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Development Practices and Prospects of PIDs Infrastructures for Open Science Data in China

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China recognizes Persistent Identifiers (PIDs) as a critical infrastructure for the open sharing of science data. In the domain of standards, China has developed GB/T 32843-2016, *Science and Technology Resource Identification, which introduces the Science and Technology Resource Identifier (CSTR). This standard systematically defines the identification objects, encoding rules, and application of science and technology resources, providing a robust technical foundation and operational guidelines for cataloging, registering, publishing, querying, maintaining, and managing such resources.

In the policy domain, the Administrative Measures for the National Platform of Shared Science and Technology Resources mandates that science and technology resources must be identified according to national standards. Users are required to annotate relevant science and technology resource identifiers when publishing research findings, thereby providing clear operational guidelines and normative constraints for administrative departments and researchers.

In the realm of data center management, China has established 20 national science data centers and 30 national repositories for biological resources and experimental materials, based on the Notice on the Release of the Optimized and Adjusted List of National Platforms for the Sharing of Science and Technology Resources**. These data centers and repositories have been enabled to adopt CSTR as their PIDs, facilitating the open sharing of science data.

CSTR Identification Platform (<https://www.cstr.cn/en>) is initiated in 2016 based on the National Standard GB/T 32843—2016 “Science and technology resource identification”, providing unique identification service for global science data, papers, patents and other science and technology resources. CSTR is also accepted as the international standard, such as IANA., etc.

The CSTR platform services cover multiple disciplines including physics, astronomy, and life sciences, supporting the entire lifecycle of science data from production to sharing and reuse. By using the double identifiers of DOI and CSTR, the platform ensures precise identification and efficient management of science and technology resources, with cumulative data tagging exceeding one million entries. This double identification mechanism facilitates global sharing of science and technology resources while providing significant convenience for researchers accessing and utilizing these resources.

For the international cooperation, CSTR has actively collaborated with DataCite, an internationally renowned institution. This partnership will promote the double identification service of DOI and CSTR, achieving both localized management and international recognition of scientific resources. This collaboration not only enhances the global visibility of Chinese scientific data but also provides global researchers with easier access to Chinese science and technology resources, propelling the evolution of science data from local to global recognition.

Primary authors: LIU, JIA; WANG, Lijuan (Computer Network Information Center (CNIC) of the Chinese Academy of Sciences (CAS)); WANG, shu (Computer Network Information Center (CNIC) of the Chinese Academy of Sciences (CAS)); XIA, xiaolei (Computer Network Information Center (CNIC) of the Chinese Academy of Sciences (CAS))

Presenters: LIU, JIA; WANG, Lijuan (Computer Network Information Center (CNIC) of the Chinese Academy of Sciences (CAS)); WANG, shu (Computer Network Information Center (CNIC) of the Chinese Academy of Sciences (CAS))

ences (CAS)); XIA, xiaolei (Computer Network Information Center (CNIC) of the Chinese Academy of Sciences (CAS))

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