PiD fest CONFERENCE ON PERSISTENT IDENTIFIERS 2024

11–13 June, Prague, Czechia

Double Identification workflows research and practical application

a brief introduction of CSTR

Lijuan Wang

Computer Network Information Center,

Chinese Academy of Sciences

Co-funded by the European Union

MINISTRY OF EDUCATION, YOUTH AND SPORTS

NTK
50°6'14.083"N, 14°23'26.365"E
Národní technická knihovna
National Library of Technology

NCRIS
National Research Infrastructure for Australia
An Australian Government Initiativ

ARDC
Australian Research Data Commons

Background

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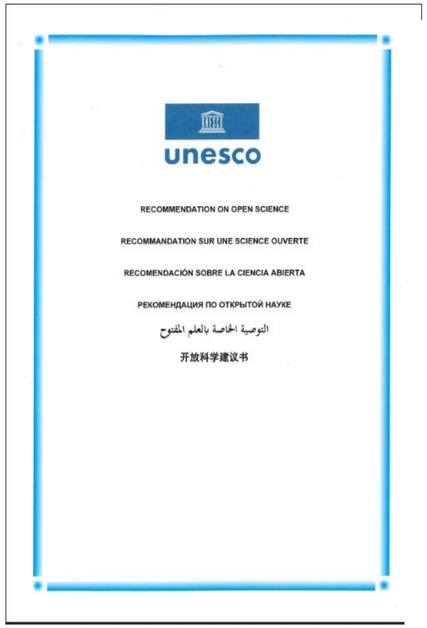
The UNESCO Recommendation on Open Science

The UNESCO Recommendation on Open Science (https://www.unesco.org/en/legal-affairs/recommendation-open-science) was adopted by the General Conference of UNESCO(United Nations Educational, Scientific and Cultural Organization) at its 41st session, on 23 November 2021. The persistent identifier is taken as the essential part of the "Open science infrastructures" as well as the one of the "Investing in open science infrastructures and services". CSTR is the global identifier for common science and technology resources, it is the committed practitioner of the global open science, fostering the PID infrastructure for open science.



9. **Open science infrastructures** refer to shared research infrastructures (virtual or physical, including major scientific equipment or sets of instruments, knowledge-based resources such as collections, journals and open access publication platforms, repositories, archives and scientific data, current research information systems, open bibliometrics and scientometrics systems for assessing and analysing scientific domains, open computational and data manipulation service infrastructures that enable collaborative and multidisciplinary data analysis and digital infrastructures) that are needed to support open science and serve the needs of different communities. Open labs, open science platforms and repositories for publications, research data and source codes, software forges and virtual research environments, and digital research services, in particular those that allow to identify unambiguously scientific objects by persistent unique identifiers, are among the critical components of open science infrastructures, which provide essential open and standardized services to manage and provide access, portability, analysis and federation of data, scientific literature, thematic science priorities or community engagement. Different repositories are adapted to the specificity of the objects they contain (publications, data or code), to local circumstances, user needs and the requirements of research communities, yet should adopt interoperable standards and best practices to ensure the content in repositories is appropriately vetted, discoverable and reusable by humans and machines. Open innovation testbeds including incubators, accessible research facilities, open license stewards, as well as science shops, science museums, science parks and exploratories, are additional examples of open science infrastructures providing common access to physical facilities, capabilities and services. Open science infrastructures are often the result of community-building efforts, which are crucial for their long-term sustainability and therefore should be not-for-profit and guarantee permanent and unrestricted access to all public to the largest extent possible.

(e) Federated information technology infrastructure for open science, including high-performance computing, cloud computing and data storage where needed, and robust, open and community managed infrastructures, protocols and standards to support bibliodiversity and engagement with society. While avoiding fragmentation by enhancing the federation of existing open science infrastructures and services, at the national, regional and international levels, attention should be given to ensuring that this infrastructure is accessible for all, internationally interconnected and as interoperable as possible, and that it follows certain core specifications, notably the FAIR (Findable, Accessible, Interoperable, and Reusable) and CARE (Collective Benefit, Authority to Control, Responsibility and Ethics) principles for data stewardship. Technical requirements specific to every digital object of significance for science, whether a datum, a dataset, metadata, code or publication, should also be addressed. The capacities of data stewardship infrastructures should serve the needs of all scientific disciplines in an equitable way, regardless of the volume and nature of data they use and the methods they employ to process it. Open science infrastructures and services should be oriented towards the needs of scientists and other audiences using them, develop functionalities tailored to their practices and present user-friendly interfaces. Due care should also be given to persistent identifiers of digital objects. Examples include the definition and attribution of open persistent identifiers as appropriate for each type of digital object, the necessary metadata for their efficient assessment, access, use and re-use, and proper stewardship of data by a trusted regional or global networks of data repositories.

Background

A variety of PIDs are being used in scientific research

PMID: 28339860

arXiv:2111.06845 |

Bibcode: 1974AJ.....79..819H

What is CSTR

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CSTR

Common Science and Technology Resource

- Based on the National Standard GB/T 32843—2016

  "Science and technology resource identification“

China National Standards

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CSTR Numbering Specification

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CSTR: XXXXX . XX . XXX... XXX

Internal identifier (variable length)

Science and Technology resource type code (2-digit code)

Science and Technology Resource Identification Registration Institution Code (5 digits)

◆**Example:**

CSTR:31253.11.sciencedb.170.25

- *"**31253**" is the Registration Institution Code*
- *"**11**" is the Scientific data code*
- *"**sciencedb.170.25**" is the internal code.*

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Resource Type

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CODE	NAME	EXPLAIN
02	Major Science and Technology Infrastructure	Major science and technology infrastructures include large and complex scientific research systems that provide the means to explore the unknown, discover the laws of nature and achieve technological change at the limits of research
04	Plant germplasm resources	Plant genetic diversity resources are the genetic carrier materials formed by all plant genes in a specific ecological space and time.
11	Scientific data	The collection of primitive and basic data accumulated in scientific and technological activities of human society or acquired in other ways to reflect the nature, characteristics, and changing laws of the objective world, as well as all kinds of data systematically processed and sorted according to the needs of different scientific and technological activities.
14	Papers	Types of Papers include journal papers, conference papers, dissertations, etc.
16	Patents	Types of patents include invention, utility model and design patents
17	Standards	Types of standards include international standards, national standards, industry standards, local standards, corporate standards, group standards, etc.

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Our Beliefs

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Free to have

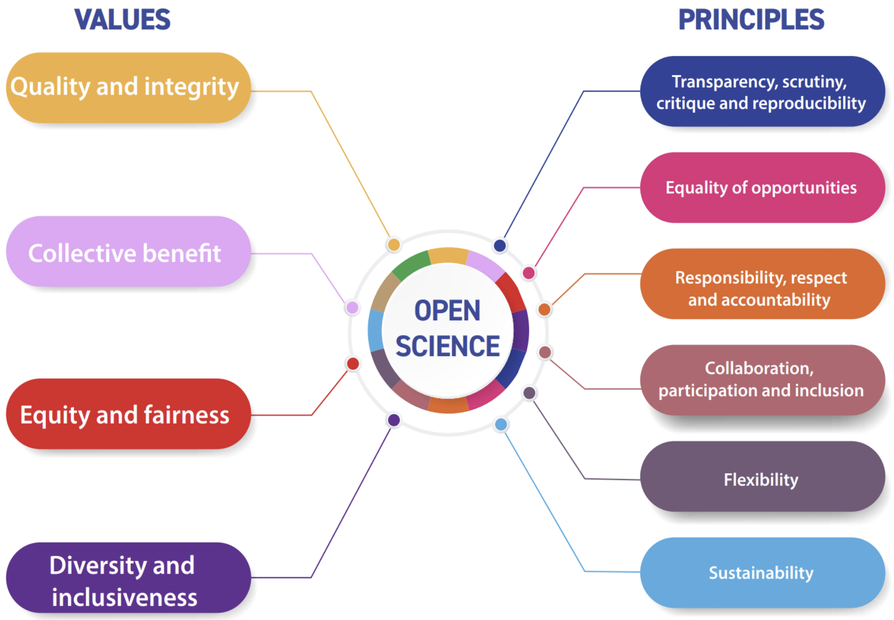
Each institution in the research ecosystem should have the right to use the global identifier for their research output without restrictions on charge which will not ignore any new emerging scientific innovation items resources. CSTR members can keep their own exclusive prefix simply by filling out the application form for free.

Easy to use

It will take a long time to build a globally interworking and well-known identifier and to use the maturity identifier without restrictions. CSTR supports basic services both human and machine-readable to keep the identifier persistent for members without many commitments.

Digital and Physical

The new challenge with the data-driven scientific research paradigm is not the lack of identifiers for digital research outputs but how to support the connective between the digital and physical world. CSTR provides a service that automatically traces the research impact downstream from physical to digital.



CSTR Identification Platform

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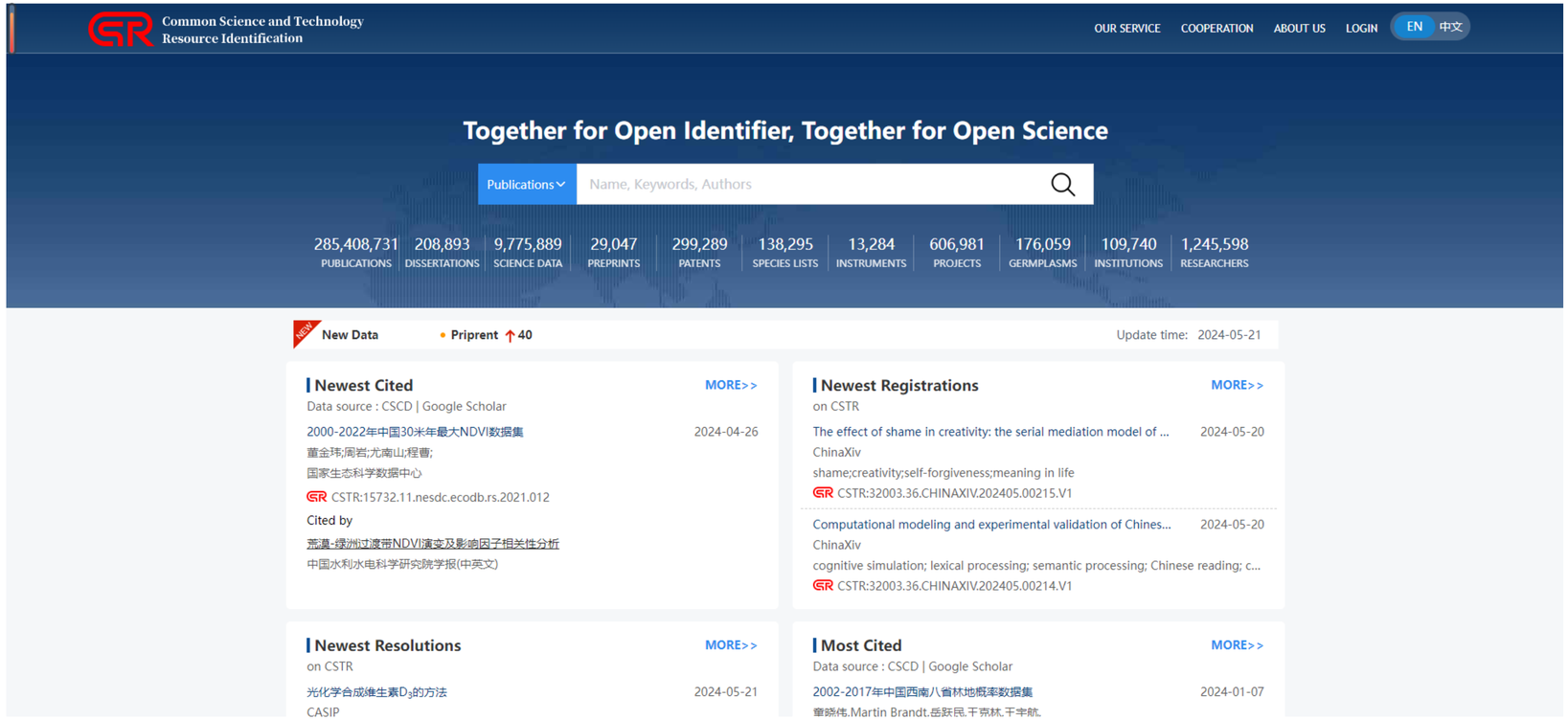
CSTR Identification Platform（https://www.cstr.cn/en）is initialed in 2018 based on the National Standard GB/T 32843—2016 "Science and technology resource identification", providing unique identification service for global scientific data, papers, scientific institutions, researchers, scientific instruments, patents and other scientific and technological resources. CSTR is also accepted as the international standard, such as IANA., etc.



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Service/Basic

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Basic Service (No Charge)

1. Registration Service

Through the registration of science and technology resource identifiers and metadata, the published science and technology resource are made more discoverable and accessible.

2. Resolution Service

Convenient inquiry and search services are provided by using science and technology resource identifiers, keywords and metadata as inputs.

3. Associated Service

Linking papers to authors, papers to resources, and research processes and results data in a vast network of associations through science and technology resource identifiers.

4. Data Service

Provide multi-dimensional statistical analysis of the total amount of resources, resolutions, and views, forming a comprehensive data service of China's science and technology resource.

Enriched online CSTR statistics and presentation

CSTR registration, resolution API

Service/Citation

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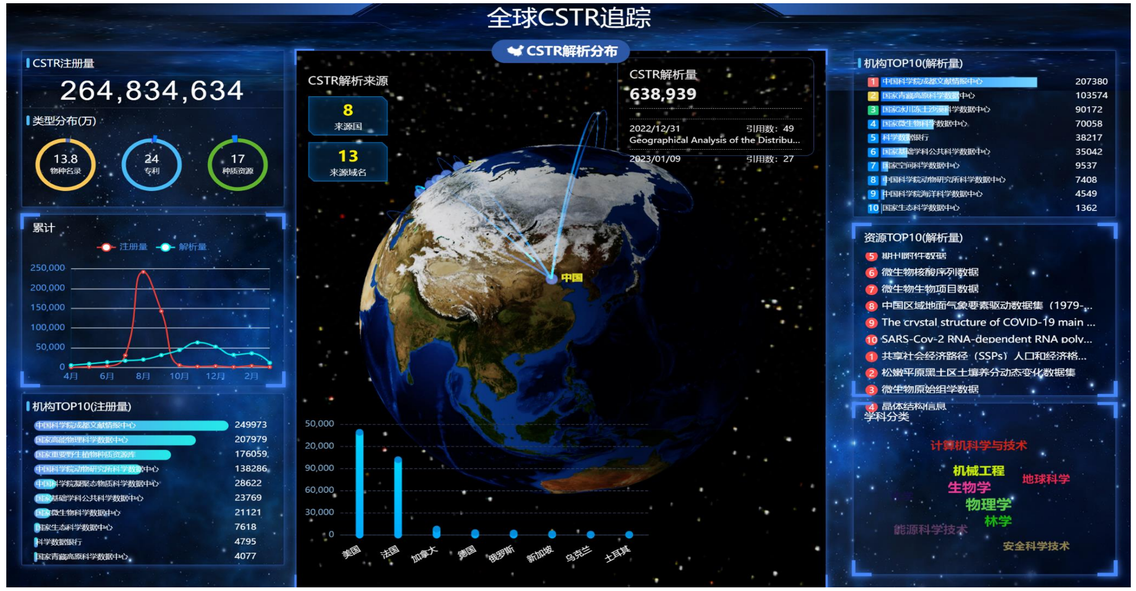

Cited by Cell / Nature / Science

3

scientific data

nature > scientific data > data descriptors > article

Data Descriptor | Open Access | Published: 16 August 2022

A bankfull geometry dataset for major exorheic rivers on the Qinghai-Tibet Plateau

31. Ren, H. & Pan, X. Integration dataset of Tibet Plateau boundary. *National Tibetan Plateau Data Center* CSTR: 18406.11.Geogra.tpdc.270099, https://doi.org/10.11888/Geogra.tpdc.270099 (2019).

nature communications

nature > nature communications > articles > article

Article | Open Access | Published: 01 March 2023

Non-monotonic changes in Asian Water Towers' streamflow at increasing warming levels

65. Zhang, Y., Ren, H. & Pan, X. Integration dataset of Tibet Plateau boundary. https://cstr.cn/18406.11.Geogra.tpdc.270099 (2019)

nature climate change

Article | Published: 22 June 2023

Universal temperature sensitivity of denitrification nitrogen losses in forest soils

75. Ran, Y. *Plant Functional Types Map in China* (NCDC, 2019); https://cstr.cn/11738.11.ncdc.Westdc.2020.632

Service/Reports

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Regular User Citation Reports

中国科学院青藏高原科学数据中心

CSTR前缀：18406

总量统计

注册量		解析量	
3,770 条	总体排名 6/233	77,369 次	总体排名 3/233
	注册失败 74 次		解析失效 0 次

引用量TOP

1	中国1km分辨率逐月平均气温数据集（1901-2017）	Google Scholar 17
2	青藏高原边界数据总集	Google Scholar 14
3	青藏高原土地利用数据（1992、2005和2015）（V1.0）	Google Scholar 12
4	1998-2017年青藏高原及周边地区气温和降水格点数据	Google Scholar 7
5	黑河流域1km LAI产品（2000-2012）	Google Scholar 5

解析量TOP

1	中国区域地面气象要素驱动数据集（1979-2018）	769
2	中国长序列地表冻融数据集——双指标算法（1978-2015）	103
3	波密降水稳定同位素日均数据（2018）	102
4	青藏高原降水稳定氧18同位素数据集(1991-2008)	98
5	黑河综合遥感联合试验：大野口关滩森林站涡动相关通量数据集	90

来源国TOP

排名	解析来源国	解析量
1	中国	48,134
2	美国	2,246
3	加拿大	932
4	德国	168
5	法国	131

Multi-Channel Citation List

Basic Information

Title: Balancing on the Creative Highwire

CSTR:5F376.14.0001839216642211

Author:

Published Journal: Administrative Science Quarterly

Altmetric Score 51

Highest Citation	270
Crossref	127
Google Scholar	270
Semantic Scholar	113

Cited Literature

Google Scholar (270) | Semantic Scholar (113)

Idea rejected, tie formed: Organizations' feedback on crowdsourced ideas

H Piezunka, L Dahlander - Academy of Management Journal, 2019 - journals.aom.org

Citations:110 **Source: googleScholar** **Original Article Address:Click to view**

A bibliometric analysis of creativity in the field of business economics

M Castillo-Vergara, A Alvarez-Marin... - Journal of Business ..., 2018 - Elsevier

Citations:213 **Source: googleScholar** **Original Article Address:Click to view**

Experiments in strategy research: A critical review and future research opportunities

MT Bolinger, MA Josefy, R Stevenson... - Journal of ..., 2022 - journals.sagepub.com

Citations:17 **Source: googleScholar** **Original Article Address:Click to view**

Understanding the receiving side of creativity: A multidisciplinary review and implications for management research

J Zhou, XM Wang, D Bavato... - Journal of ..., 2019 - journals.sagepub.com

Citations:80 **Source: googleScholar**

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Double Identification workflows research and practical application

CSTR Application and Cooperation

Xiaolei Xia

Computer Network Information Center,

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MINISTRY OF EDUCATION, YOUTH AND SPORTS

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ARDC Australian Research Data Commons

CSTR Statement

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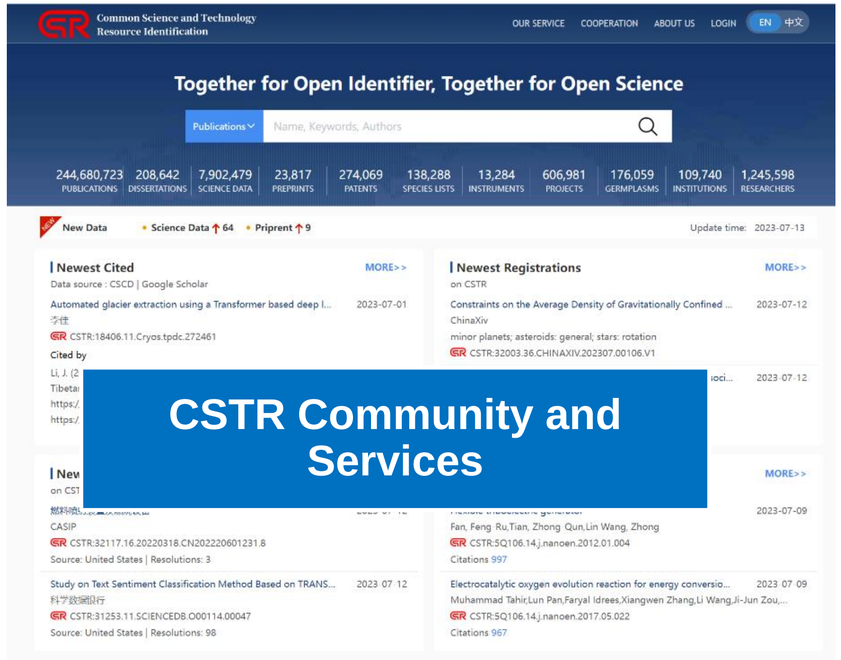
Global connectivity of CSTR

With other PID services, we support due care given to persistent identifiers of digital objects proposed by Open Science Recommendation.

11 type
(academic paper , patent, Scientific data…)

International Cooperation
(IANA,FAO,ORCID Harvard…)

Citation by Journals
(Nature, IEEE, Earth System…)



National Data Center & CAS data Center

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PID service provider for National Data Center and CAS data Center

National Data Center (20)

—Published by Ministry of Science and Technology

序号	国家平台名称
1	国家高能物理科学数据中心
2	国家基因组科学数据中心
3	国家微生物科学数据中心
4	国家空间科学数据中心
5	国家天文科学数据中心
6	国家对地观测科学数据中心
7	国家极地科学数据中心
8	国家青藏高原科学数据中心
9	国家生态科学数据中心
10	国家材料腐蚀与防护科学数据中心

序号	国家平台名称
11	国家冰川冻土沙漠科学数据中心
12	国家计量科学数据中心
13	国家地球系统科学数据中心
14	国家人口健康科学数据中心
15	国家基础学科公共科学数据中心
16	国家农业科学数据中心
17	国家林业和草原科学数据中心
18	国家气象科学数据中心
19	国家地震科学数据中心
20	国家海洋科学数据中心

CAS Data Center (32)

—Published by CAS

国家基础学科公共科学数据中心
国家气象科学数据中心 中国气象数据网 / 权威·开放·共赢
植物科学数据中心 Plant Science Data Center
中国科学院生态学科数据中心 Chinese Academy of Science Discipline Data Center for Ecosystem
国家生态科学数据中心 National Ecosystem Science Data Center
国家地震科学数据中心 NATIONAL EARTHQUAKE DATA CENTER
国家农业科学数据中心 National Agriculture Science Data Center
中国科学院南京地理与湖泊研究所 NANJING INSTITUTE OF GEOGRAPHY & LIMNOLOGY CHINESE ACADEMY OF SCIENCES
国家家养动物种质资源库
CNITECH
中国科学院心理研究所 INSTITUTE OF PSYCHOLOGY, CAS
国家极地科学数据中心 National Arctic and Antarctic Data Center
National Wild Plant Germplasm Resource Center 国家重要野生植物种质资源库
中国热带农业科学院 CHINESE ACADEMY OF TROPICAL AGRICULTURAL SCIENCES
中国科学院北京基因组研究所（国家生物信息中心） BEIJING INSTITUTE OF GENOMICS CHINESE ACADEMY OF SCIENCES / CHINA NATIONAL CENTER FOR BIOINFORMATION

National Data Center & CAS data Center

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PID service provider for
National Data Center and CAS data Center

Reference way

Reference of data

Su, P. (2013). The annual ecological investigation data of desert vegetation with different desert types in Heihe River basin (2011). National Tibetan Plateau/Third Pole Environment Data Center, https://doi.org/10.3972/heihe.061.2013.db. https://cstr.cn/18406.11.heihe.061.2013.db. (Download the reference： RIS| Bibtex)

国家微生物科学数据中心
National Microbiology Data Center

微生物编目

拟茎点霉属

描述：拟茎点霉属数据库收集并整合了不同地理环境分布的拟茎点霉属样本描述信息。

关键词：拟茎点霉属;采集地;形态描述

更新日期：2020-01-06

机构：中国科学院微生物研究所

地址：北京市朝阳区北辰西路1号院3号

邮编：100101

联系电话：（010）64807462

邮箱：nmdc@im.ac.cn

CSTR： http://resolve.pid21.cn/CSTR:13913.11.micro.sdata.phomopsis

DOI： https://dx.doi.org/10.12210/micro.sdata.phomopsis

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National Advanced Platform

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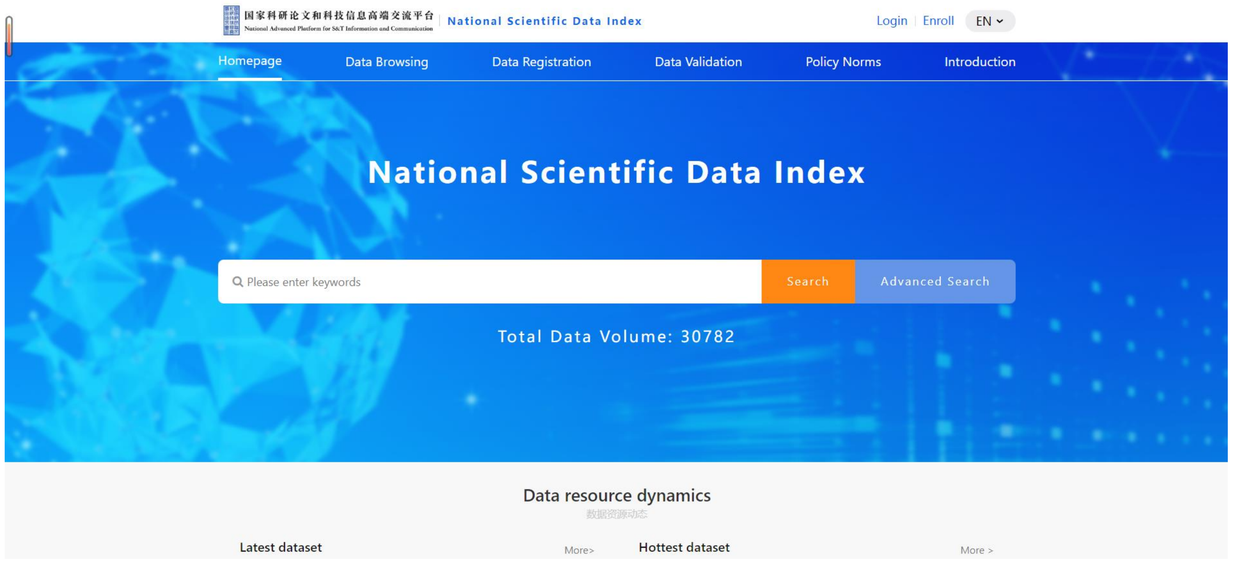
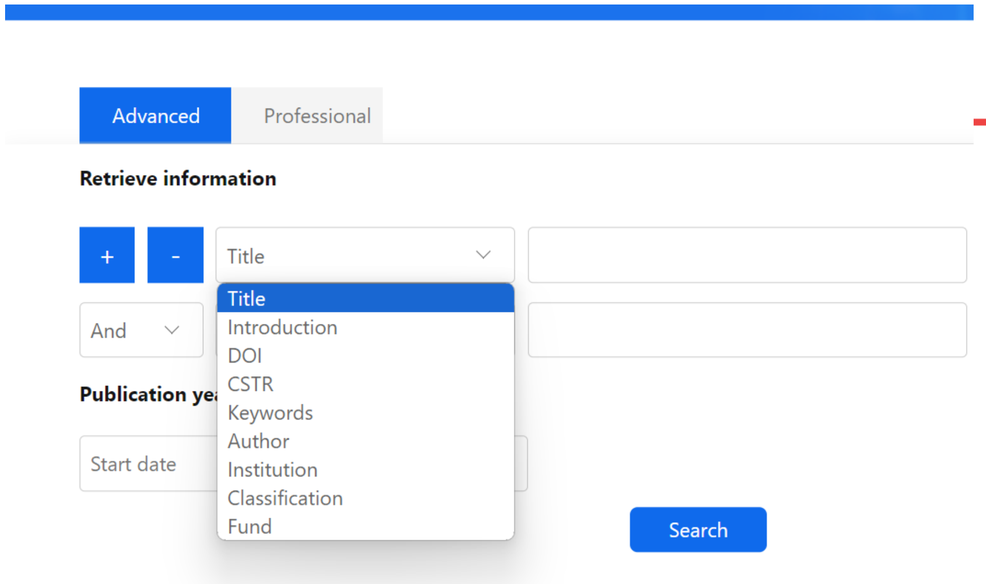
National Advanced Platform for S&T Information and Communication

Supporting various CSTR services for scientific data in National Advanced Platform for S&T Information and Communication.





https://napstic.cn/

Journal Articles

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Journal Articles

CSTR supports journals such as China Scientific Data and Frontiers of Data and Computing Development, and cooperates with publishers such as Artech Publishing Group and Chinese Medical Association.

数据与计算发展前沿 Frontiers of Data & Computing

CSData 中国科学数据

有科出版 YOUKE PUBLISHING

中华医学会 CHINESE MEDICAL ASSOCIATION

Preprint

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Preprint

Provide CSTR registration service for preprints in ChinaXiv platform of Chinese Academy of Sciences.

Currently **29,451** preprints have been supported.

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Chinese Species List

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Chinese Species List

Provides CSTR registration services for species lists on the Species 2000 China node. Currently supports **138,284** species.

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CSTR Identification Gansu Node

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Collaboration with the National Glacier Cryosphere Desert Science Data Center to establish the CSTR identifier Gansu node.

CSTR Malaysia Node

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Collaboration with HSAAS(Hospital Sultan Abdul Aziz Shah) to establish a CSTR Malaysia node to support open sharing of science in Malaysia.

CSTR Central Asian Node

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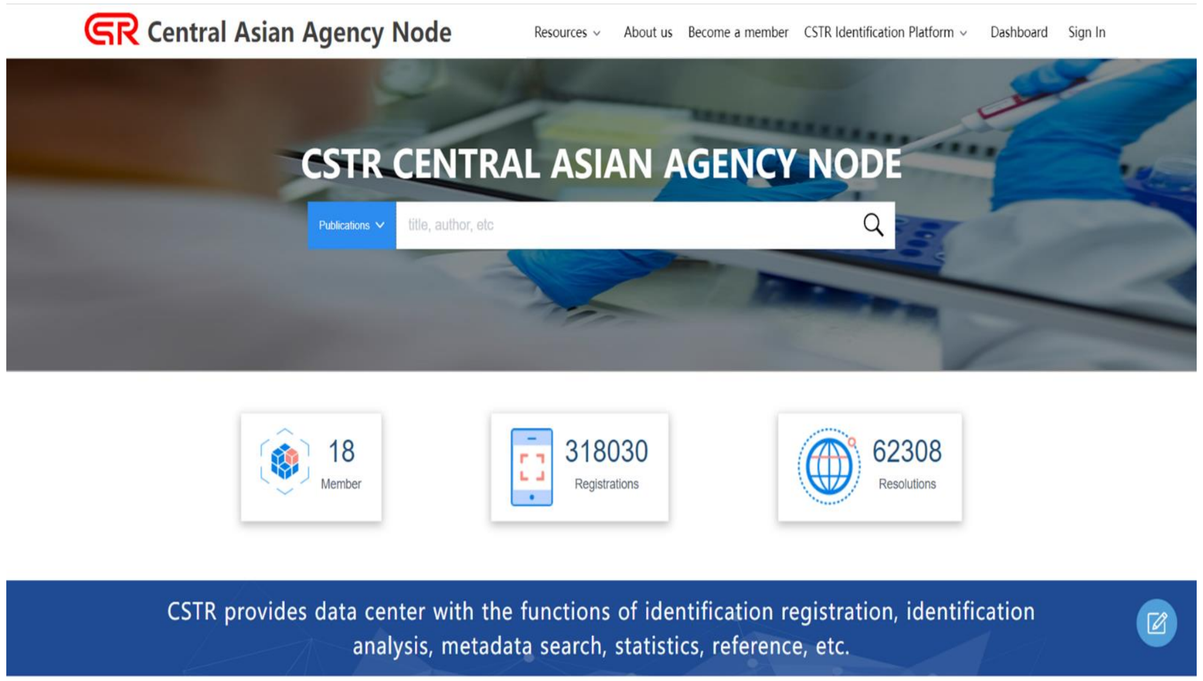
The CSTR Central Asian Node aims to provide the technology to support the development of the countries in the Belt and Road Initiative, specialized in pharmacology and biomedicine.

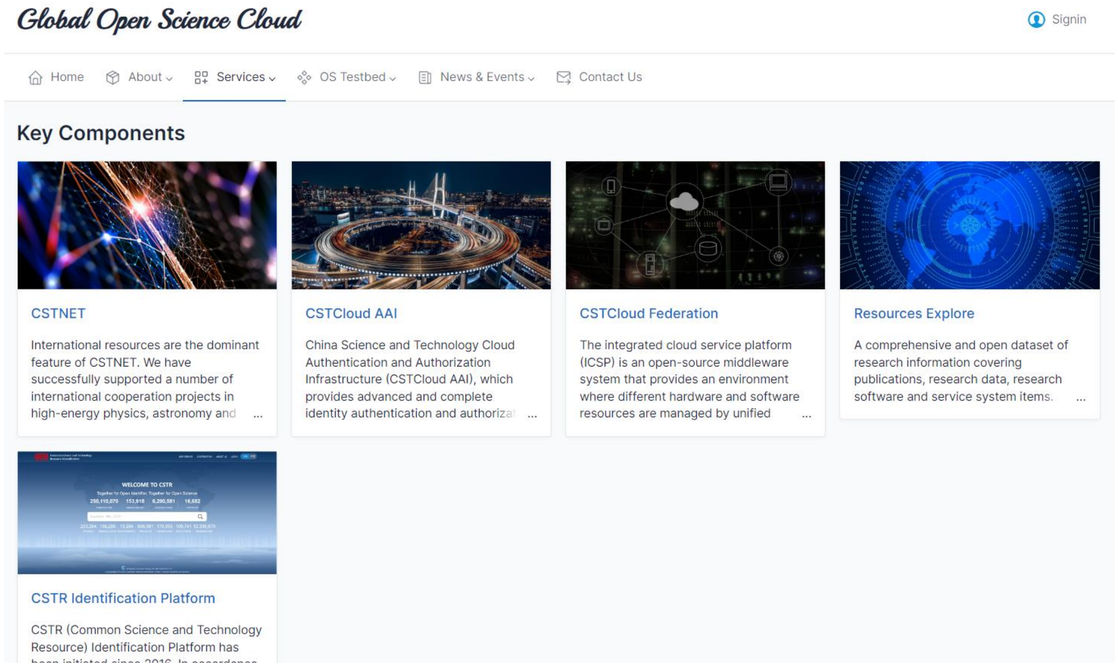


Key Components in GOSC

Key Components in GOSC

The Global Open Science Cloud (GOSC) aims to co-design and co-construct a cross-continental federated e-infrastructure and virtual research environment for global collaboration and open science through harmonized policies, interoperable protocols, transparent services and ongoing mechanisms. CSTR has been embraced by GOSC as a key component.

https://goscloud.net/



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International Cooperation/Workshop

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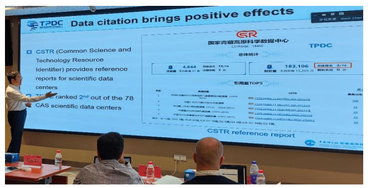
The International workshop on Open Science Identifier (17 Oct - 18 Oct 2023, Beijing, China)

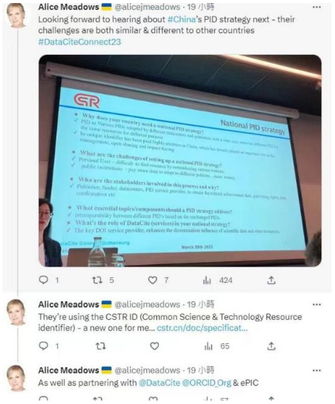




March 20th 2023co-located with the RDA 20th Plenary Meeting





International Data Week 2023: A Festival of Data, 23–26 October 2023, Salzburg, Austria

CSTR with Research Workflows

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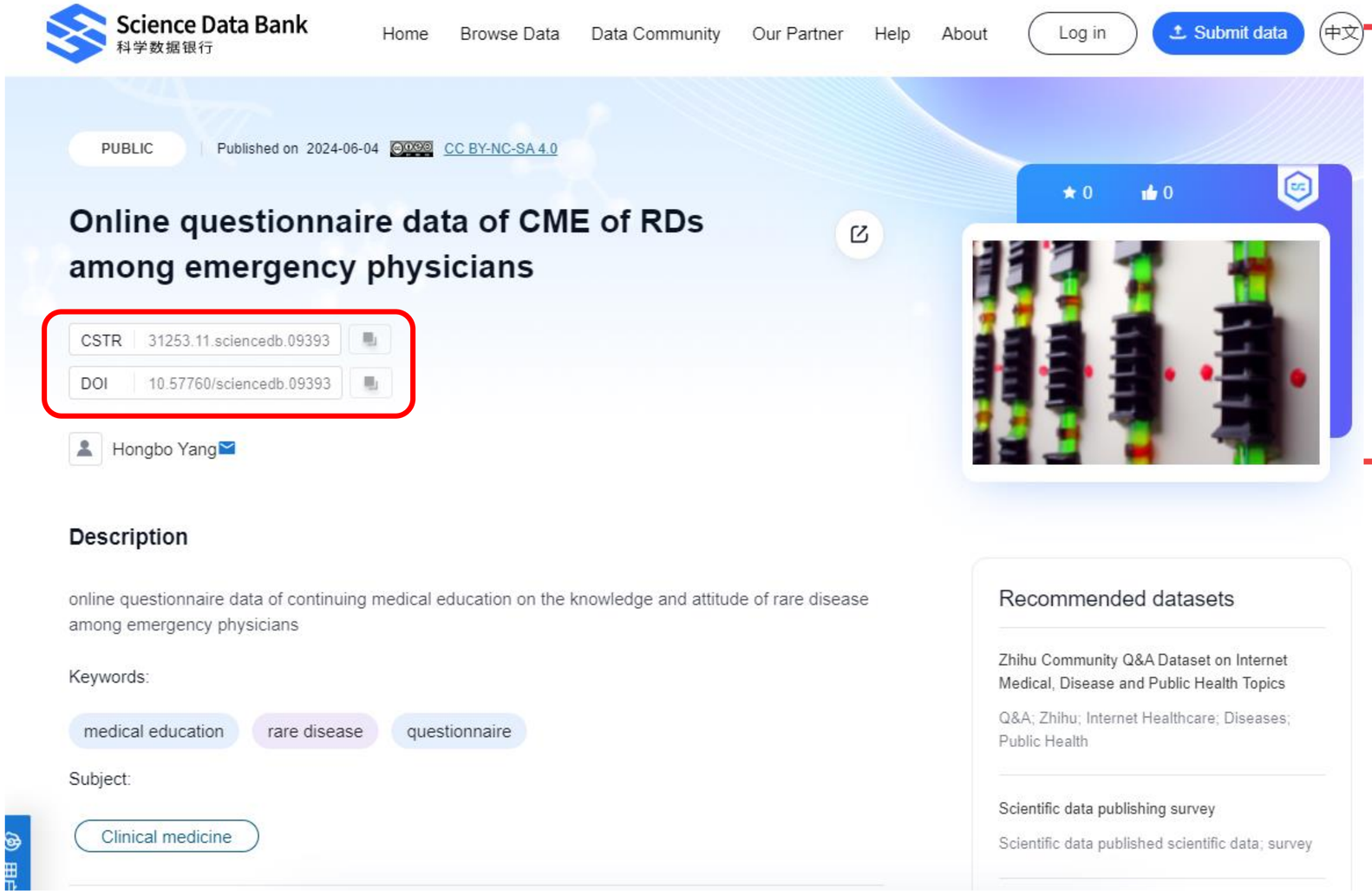
Science Data Bank 科学数据银行

CSTR Services

DOI Services

Support DOI service

DataCite
CONNECTING RESEARCH, ADVANCING KNOWLEDGE



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CSTR with Research Workflows

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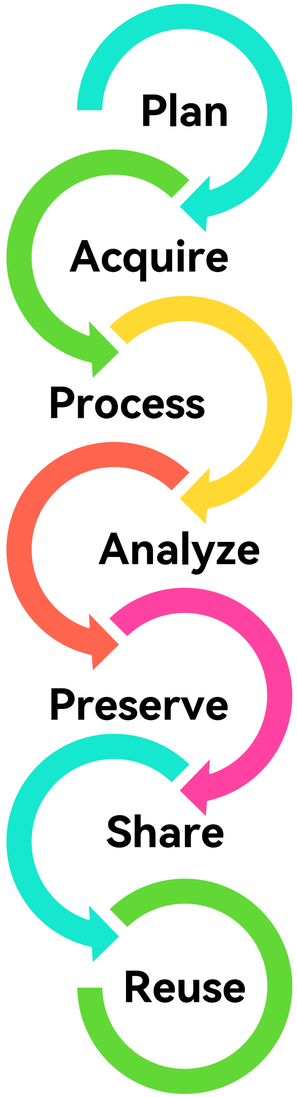
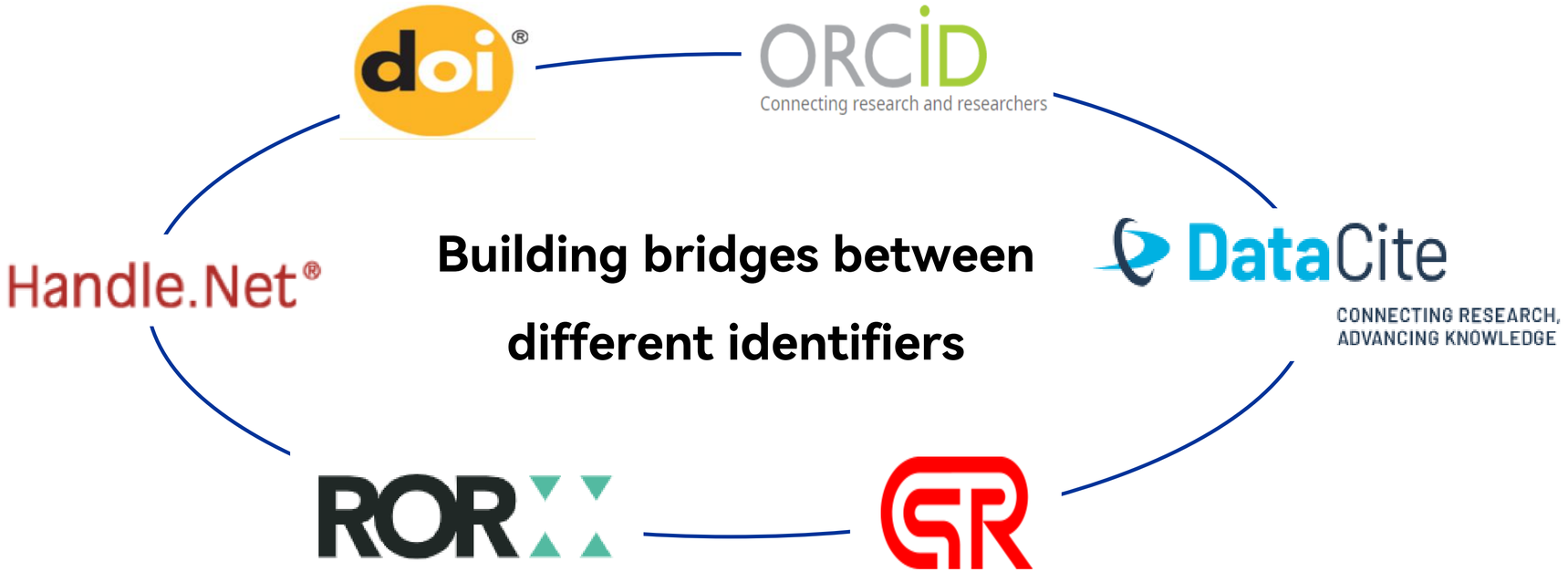


Unified ID Bridge Interface



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11–13 June, Prague, Czechia

Thank you for listening

Links

CSTR Identification Platform

https://www.cstr.cn/en/

CSTR Specification

https://www.cstr.cn/search/specification/

Contact

Mail :
cstr@cnic.cn
Address:
Computer Network Information Center, Chinese Academy of Sciences

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