

# Accelerating Discovery: OSTI's Evolving PID Infrastructure through E-Link 2.0

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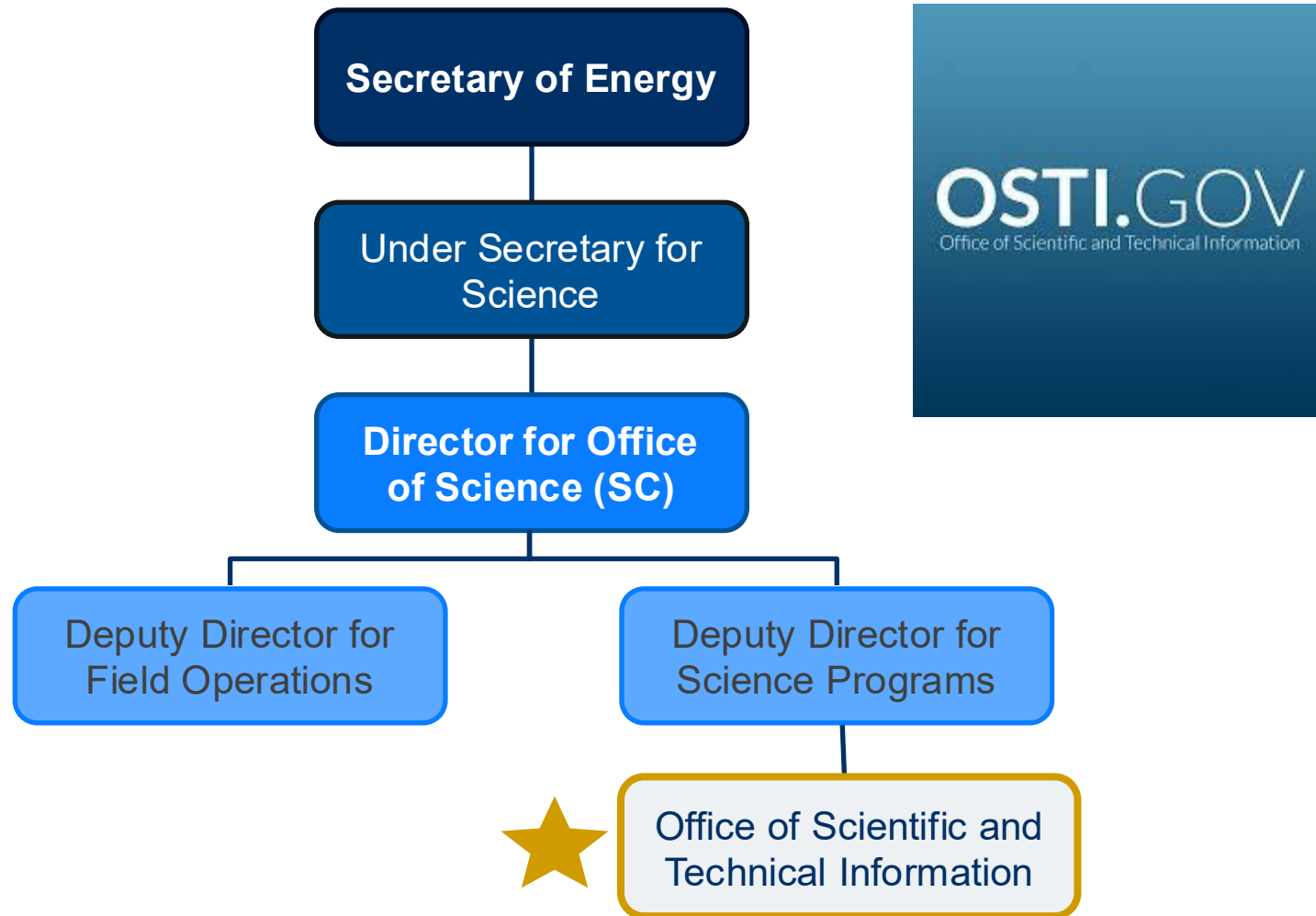
March 3, 2026



U.S. DEPARTMENT  
of **ENERGY** | Office of  
Science

*Office of Scientific and Technical Information*

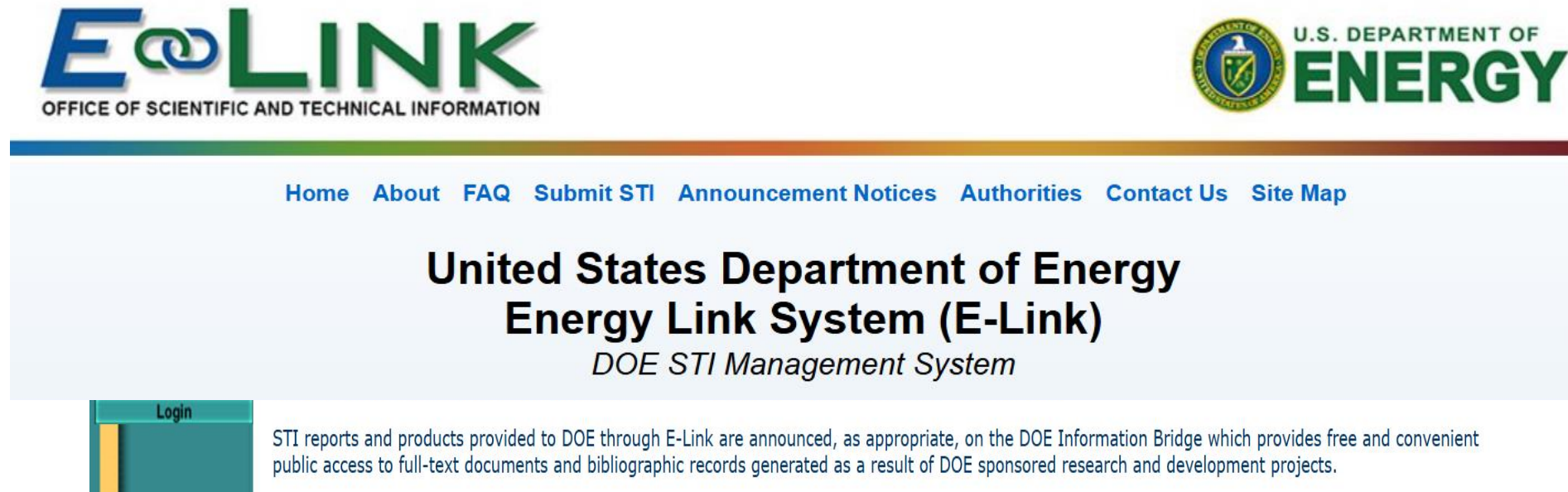
# The Role of OSTI in the DOE Research Ecosystem



- OSTI is an Office of Science organization with a corporate DOE-wide mission for ensuring access to DOE R&D results.
- OSTI’s mission is to “advance science and sustain technological creativity by making DOE’s R&D findings available and useful to the public and DOE researchers and to provide strategic support to the DOE Office of Science and other partners.”
- OSTI’s core functions are to Collect STI, Preserve STI, and Disseminate STI. OSTI provides public access to unclassified, unlimited STI and restricted access to classified and limited STI.

# The Challenge: Accelerating the Pace of Science

- **E-Link, OSTI's STI submission system, has existed for over 25 years.** While it has been an excellent system and served the Department's needs well, it was time for a redesign.
- STI records took a full business day to be discoverable in OSTI search tools.
- Digital Object Identifier (DOI) registration also required a full business day, hindering the immediate persistent identification of research outputs.
- It was also a monolithic platform with over a million lines of code, which resulted in slower updates.



**EOLINK**  
OFFICE OF SCIENTIFIC AND TECHNICAL INFORMATION

U.S. DEPARTMENT OF  
**ENERGY**

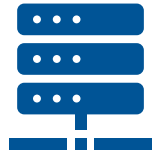
[Home](#) [About](#) [FAQ](#) [Submit STI](#) [Announcement Notices](#) [Authorities](#) [Contact Us](#) [Site Map](#)

**United States Department of Energy**  
**Energy Link System (E-Link)**  
*DOE STI Management System*

Login

STI reports and products provided to DOE through E-Link are announced, as appropriate, on the DOE Information Bridge which provides free and convenient public access to full-text documents and bibliographic records generated as a result of DOE sponsored research and development projects.

# The Solution: Modernizing the STI Workflow with E-Link 2.0



## Microservices

*Modular design for agile development*

**E-Link** Launched in May 2025 Login Sign Up

## Identify, submit, edit, and manage STI

Welcome to DOE's submission tool for DOE-funded scientific and technical information. DOE's Office of Scientific and Technical Information (OSTI) preserves all STI submitted to E-Link and disseminates the STI appropriately to the public and DOE community.

Get help Login



## New Data Architecture

*Improved metadata and discoverability*



## API-Driven Architecture

*Seamless integration and efficient data exchange*

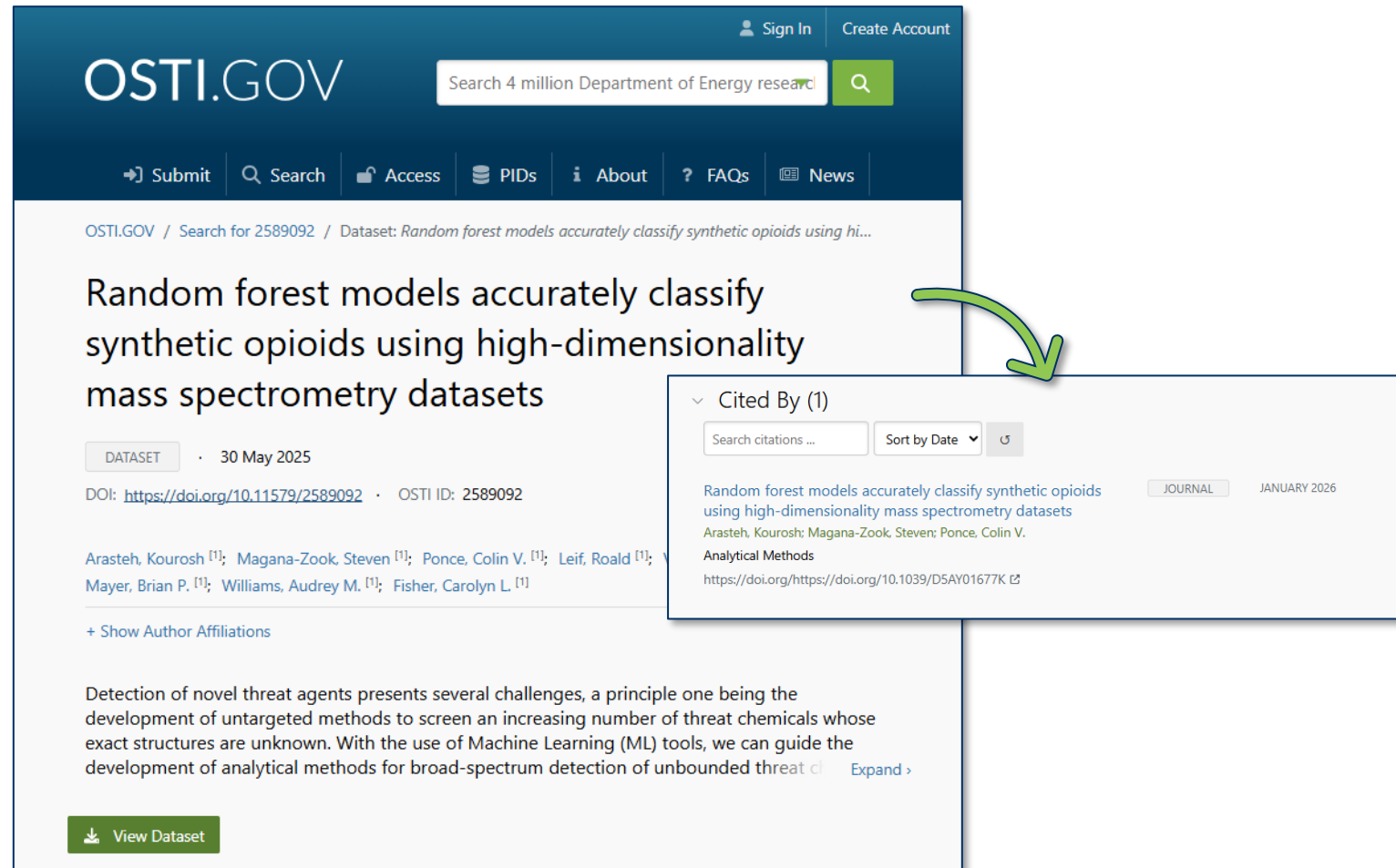
## Scalability

*For next generation research data and information management*



# From Days to Minutes: Near Real-Time Discoverability

- **Accelerated Public Access:** E-Link 2.0 dramatically reduces the time from research output release to public discoverability on OSTI.GOV.
- **Minutes, Not Days:** Scientific and technical information, including scientific data, now appears on OSTI.GOV within minutes of its final release.
- **Immediate DOI registration:** Persistent identification of STI now takes place almost immediately.
- **Rapid Updates:** Record enhancements and enrichments appear in near real-time.



The screenshot displays the OSTI.GOV website interface. At the top, there is a search bar with the text "Search 4 million Department of Energy research" and a search icon. Below the search bar, there are navigation links: "Submit", "Search", "Access", "PIDs", "About", "FAQs", and "News". The main content area shows a dataset entry titled "Random forest models accurately classify synthetic opioids using high-dimensionality mass spectrometry datasets". The entry is dated "30 May 2025" and has a DOI of "https://doi.org/10.11579/2589092". The authors listed are "Arasteh, Kourosh [1]; Magana-Zook, Steven [1]; Ponce, Colin V. [1]; Leif, Roald [1]; Mayer, Brian P. [1]; Williams, Audrey M. [1]; Fisher, Carolyn L. [1]". A green arrow points from the title to a "Cited By (1)" pop-up window. This window shows a search bar for citations, a "Sort by Date" dropdown, and a citation entry for "Random forest models accurately classify synthetic opioids using high-dimensionality mass spectrometry datasets" published in "ANALYTICAL METHODS" in "JANUARY 2026". The citation URL is "https://doi.org/https://doi.org/10.1039/D5AY01677K".

# The Power of Persistent Identifiers

## What are PIDs?

PIDs are long-lasting, unique references to digital resources, ensuring they can be found and cited reliably over time, regardless of changes in location or ownership.

E-Link 2.0 expands support for PIDs, linking people, organizations, and research outputs to create a more interconnected research landscape.

### PID Benefits:

Burden Reduction

Disambiguation

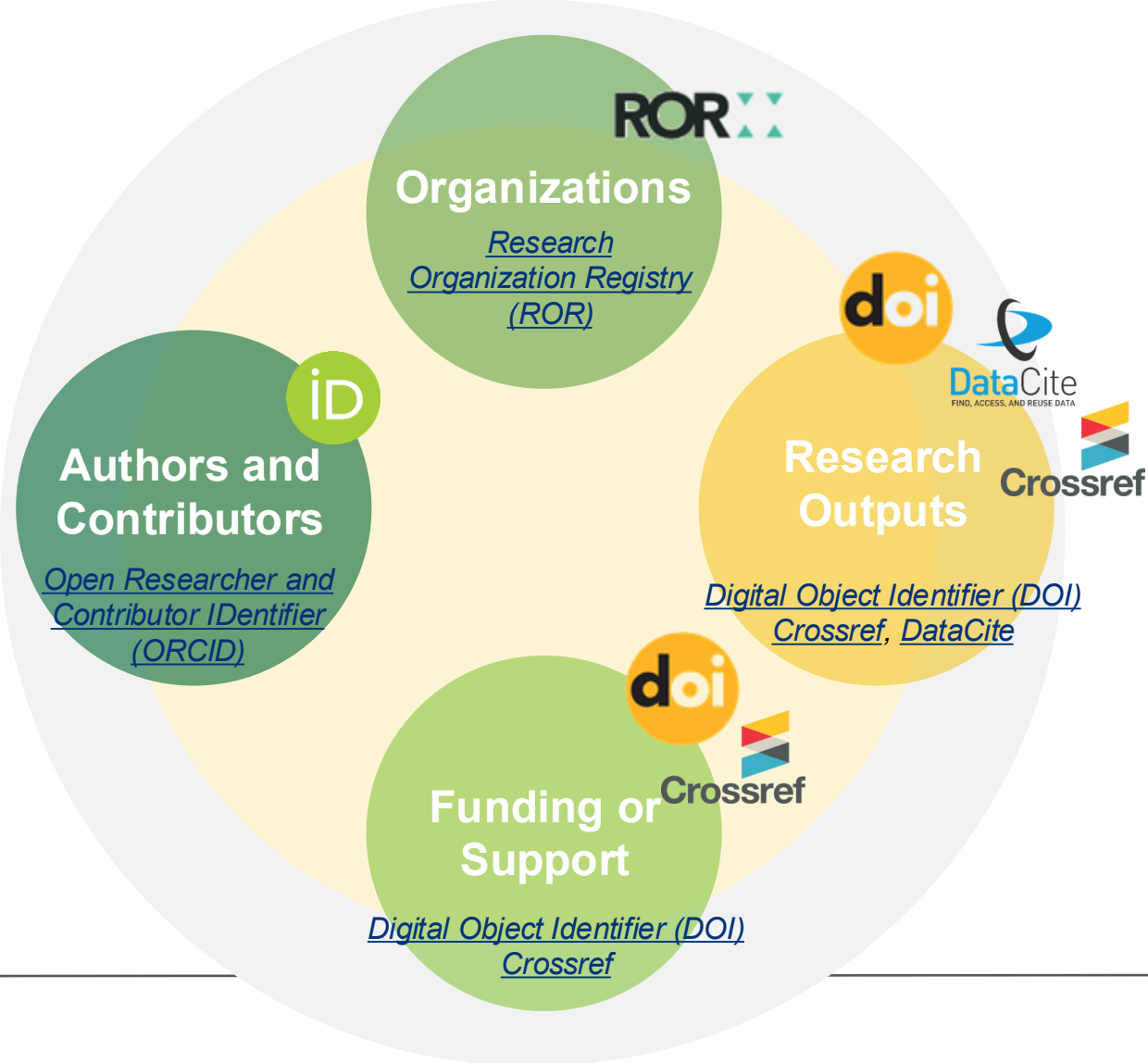
Proper Credit

Discovery and Access


Interoperability


Analytics and Impact


# The PID Ecosystem



# Connecting People and Organizations through PIDs

 *ORCID iDs are autopopulated from DOI metadata or submitted by users*



 *ROR IDs submitted by users. Working towards automatic reconciliation.*

OSTI.GOV / Search for elizabeth agee / Journal Article: *Energy Surplus and an Atmosphere-Land-Surface "Tug of War" Control Future Evapotranspiration*

## Energy Surplus and an Atmosphere-Land-Surface "Tug of War" Control Future Evapotranspiration

JOURNAL ARTICLE · 04 August 2023 · Geophysical Research Letters

DOI: <https://doi.org/10.1029/2022GL102677> · OSTI ID: 1993882

Xu, Donghui <sup>[1]</sup>; Ivanov, Valeriy Y. <sup>[2]</sup>; Agee, Elizabeth <sup>[3]</sup>; Wang, Jingfeng <sup>[4]</sup>

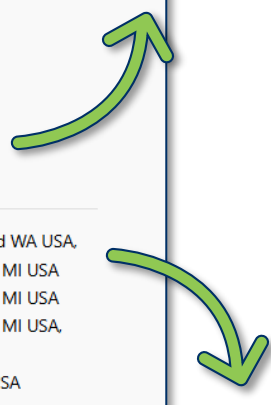
1. Atmospheric Sciences and Global Change Division Pacific Northwest National Laboratory Richland WA USA, Department of Civil and Environmental Engineering University of Michigan-Ann Arbor Ann Arbor MI USA
2. Department of Civil and Environmental Engineering University of Michigan-Ann Arbor Ann Arbor MI USA
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4. Department of Civil and Environmental Engineering Georgia Institute of Technology Atlanta GA USA



[- Hide Author Affiliations](#)

Abstract

The 21st century evapotranspiration (ET) trends over the continental U.S. are assessed using innovative, energy-based principles. Annual ET is projected to increase with high confidence at

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**Oak Ridge National Laboratory**

**ORGANIZATION TYPES**  
Facility, Funder

# Connecting Research Outputs: Datasets, Reports, and Articles



Submits dataset metadata to



DOI processor registers DOI metadata



DOI becomes resolvable

Record with a registered DOI becomes available in OSTI.GOV and DDE



Journal article cites data DOI

Cited DOI connects back to data source

# Evolving with the Community: Aligning with DataCite

Prior to the release of E-Link 2.0, evaluation was done, comparing OSTI-collected metadata to available DataCite properties.

E-Link had collected fields that were not sent to DataCite.

Evaluation determined that DataCite's schema supports many of these fields. With the release of E-Link 2.0 they are included in the metadata OSTI sends to DataCite.

Type of Information	Updates
Organization Persistent Identifiers	<ul style="list-style-type: none"> <li>Adding ROR IDs for:               <ul style="list-style-type: none"> <li>Creator/Author/Contributor</li> <li>Sponsoring Organization</li> <li>Funding Organizations</li> </ul> </li> </ul>
Additional Funder Information	<ul style="list-style-type: none"> <li>Sending funding information based on Sponsoring Organization</li> </ul>
Alternate Identifiers	<ul style="list-style-type: none"> <li>Accession Numbers</li> <li>Other Identifying Numbers</li> <li>Non-DOE Contract Numbers</li> </ul>
Related Identifiers	<ul style="list-style-type: none"> <li>Full support for all 38 relation types</li> <li>Full support for all 21 related identifier types</li> </ul>

# A Critical Link: Persistent Identifiers for Instruments

- **Purpose of Instrument PIDs:** These Instrument DOIs provide a unique, persistent, and resolvable identifier for the specific equipment, software, or facilities used to generate scientific data.
- **Connecting Instruments to Scientific Data:** Their primary function is to create a direct, stable link between the instrument used and the data it produces, enhancing the integrity of the research record.
- **Enabling Reproducible Science:** By precisely identifying the instruments, researchers can more effectively describe their experimental setup, which is fundamental for ensuring the reproducibility and verifiability of scientific findings.

The LSST Camera

<https://doi.org/10.71929/rubin/2571927>



# Instrument DOIs in the E-Link Workflow

- **Integrated Instrument DOI Submission:** E-Link 2.0 now allows dataset submitters to register instrument DOIs, and to seamlessly include instrument DOIs within the metadata record during dataset submission.
- **Leveraging DataCite Relationship Types:** Data submitters can use the "IsCollectedBy" relation type to explicitly link the submitted dataset to the specific scientific instrument used in its generation.
- These connections enhance data provenance and traceability within the DOE scientific ecosystem.

## Record Information

### Product Type ?

Dataset

### Dataset Type ?

Instrument

```
"dataset_type": "Instrument",
```

[The LSST Camera \(LSSTCam\)](#)

<https://doi.org/10.71929/rubin/2571927>

12 Citations

### Description

### Other Identifiers

### Creators

### Funders

### Registration

The LSST Camera is the sole instrument for the NSF-DOE Vera C. Rubin Observatory and consists of a 3.2 gigapixel focal plane mosaic with in-vacuum controllers, dedicated guider and wavefront CCDs, a three-element corrector whose largest lens is 1.55m in diameter, six optical interference filters covering a 320-1050nm band pass with an out-of-plane filter exchange mechanism, and camera slow control and data acquisition systems capable of digitizing each image in 2 seconds.

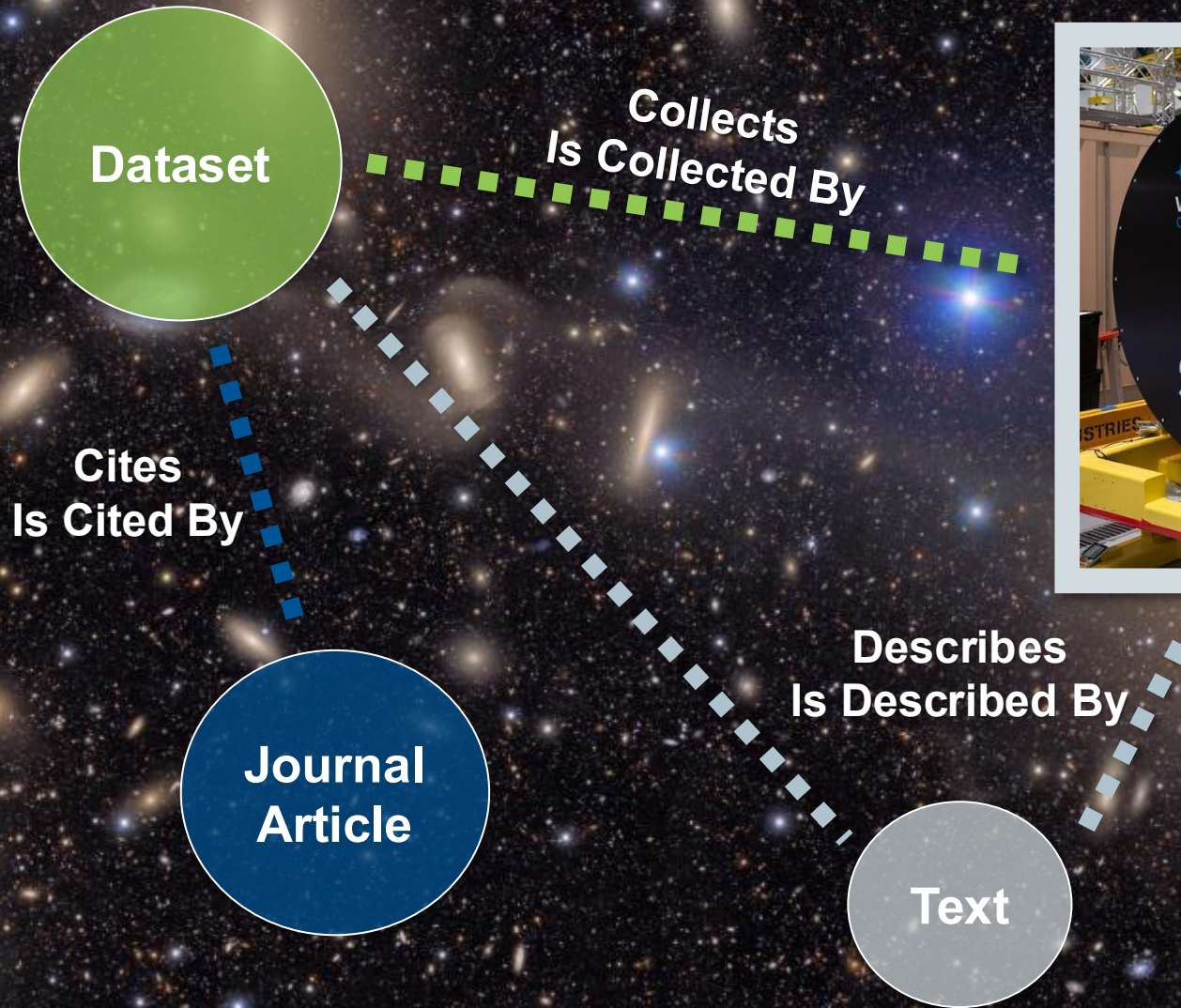
Content published 2025 in [DOE SLAC National Accelerator Laboratory Repository](#)

Instrument

[doi https://doi.org/10.71929/rubin/2571927](https://doi.org/10.71929/rubin/2571927)



# Enabling Transparent and Reproducible Science



OSTI.GOV / Search for lsst camera / Dataset: The LSST Camera (LSSTCam)

## The LSST Camera (LSSTCam)

DATASET · 15 March 2025

DOI: <https://doi.org/10.71929/rubin/2571927> · OSTI ID: 2571927

The LSST Camera is the sole instrument for the NSF-DOE Vera C. Rubin Observatory and consists of a 3.2 gigapixel focal plane mosaic with in-vacuum controllers, dedicated guider and wavefront CCDs, a three-element corrector whose largest lens is 1.55m in diameter, six optical interference filters covering a 320-1050nm band pass with an out-of-plane filter exchange mechanism, and...

[View Dataset](#)

# A Faster, More Connected Research Future

- **Accelerated Discovery:** E-Link 2.0 now delivers near real-time discoverability of research outputs and immediate Digital Object Identifier (DOI) registration, significantly speeding up access to DOE science.
- **Comprehensive PID Ecosystem:** OSTI is actively building a rich ecosystem of Persistent Identifiers (PIDs) linking people (ORCID iDs), organizations (ROR IDs), diverse research outputs, and scientific instruments.
- **Foundational for Modern Science:** This foundational work directly supports the principles of transparent, interconnected, and reproducible science, enhancing the value and impact of DOE-funded research.

## Thank You! Questions?

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