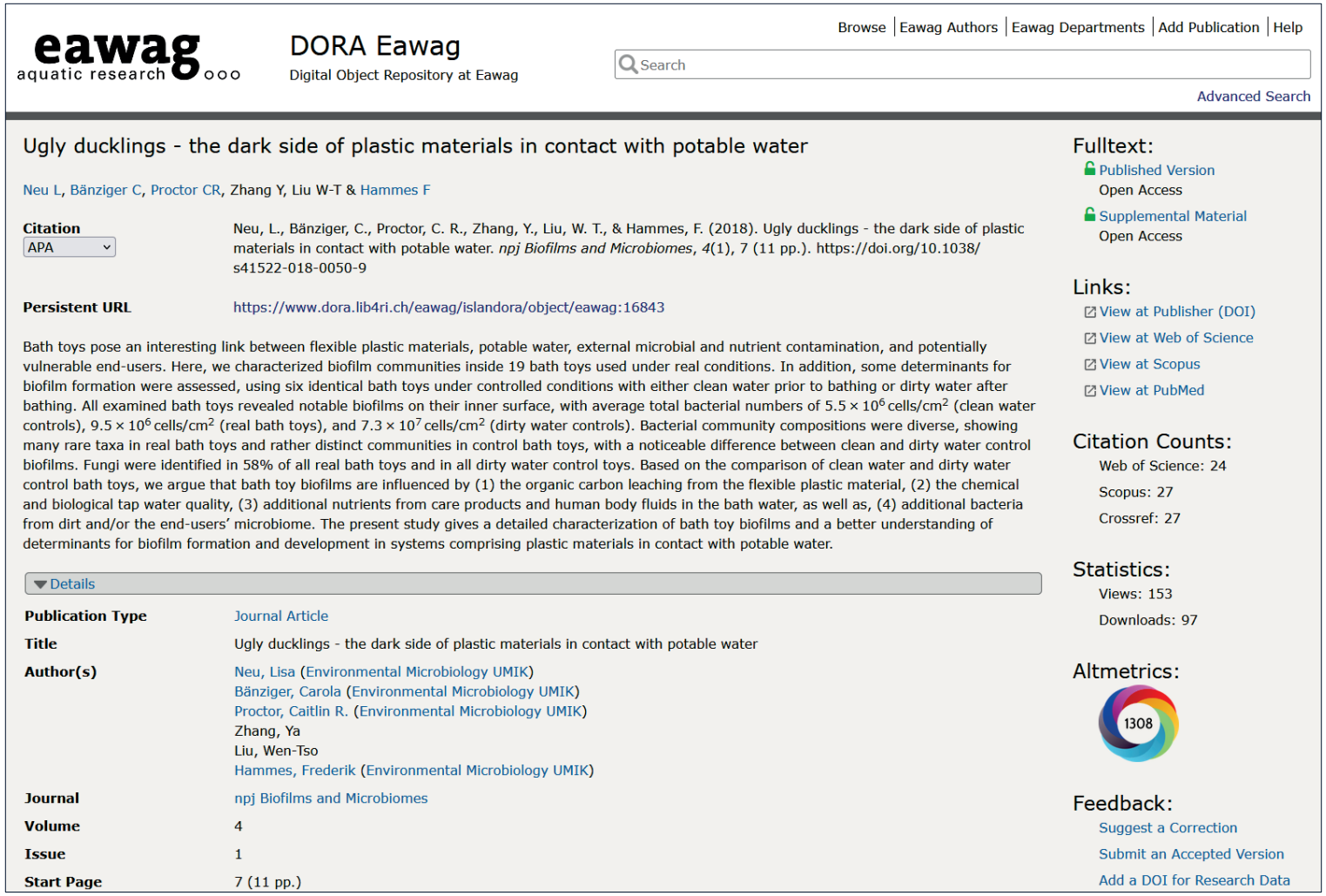
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Neu L, Bänziger C, Proctor CR, Zhang Y, Liu W-T & Hammes F
Citation
APA
Neu, L., Bänziger, C., Proctor, C. R., Zhang, Y., Liu, W. T., & Hammes, F. (2018). Ugly ducklings - the dark side of plastic materials in contact with potable water. npj Biofilms and Microbiomes, 4(1), 7 (11 pp.). https://doi.org/10.1038/s41522-018-0050-9
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Bath toys pose an interesting link between flexible plastic materials, potable water, external microbial and nutrient contamination, and potentially vulnerable end-users. Here, we characterized biofilm communities inside 19 bath toys used under real conditions. In addition, some determinants for biofilm formation were assessed, using six identical bath toys under controlled conditions with either clean water prior to bathing or dirty water after bathing. All examined bath toys revealed notable biofilms on their inner surface, with average total bacterial numbers of 5.5 × 10^6 cells/cm^2 (clean water controls), 9.5 × 10^6 cells/cm^2 (real bath toys), and 7.3 × 10^7 cells/cm^2 (dirty water controls). Bacterial community compositions were diverse, showing many rare taxa in real bath toys and rather distinct communities in control bath toys, with a noticeable difference between clean and dirty water control biofilms. Fungi were identified in 58% of all real bath toys and in all dirty water control toys. Based on the comparison of clean water and dirty water control bath toys, we argue that bath toy biofilms are influenced by (1) the organic carbon leaching from the flexible plastic material, (2) the chemical and biological tap water quality, (3) additional nutrients from care products and human body fluids in the bath water, as well as, (4) additional bacteria from dirt and/or the end-users' microbiome. The present study gives a detailed characterization of bath toy biofilms and a better understanding of determinants for biofilm formation and development in systems comprising plastic materials in contact with potable water.
Details
Publication Type
Journal Article
Title
Ugly ducklings - the dark side of plastic materials in contact with potable water
Author(s)
Neu, Lisa (Environmental Microbiology UMIK)
Bänziger, Carola (Environmental Microbiology UMIK)
Proctor, Caitlin R. (Environmental Microbiology UMIK)
Zhang, Ya
Liu, Wen-Tso
Hammes, Frederik (Environmental Microbiology UMIK)
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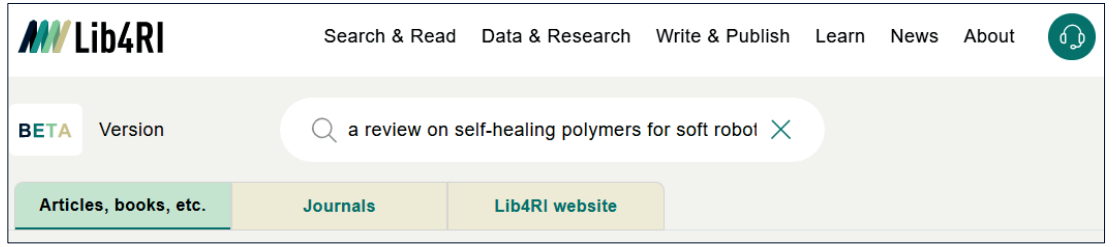
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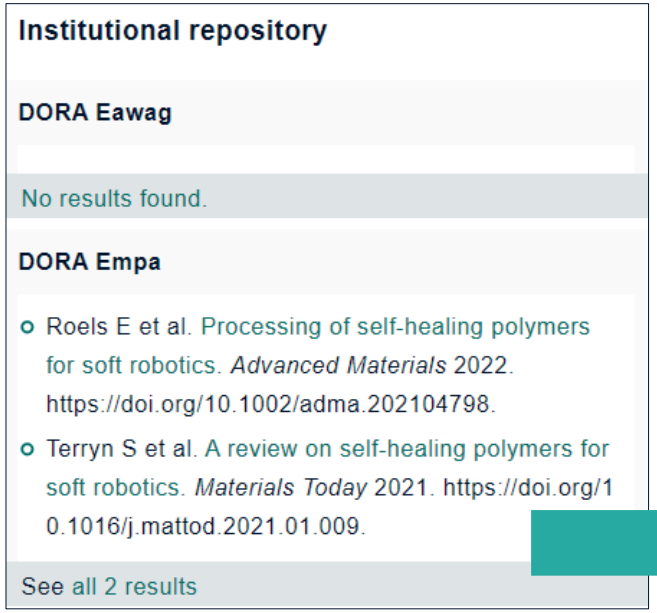
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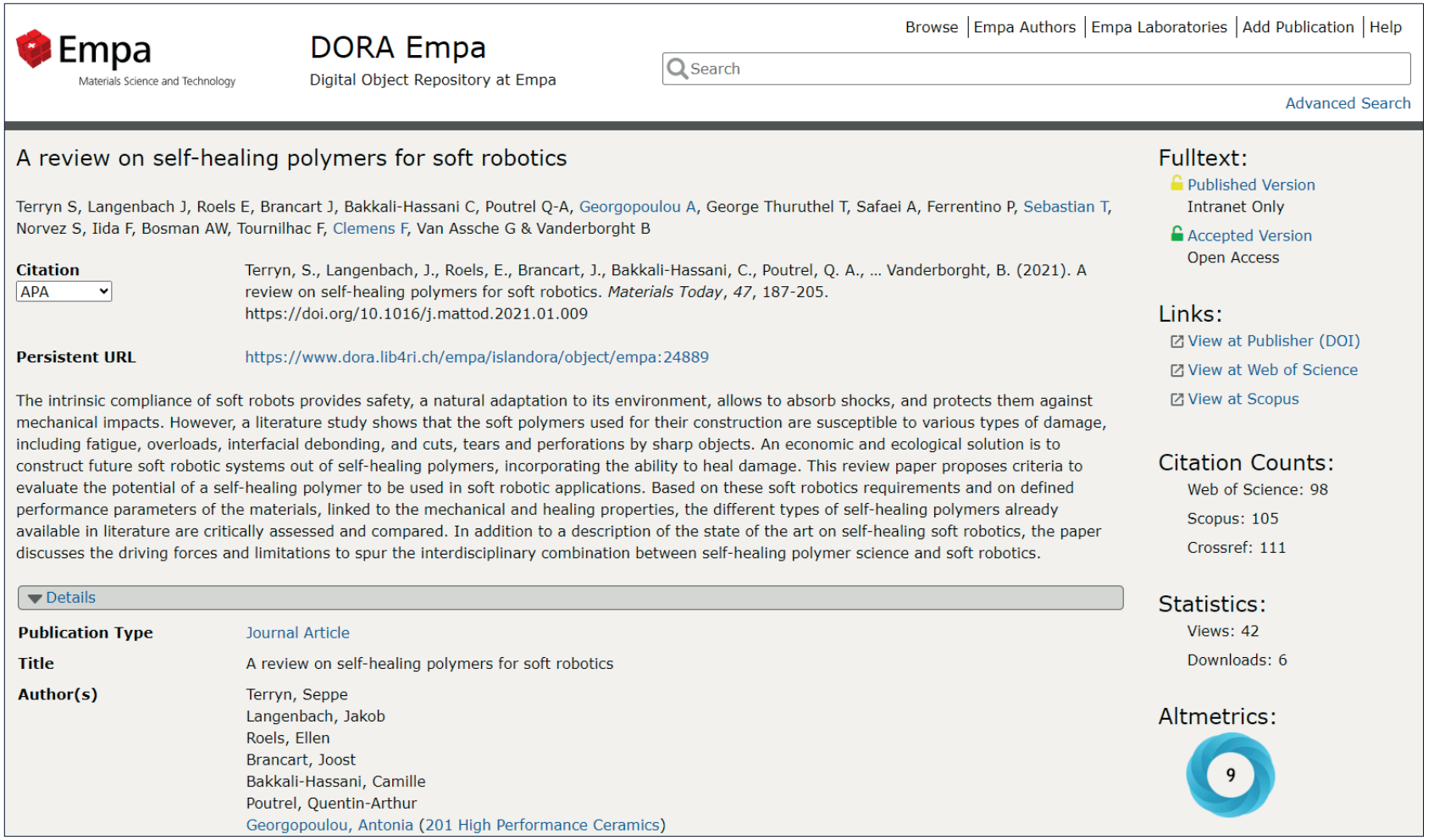
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Terryn S, Langenbach J, Roels E, Brancart J, Bakkali-Hassani C, Poutrel Q-A, Georgopoulou A, George Thuruthel T, Safaei A, Ferrentino P, Sebastian T, Norvez S, Iida F, Bosman AW, Tournilhac F, Clemens F, Van Assche G & Vanderborght B
Citation
APA
Terryn, S., Langenbach, J., Roels, E., Brancart, J., Bakkali-Hassani, C., Poutrel, Q. A., ... Vanderborght, B. (2021). A review on self-healing polymers for soft robotics. Materials Today, 47, 187-205. https://doi.org/10.1016/j.mattod.2021.01.009
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The intrinsic compliance of soft robots provides safety, a natural adaptation to its environment, allows to absorb shocks, and protects them against mechanical impacts. However, a literature study shows that the soft polymers used for their construction are susceptible to various types of damage, including fatigue, overloads, interfacial debonding, and cuts, tears and perforations by sharp objects. An economic and ecological solution is to construct future soft robotic systems out of self-healing polymers, incorporating the ability to heal damage. This review paper proposes criteria to evaluate the potential of a self-healing polymer to be used in soft robotic applications. Based on these soft robotics requirements and on defined performance parameters of the materials, linked to the mechanical and healing properties, the different types of self-healing polymers already available in literature are critically assessed and compared. In addition to a description of the state of the art on self-healing soft robotics, the paper discusses the driving forces and limitations to spur the interdisciplinary combination between self-healing polymer science and soft robotics.
Details
Publication Type
Journal Article
Title
A review on self-healing polymers for soft robotics
Author(s)
Terryn, Seppe
Langenbach, Jakob
Roels, Ellen
Brancart, Joost
Bakkali-Hassani, Camille
Poutrel, Quentin-Arthur
Georgopoulou, Antonia (201 High Performance Ceramics)
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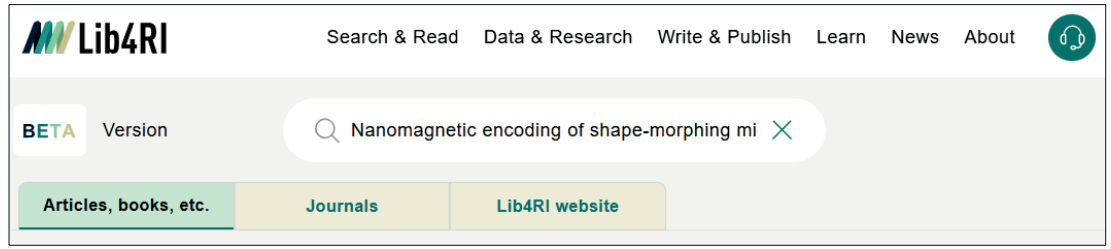
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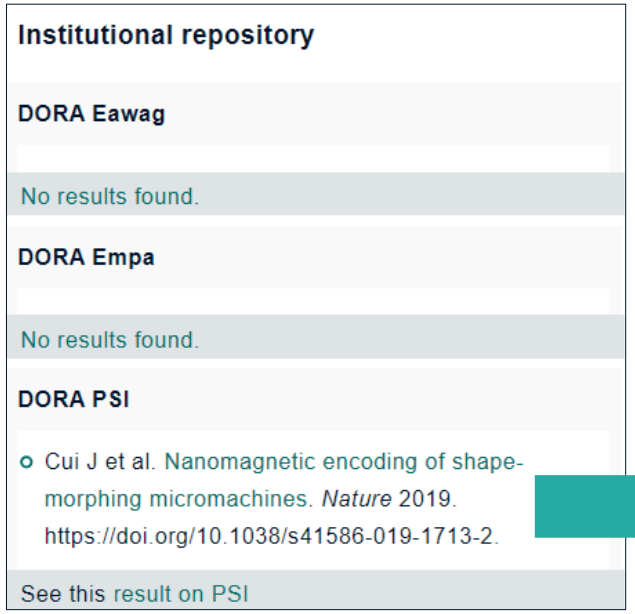
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Cui J et al. Nanomagnetic encoding of shape-morphing micromachines. Nature 2019. https://doi.org/10.1038/s41586-019-1713-2.
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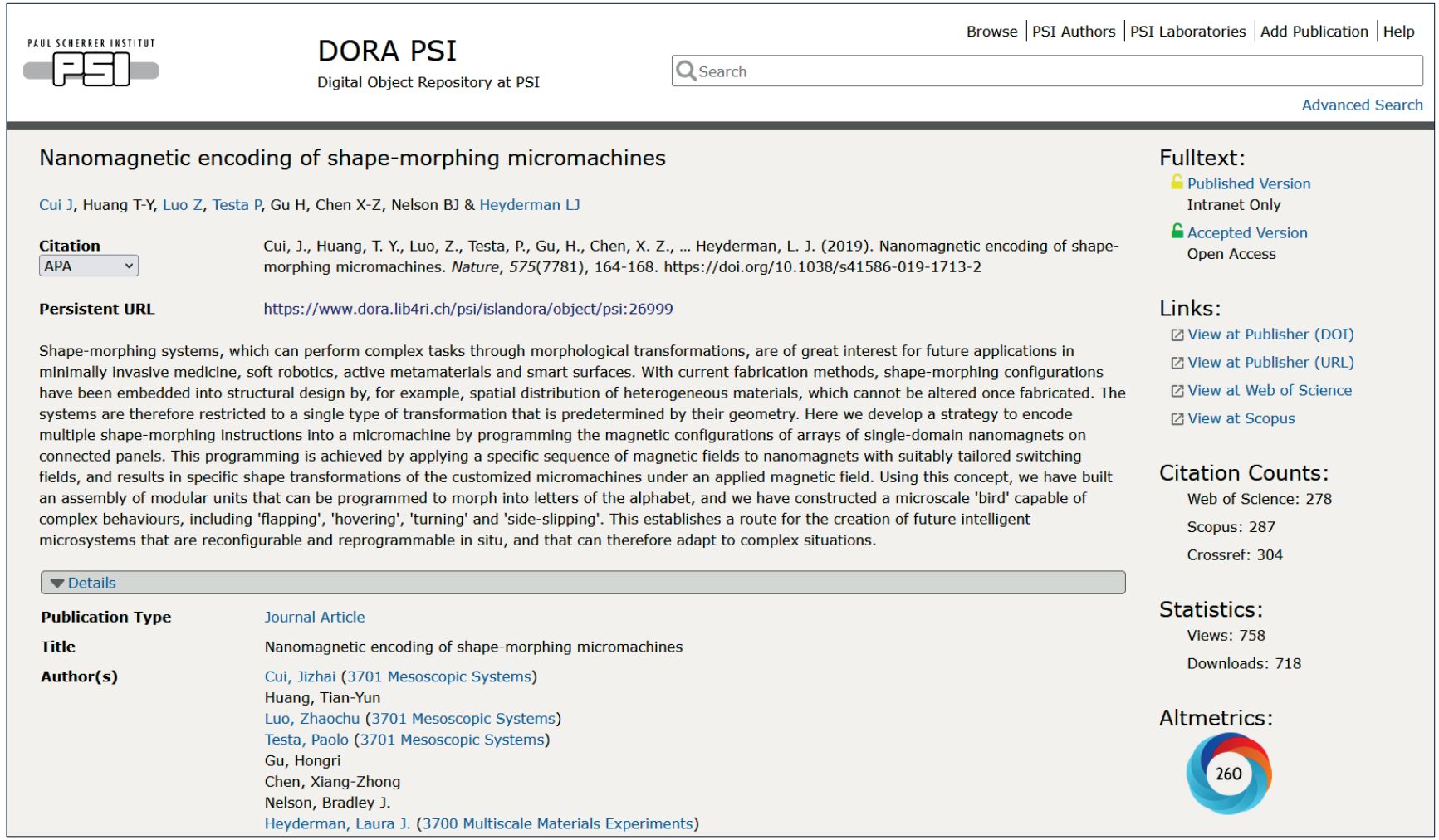
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Cui J, Huang T-Y, Luo Z, Testa P, Gu H, Chen X-Z, Nelson BJ & Heyderman LJ
Citation
APA
Cui, J., Huang, T. Y., Luo, Z., Testa, P., Gu, H., Chen, X. Z., ... Heyderman, L. J. (2019). Nanomagnetic encoding of shape-morphing micromachines. Nature, 575(7781), 164-168. https://doi.org/10.1038/s41586-019-1713-2
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Shape-morphing systems, which can perform complex tasks through morphological transformations, are of great interest for future applications in minimally invasive medicine, soft robotics, active metamaterials and smart surfaces. With current fabrication methods, shape-morphing configurations have been embedded into structural design by, for example, spatial distribution of heterogeneous materials, which cannot be altered once fabricated. The systems are therefore restricted to a single type of transformation that is predetermined by their geometry. Here we develop a strategy to encode multiple shape-morphing instructions into a micromachine by programming the magnetic configurations of arrays of single-domain nanomagnets on connected panels. This programming is achieved by applying a specific sequence of magnetic fields to nanomagnets with suitably tailored switching fields, and results in specific shape transformations of the customized micromachines under an applied magnetic field. Using this concept, we have built an assembly of modular units that can be programmed to morph into letters of the alphabet, and we have constructed a microscale 'bird' capable of complex behaviours, including 'flapping', 'hovering', 'turning' and 'side-slipping'. This establishes a route for the creation of future intelligent microsystems that are reconfigurable and reprogrammable in situ, and that can therefore adapt to complex situations.
Details
Publication Type
Journal Article
Title
Nanomagnetic encoding of shape-morphing micromachines
Author(s)
Cui, Jizhai (3701 Mesoscopic Systems)
Huang, Tian-Yun
Luo, Zhaochu (3701 Mesoscopic Systems)
Testa, Paolo (3701 Mesoscopic Systems)
Gu, Hongri
Chen, Xiang-Zhong
Nelson, Bradley J.
Heyderman, Laura J. (3700 Multiscale Materials Experiments)
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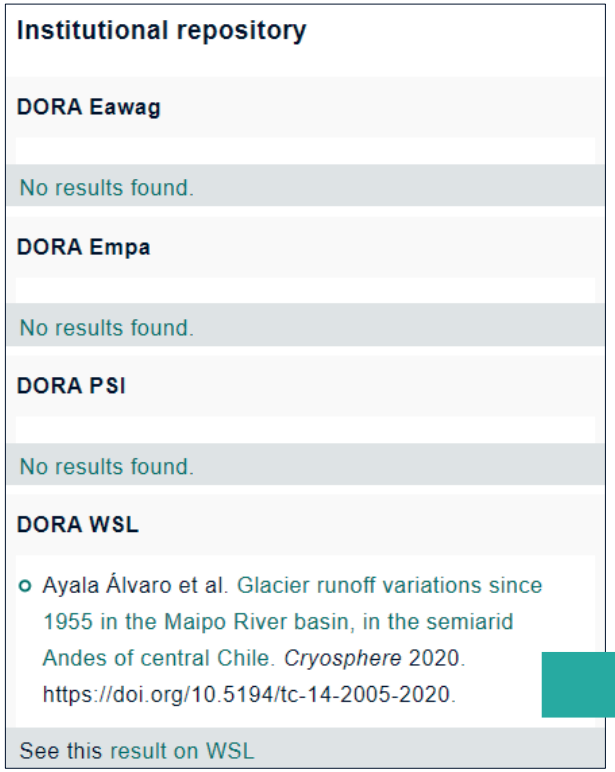
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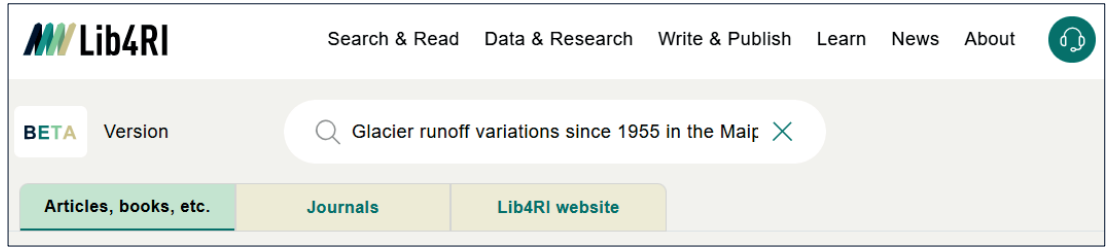
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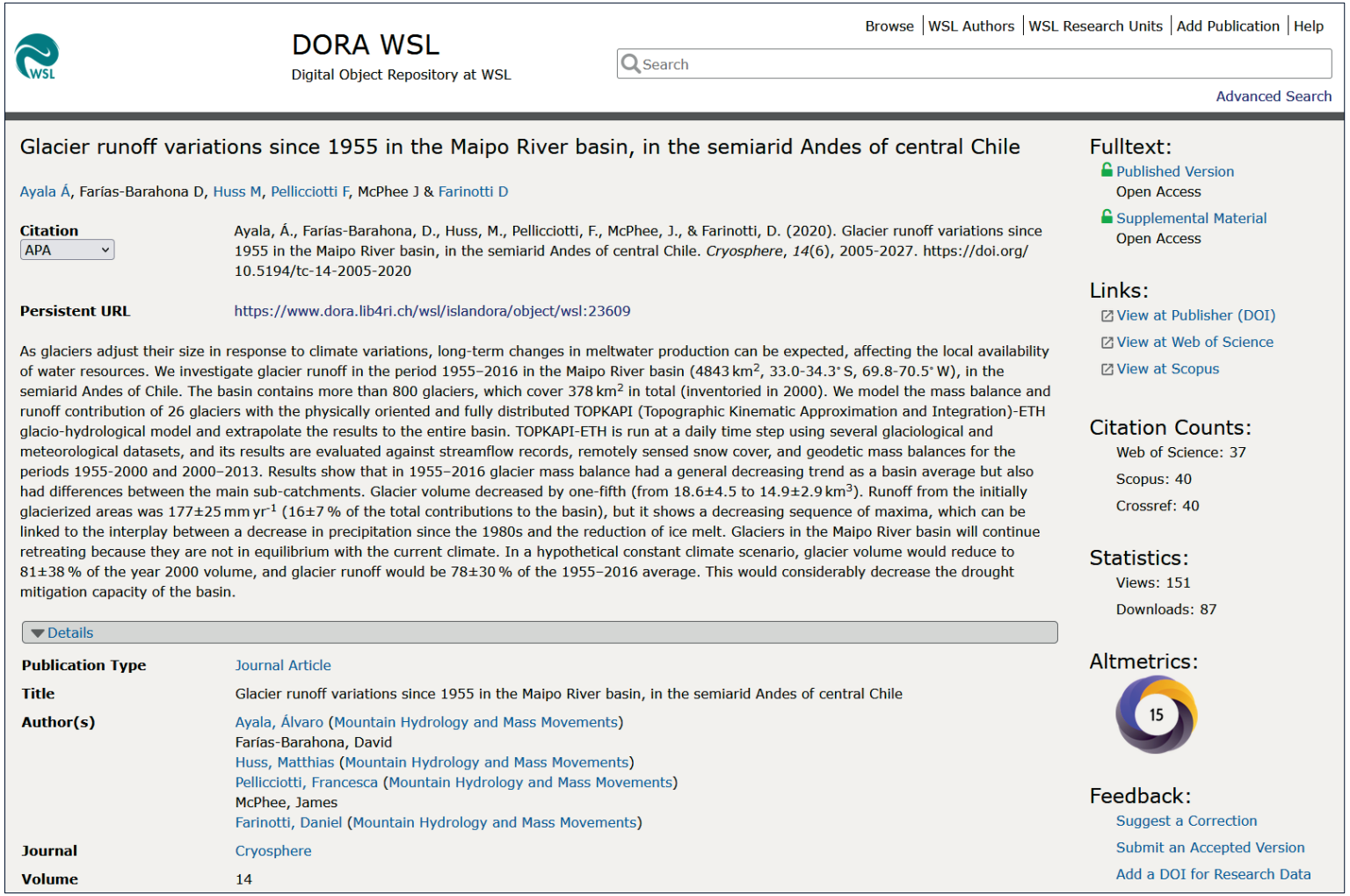
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Glacier runoff variations since 1955 in the Maipo River basin, in the semiarid Andes of central Chile
Ayala Á, Farías-Barahona D, Huss M, Pellicciotti F, McPhee J & Farinotti D
Citation
APA
Ayala, Á., Farías-Barahona, D., Huss, M., Pellicciotti, F., McPhee, J., & Farinotti, D. (2020). Glacier runoff variations since 1955 in the Maipo River basin, in the semiarid Andes of central Chile. Cryosphere, 14(6), 2005-2027. https://doi.org/10.5194/tc-14-2005-2020
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As glaciers adjust their size in response to climate variations, long-term changes in meltwater production can be expected, affecting the local availability of water resources. We investigate glacier runoff in the period 1955–2016 in the Maipo River basin (4843 km², 33.0-34.3° S, 69.8-70.5° W), in the semiarid Andes of Chile. The basin contains more than 800 glaciers, which cover 378 km² in total (inventoried in 2000). We model the mass balance and runoff contribution of 26 glaciers with the physically oriented and fully distributed TOPKAPI (Topographic Kinematic Approximation and Integration)-ETH glacio-hydrological model and extrapolate the results to the entire basin. TOPKAPI-ETH is run at a daily time step using several glaciological and meteorological datasets, and its results are evaluated against streamflow records, remotely sensed snow cover, and geodetic mass balances for the periods 1955-2000 and 2000–2013. Results show that in 1955–2016 glacier mass balance had a general decreasing trend as a basin average but also had differences between the main sub-catchments. Glacier volume decreased by one-fifth (from 18.6±4.5 to 14.9±2.9 km³). Runoff from the initially glacierized areas was 177±25 mm yr⁻¹ (16±7 % of the total contributions to the basin), but it shows a decreasing sequence of maxima, which can be linked to the interplay between a decrease in precipitation since the 1980s and the reduction of ice melt. Glaciers in the Maipo River basin will continue retreating because they are not in equilibrium with the current climate. In a hypothetical constant climate scenario, glacier volume would reduce to 81±38 % of the year 2000 volume, and glacier runoff would be 78±30 % of the 1955–2016 average. This would considerably decrease the drought mitigation capacity of the basin.
Details
Publication Type
Journal Article
Title
Glacier runoff variations since 1955 in the Maipo River basin, in the semiarid Andes of central Chile
Author(s)
Ayala, Álvaro (Mountain Hydrology and Mass Movements)
Farías-Barahona, David
Huss, Matthias (Mountain Hydrology and Mass Movements)
Pellicciotti, Francesca (Mountain Hydrology and Mass Movements)
McPhee, James
Farinotti, Daniel (Mountain Hydrology and Mass Movements)
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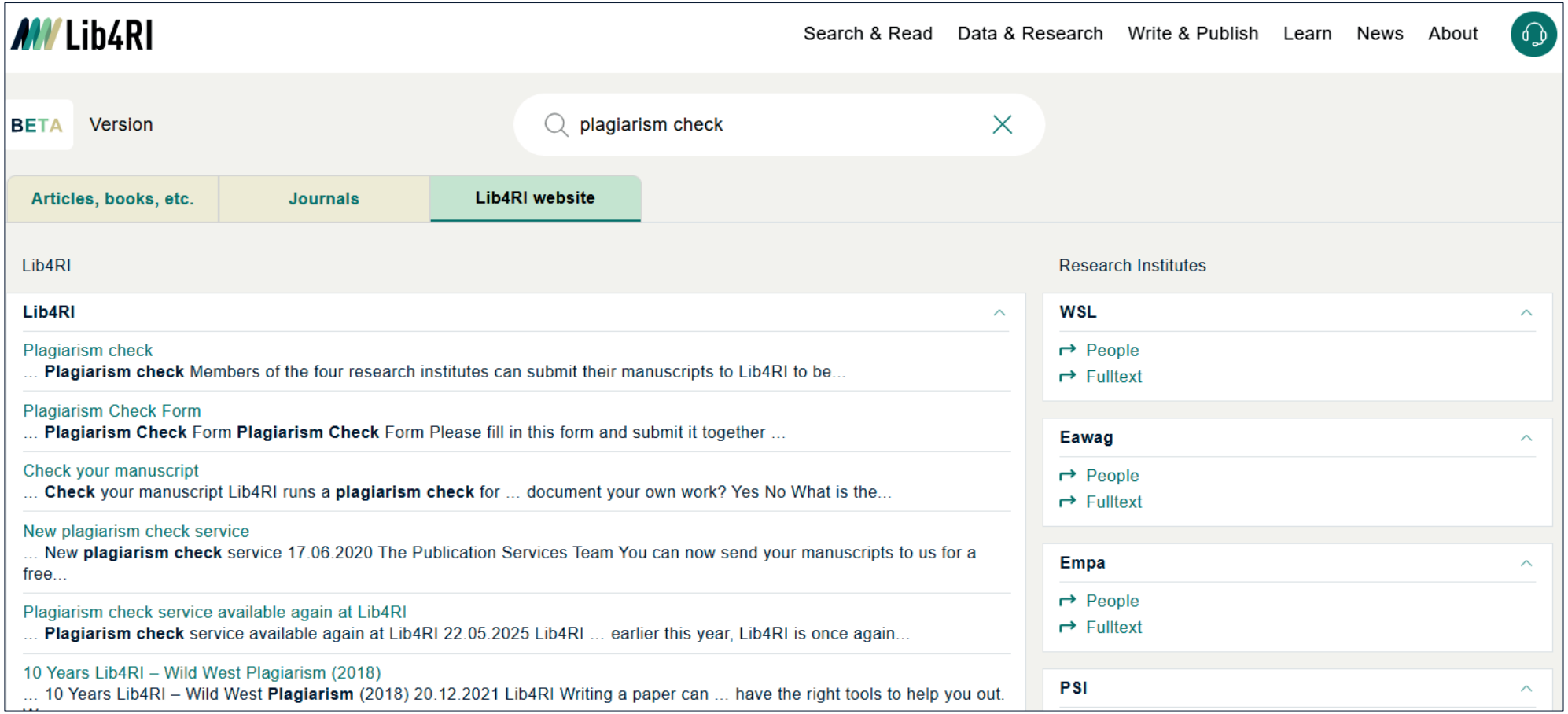
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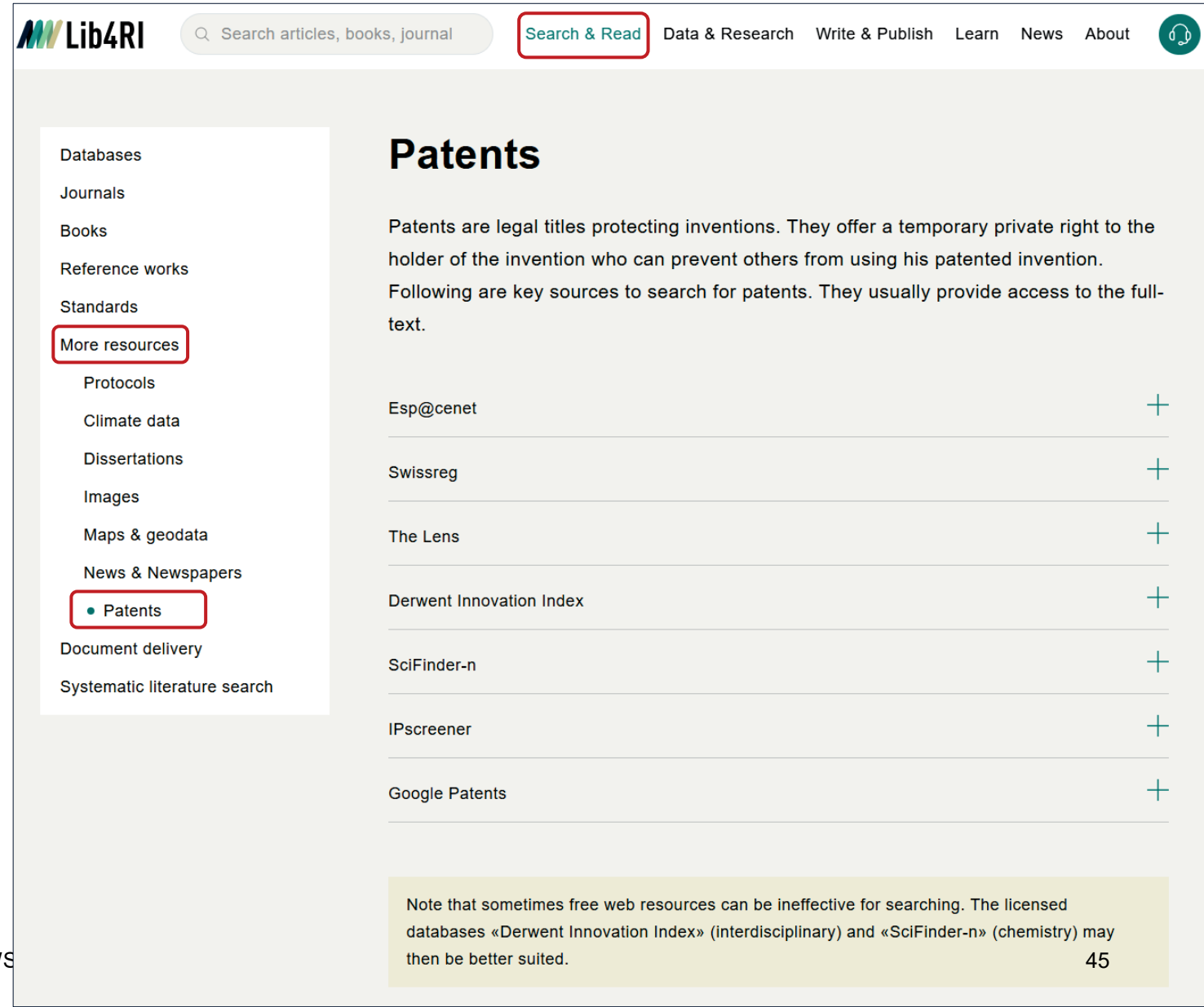

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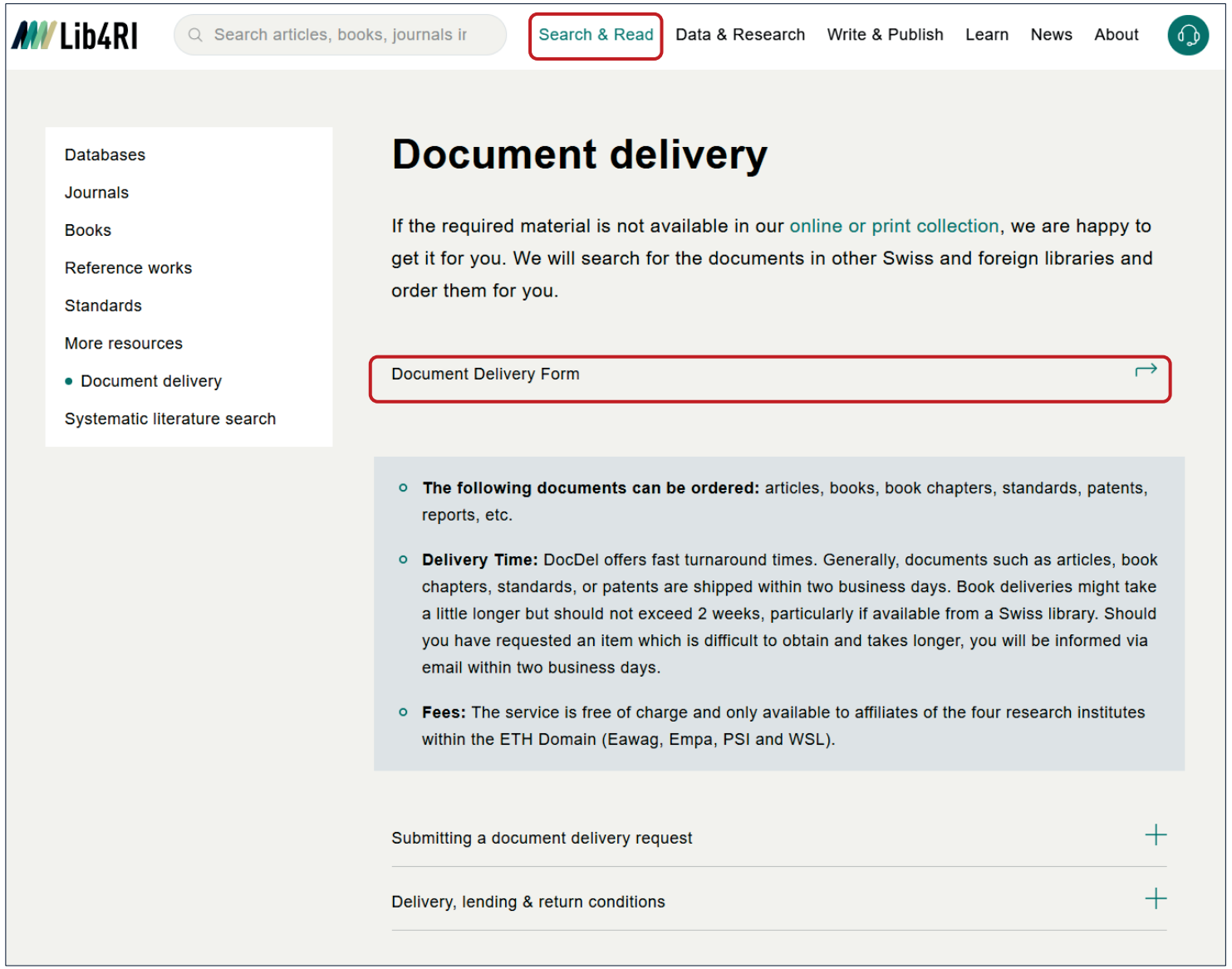


AI powered tools

Lib4RI

Literature search – powered by AI

- Yes, there are numerous AI tools (10’000, 36’000, ?)
- Find the right tool:
  - There's An AI For That
  - FutureTools
  - AiToolHunt
  - …
- ChatGPT ?
  - Custom ChatGPT with: Consensus, SciSpace, Dimensions

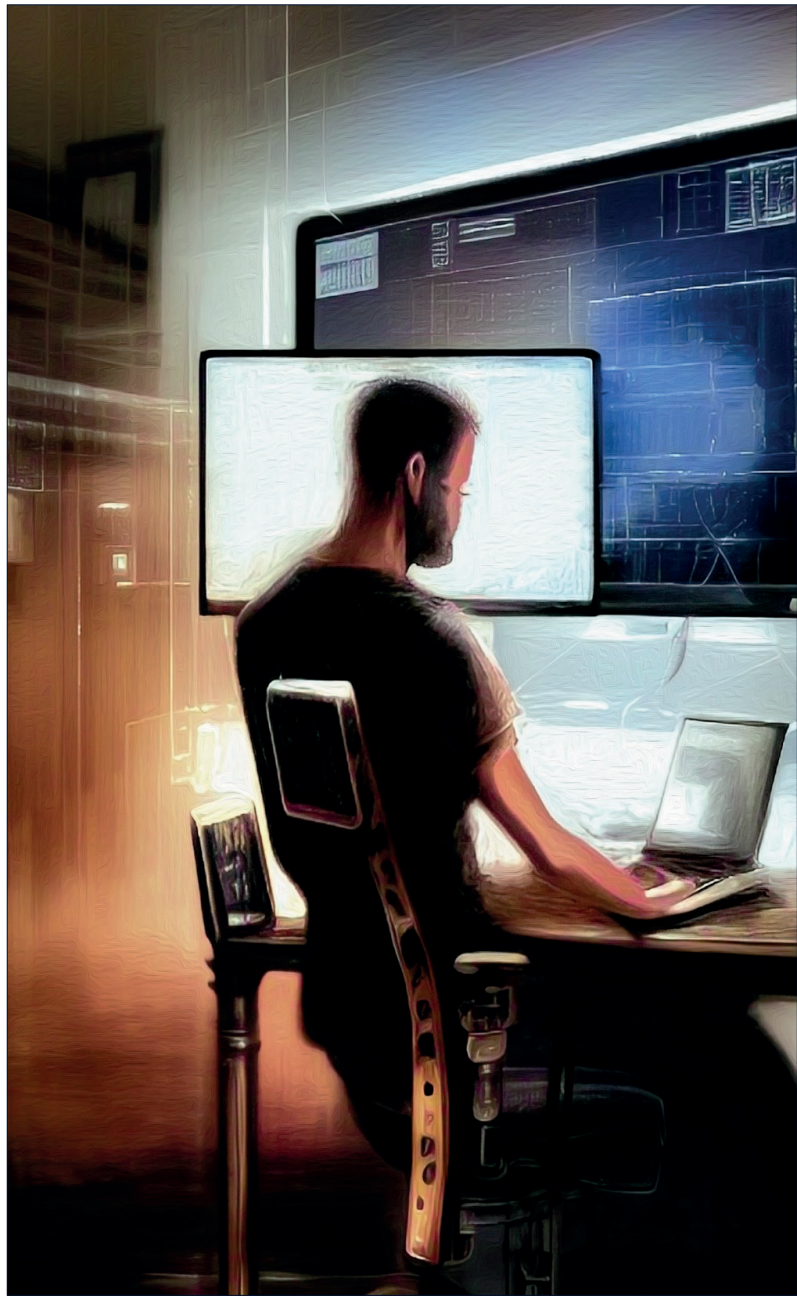
Some tips for effective prompting

- **Clarity and precision:** Clear and precise instructions prevent misunderstandings by the machine.
- **Contextual relevance:** A good prompt takes into account the context of the request.
- **Targeting:** Targeted prompts lead to targeted responses.
- **Linguistic nuance:** The way a prompt is phrased has a significant impact on the response.
- **Feedback loops:** Iterative adjustment of the prompt can help to improve results step by step.

Literature search – powered by AI

Features of AI tools

- Summaries
- Extraction of key information
- Suggestions for related publications
- Integration of AI assistants
- Automatic translation



AI tools for academic literature research can be divided into "Finders" and "Connectors"

"Finders“ act as a library catalogue. You can enter a keyword, a phrase or a complete question.

- Semantic Scholar
- Elicit
- Consensus
- SciSpace
- …

"Connectors" are based on a publication. Just enter part of the publication’s metadata (preferably the DOI) into the tool in order to find related literature.

- Research Rabbit
- Open Knowledge Map
- Inciteful
- Litmap
- …

Conclusions … for now

- Results strongly dependent on the scientific discipline and language of the publications
- Data basis is limited, often not transparent
- Sources behind paywalls may be missing or not analysed
- Often only the basic version is free of charge
- Quality of sources is not necessarily verified and should be checked for accuracy and citation
- Data protection / privacy / licensing

→ **Useful entry point / additional tool !**

→ **Try it!**

→ **Be critical!**

Thanks for your interest, keep being curious!

Any questions? We are happy to help!

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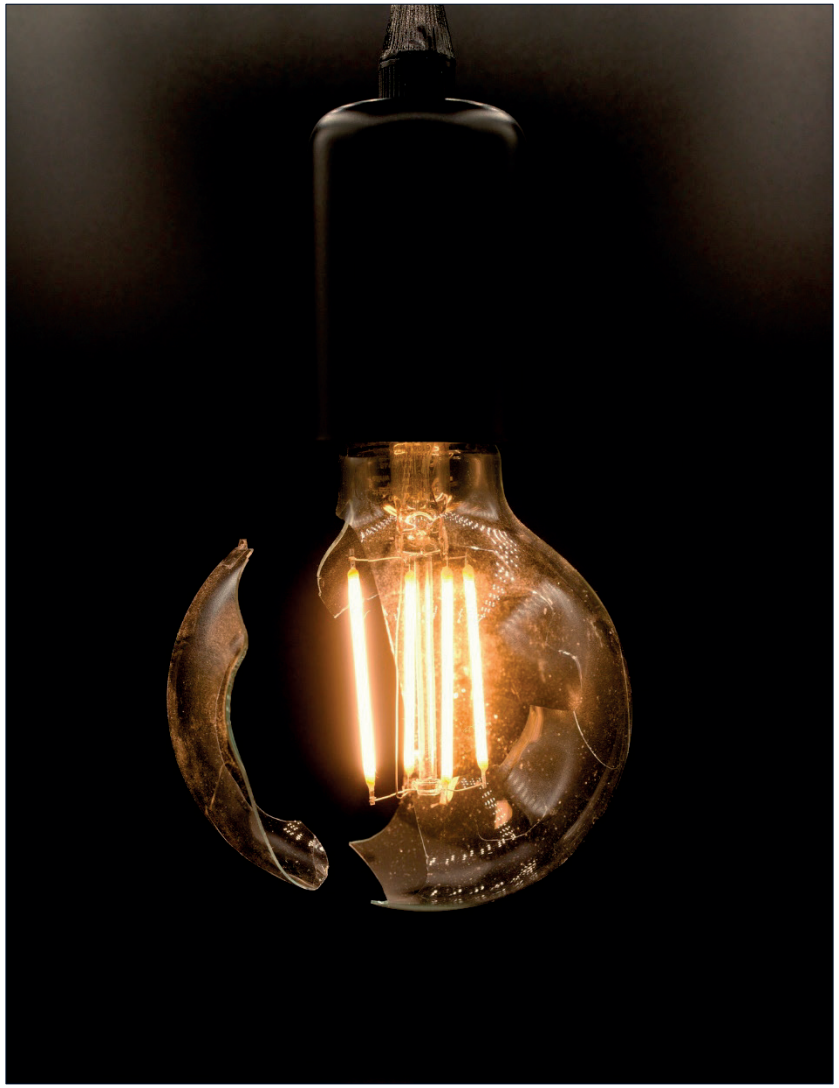

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