

# The Power of PIDs: using persistent identifiers to enable connections throughout the research lifecycle

VIVO Conference  
June 23<sup>rd</sup>, 2021

Carly Robinson, PhD  
OSTI Assistant Director  
Information Products and Services



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science

Office of Scientific and  
Technical Information

# Persistent Identifiers

## What is a Persistent Identifier (PID)?

- A digital identifier that is globally unique, persistent, machine resolvable, has an associated metadata schema, identifies an entity (e.g. individual researcher, publication, awards, digital research output) and is frequently used to disambiguate between entities.
- The identifier is a string of numbers, letters, and/or symbols assigned to the digital object.



## What are the benefits of assigning/using PIDs?

- PIDs enable research to be more open and FAIR – metadata associated with PIDs is publicly available.
- PIDs are stable, persistent links that allow for metadata to be updated as needed.
- PIDs allow organizations to track awards, research outputs, and researchers – see return on investment and impact of research.
- By linking PIDs you can create connections throughout the research lifecycle – connecting people to awards to organizations to research outputs to peer review.

# Types of PIDs

## Digital Object Identifiers (DOIs)

- Based on ISO 26324 – Digital Object Identifier System and implemented on the Handle System
- International DOI Foundation – management body, with Registration Agencies (RAs)
- [Crossref](#) and [DataCite](#) are RAs



## Crossref

- Membership organization – publishers, funders
- DOIs primarily for text-based research outputs – journal articles, conference papers, technical reports
- DOIs for awards/grants/contracts



## DataCite

- Membership organization – data repositories, universities, funders
- DOIs primarily for data and software



## ORCID iDs

- PIDs for people/researchers
- Member organization – universities, funders, government organizations

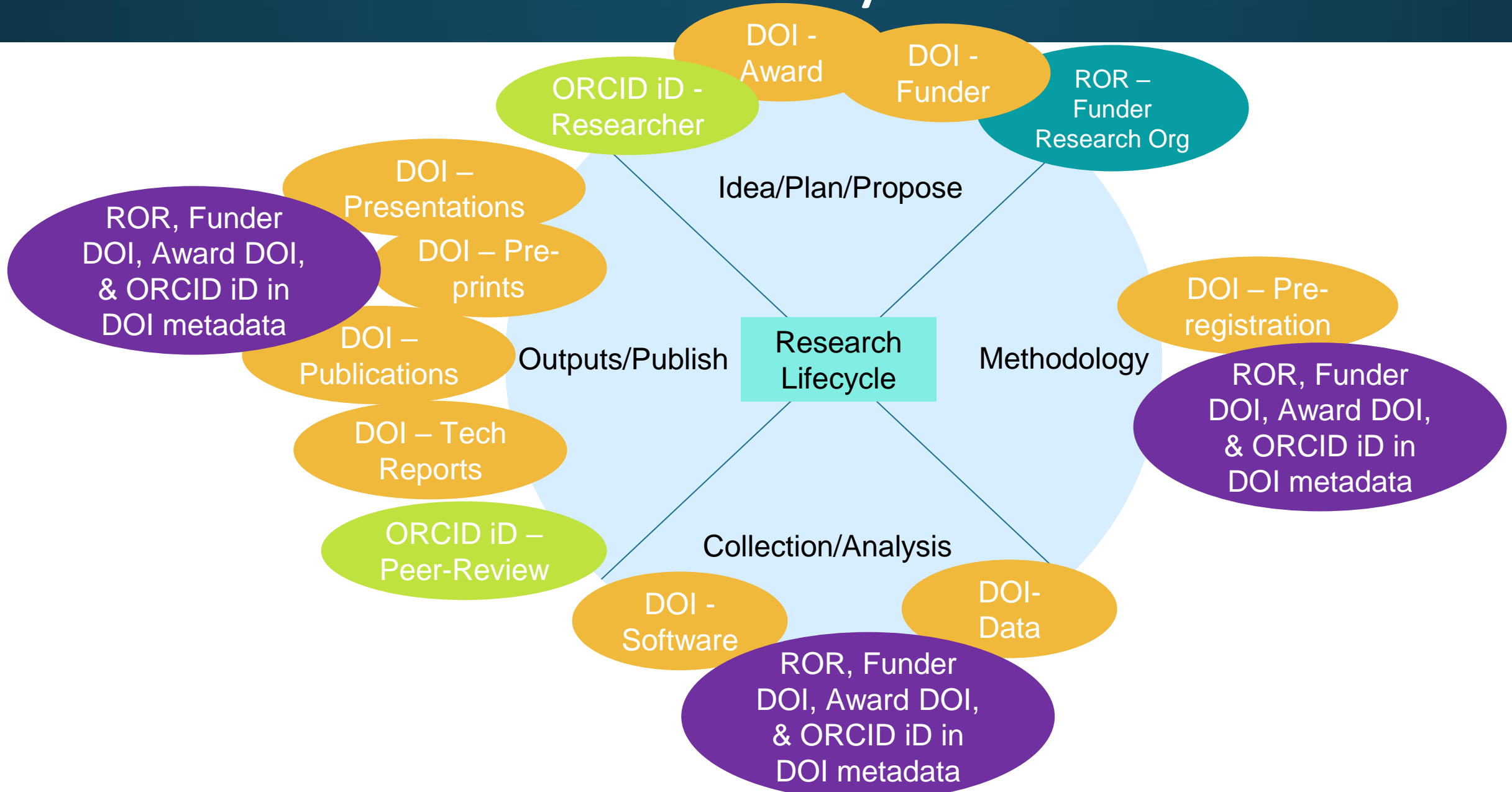


## Organization Identifiers

- Research Organization Registry (ROR) IDs – PIDs for organizations participating in research
  - Open community and infrastructure, non-profit
- GRID IDs – very broad organization ID
  - Open data, but for-profit organization
- DOIs for funding organizations – Open Funder Registry



# PIDs in the Research Lifecycle



# Research Information Systems and PIDs

Search OpenVIVO

limit search →

Search

Home

People

Organizations

Research

Events

Capability Map

## Research

1,839 [Academic Articles](#)

136 [Books](#)

159 [Chapters](#)

186 [Conference Papers](#)

38 [Reports](#)

## People



[Gorgolewski, Krzysztof](#)



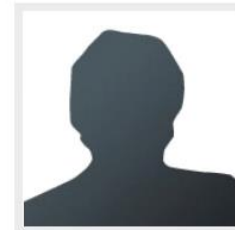
[Bryant, Rebecca](#)



[R, Arjun](#)

## Organizations

- ▶ [Talkped \(Norway\)](#)
- ▶ [Monterey Institute for Rese Astronomy](#)
- ▶ [Children's Hospital at Erlar](#)
- ▶ [Wikimedia Indonesia](#)
- ▶ [Olympic College](#)
- ▶ [Family Guidance Centers](#)



Smith, John

Person

Publications in VIVO

[Co-author Network](#)

[Map of Science](#)

Publications

Contact

Identity

View All

ORCID iD

<https://orcid.org/0000-0002-8523-1478> (confirmed)

Publications

Contact

Identity

View All

### selected publications

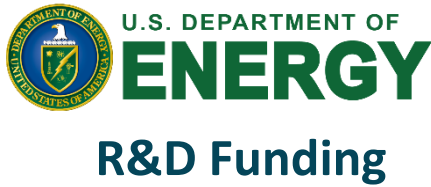
academic article

[YesWorkflow: A User-Oriented, Language-Independent Tool for Recovering Workflow Information from Scripts](#). *International Journal of Digital Curation*. 10. 2015 3

[Ontology engineering in provenance enablement for the National Climate Assessment](#). *Environmental modelling & software : with environment data news*. 61:191-205. 2014 11

[Developing an Integrated History and future of People on Earth \(IHOPE\)](#). *Current opinion in environmental sustainability*. 4:106-114. 2012 2

# DOE Invests ~ \$12B per year in R&D



- Advanced Research Projects Agency – Energy (ARPA-E)
- Office of Electricity Delivery & Energy Reliability
- Office of Energy Efficiency & Renewable Energy
- Office of Environmental Management
- Office of Fossil Energy
- Office of Legacy Management
- Office of Nuclear Energy
- Office of Science
- Office of Environment, Health, Safety & Security

## NATIONAL LABS

Ames  
Argonne  
Brookhaven  
Fermi  
Idaho  
Los Alamos  
Lawrence Berkeley  
Lawrence Livermore  
NETL  
NREL  
Oak Ridge  
Pacific Northwest  
Princeton  
SLAC  
Sandia  
Savannah River  
Thomas Jefferson

**GRANTEES  
TECHNOLOGY CENTERS  
SITES**

## R&D Results



- Journal articles/accepted manuscripts
- Technical reports
- Conference papers
- Theses/dissertations
- Scientific and technical software
- Data objects
- Patents
- Workshop reports
- Videos

≈ **50,000 R&D findings/results per year**



# OSTI Mission and Priorities

**Core Functions:** OSTI collects, preserves, and disseminates DOE-funded R&D results.

**Mission:** Advance science and sustain technological creativity by making R&D findings available and useful to Department of Energy researchers and the public.

**Strategic Priority:** Provide our community with persistent identifier (PID) services.



# DOE OSTI PID Services

Service Name	Research Object	Service Partner
<b>PIDs for Research Results</b>		
E-Link (research output ingest system)	Technical/Workshop Reports Conference Posters Presentations	Crossref
DOE Data ID Service	Data	DataCite
Interagency Data ID Service (IAD)	Data/Research Outputs	DataCite
DOE CODE	Software	DataCite
<b>PIDs for Awards</b>		
Award DOI Service	Awards	Crossref Grant ID
<b>PIDs for People</b>		
US Government ORCID Consortium	Researchers	ORCID
<b>PIDs for Organizations</b>		
Organization Authority	Research/Funding Organizations	ROR
Open Funder Registry	Funding Organizations	Crossref/Elsevier

Data ID Services

DOE CODE

E-Link

Award DOI Service

US Government  
ORCID Consortium



# PIDs for Research Results – DOIs

# Data ID Services – Data DOIs

## ***DOE Data ID Service***

- Labs, facilities, and data repositories provide data records (with associated metadata) to OSTI via E-Link.
- E-Link is the corporate system for collecting DOE-funded research results, developed and maintained by OSTI.
- When data record is submitted, OSTI automatically assigns a DataCite DOI (unless one is already assigned).

DOE Data ID Service

Interagency  
Data ID Service

## ***Interagency Data ID Service (IAD)***

- Assign DataCite DOIs to other agencies' research outputs, based on metadata passed from OSTI to DataCite.
- Provide service on a cost recovery basis.
- Currently working with 5 agencies – DOT, USDA, NASA (PDS), NIH (NIMH and BRICS), and EPA.

# DOE CODE – Software DOIs

DOE CODE is the software services platform and search tool for DOE-funded code.

- When early development code/software records submitted to DOE CODE, can optionally assign DataCite DOIs. Typically for DOI citation purposes.
- DataCite DOIs are automatically assigned to software formally announced to DOE OSTI (if one has not already been assigned).

DOI and Release Date

DOI (Optional Field) ⓘ

10.11578/dc.20201021.2 ✓

**Please Note:** Your reserved DOI will not be registered on DataCite until a Release Date is provided.

Clear Reserved DOI

DOI Infix (Optional Field) ⓘ

Release Date (Optional Field) ⓘ

MM/DD/YYYY

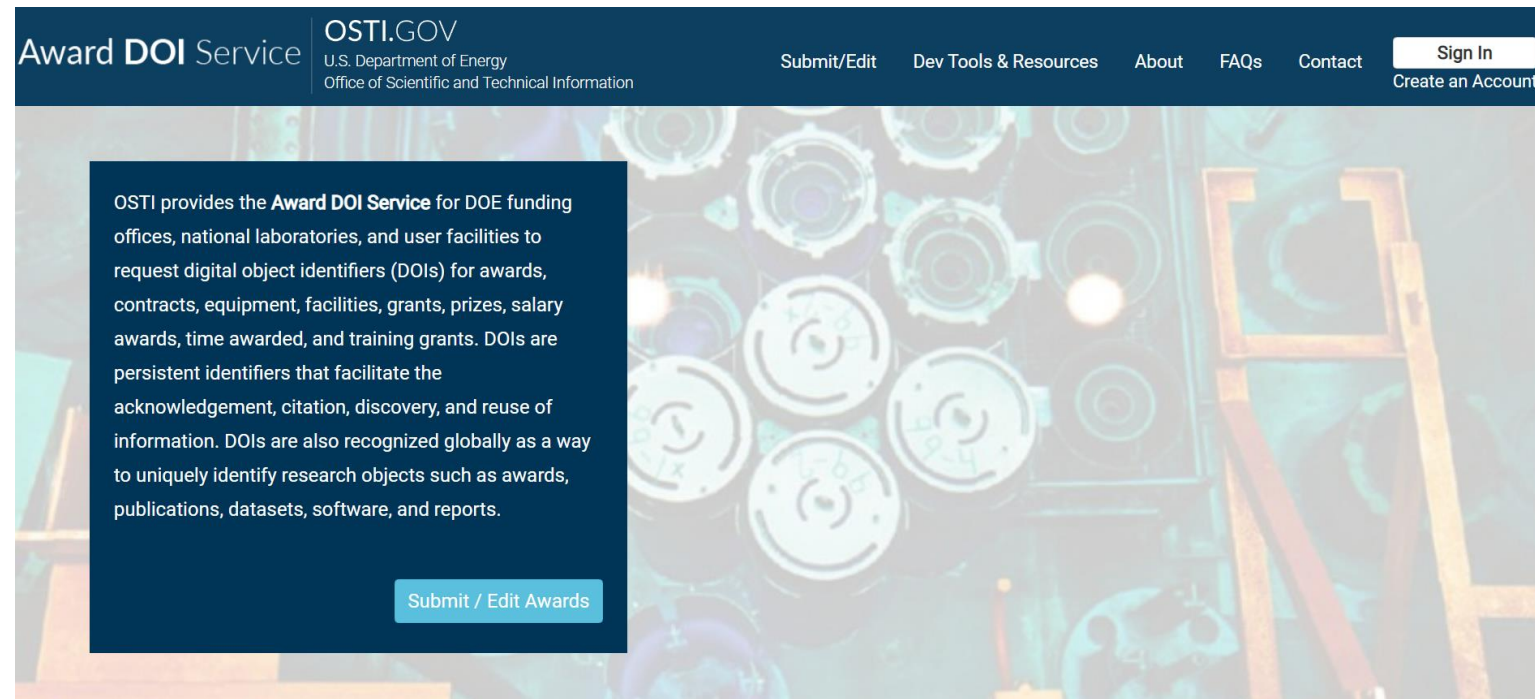
# PIDs for Awards – DOIs

# Award DOI Service

## Service Development and Launch

<https://www.osti.gov/award-doi-service/>

- Crossref members can use award/grant DOI service.
- Worked with DOE user facilities to gather requirements.
- Launched the Award DOI Service pilot project September 2020.
- Piloting with facilities to assign award DOIs to the awards provided by the facility (use of the facility).
- The service can scale to support DOE funding offices and other government awards.



The screenshot shows the OSTI.gov website interface. The header includes the text "Award DOI Service" and "OSTI.GOV U.S. Department of Energy Office of Scientific and Technical Information". Navigation links include "Submit/Edit", "Dev Tools & Resources", "About", "FAQs", "Contact", "Sign In", and "Create an Account". A central text box explains the service: "OSTI provides the Award DOI Service for DOE funding offices, national laboratories, and user facilities to request digital object identifiers (DOIs) for awards, contracts, equipment, facilities, grants, prizes, salary awards, time awarded, and training grants. DOIs are persistent identifiers that facilitate the acknowledgement, citation, discovery, and reuse of information. DOIs are also recognized globally as a way to uniquely identify research objects such as awards, publications, datasets, software, and reports." A "Submit / Edit Awards" button is visible at the bottom of the text box.

# PIDs for People – ORCID iDs



# US Government ORCID Consortium

## Consortium Development and Launch

- Many DOE and US government organizations joining ORCID as direct members.
- Interest from those organizations to be an ORCID member through a consortium.
- Developed to create community, decrease costs, and providing increased services.
- **US Government ORCID Consortium launched April 1<sup>st</sup>, 2020. Led by DOE OSTI.**

## Consortium Benefits

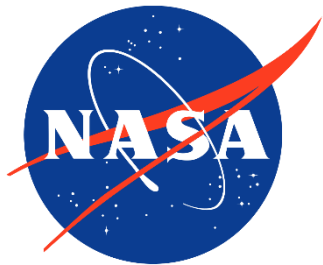
- Consortium members are premium ORCID members – 5 API credentials, increased API functionality, custom analytics, etc.
- Consortium provides more individualized support – both administrative and technical.
- Consortium members are part of the US government community of practice – information sharing with organizations with similar needs and use cases.

US Government  
**ORCID Consortium**

<https://www.osti.gov/orcid-consortium/>

# Consortium Members

12 current consortium members



The Advanced Photon Source

Argonne Leadership Computing Facility

Argonne Research Library

Center for Nanoscale Materials CNM



# ORCID Member Integration

orcid.org/my-orcid

**Carly Robinson**

**ORCID ID**  
https://orcid.org/0000-0002-8523-1478  
View public version

Switch account

- Display your iD on other sites
- Public record print view
- Get a QR Code for your ID

**Also known as**  
C.B. Robinson, Carly B. Robinson, C. Robinson

**Country**  
United States

**Keywords**

**Websites & Social Links**

**Other IDs**  
Scopus Author ID: 23036765000

**Emails**  
carly.robinson33@gmail.com  
carly.robinson@science.doe.gov

**Biography**

Carly Robinson is the Department of Energy (DOE) Office of Scientific and Technical Information (OSTI) Assistant Director for Information Products and Services. The Office of Information Products and Services focuses on the dissemination of DOE-funded research and development (R&D) results through development and management of OSTI search and discovery tools. The office provides identifier services, collection metadata quality and curation, development and management of interagency and international products, communications, management of interagency and international products, and policy development and implementation for Public Access and internal products. Prior to joining OSTI, Carly was an American Association for the Advancement of Science (AAAS) Science and Technology Policy Fellow in both the Senate and the DOE Office of Science. She has a Ph.D. and M.S. in Atmospheric Chemistry from the University of Colorado, and a B.S. in Applied Physics from Michigan Technological University.

**Employment (3)**

**Education and qualifications (3)**

**Invited positions and distinctions (0)**

**Membership and service (0)**

**Funding (0)**

**Works (11 of 11)**

+ Add works | Export works | Sort

COMBINE | DELETE | [Icons]

Search & link | Manage similar works

- Add ArXiv ID
- Add DOI
- Add PubMed ID
- Import BibTeX
- Add manually

**Nine Best Practices for Research Software Registries and Repositories: A Concise Guide**  
2020-12-24 | preprint  
ARXIV: arXiv:2012.13117v1  
Source: Carly Robinson ★ Preferred source

**Software Citation Checklist for Authors**  
Zenodo  
2019-10-15 | journal-article  
DOI: 10.5281/ZENODO.3479199  
Source: Carly Robinson ★ Preferred source

**Software Citation Checklist for Developers**

# OSTI.GOV ORCID Integration (using ORCID membership)

## Sign In

If you already have an OSTI.GOV or DOE PAGES account, enter your email address and password below to sign in. OSTI has recently added new features for members of the DOE community that may be activated with some additional account information. When signed in, please visit your account management screen to ensure that your account information is complete and up-to-date. You may view saved searches, export bibliographies and create content alerts from your account management screen. Your current login credentials may be used across OSTI discovery tools.

Email Address:  (required)  
Password:  (required)

[Forgot Password?](#) [Create Account](#)

[Sign In](#)

- OSTI.GOV integrates with ORCID API to allow users (researchers) to “claim” OSTI.GOV records and add to ORCID record.
- OSTI.GOV gets permission from user to push OSTI.GOV records to their ORCID record through authentication.

## ORCID Account Integration

ORCID provides a persistent digital identifier that distinguishes you from every other researcher and, through integration in key research workflows such as manuscript and grant submission, supports automated linkages between you and your professional activities ensuring that your work is recognized. [Find out more.](#)

If you have an ORCID ID, you have everything you need to authorize OSTI.GOV to add items to your ORCID Works. Once authorized, you will be able to browse OSTI.GOV search results for your documents and add them directly to your ORCID Works information.

You also have the option to authorize OSTI, if any records are submitted to OSTI via E-Link with your ORCID identification number, to automatically add them to your ORCID Works. To ensure you benefit from this service, please leave the authorization selection box *checked* on your ORCID account.

For more detailed information, please view our [ORCID FAQ](#).

[Create or connect your ORCID ID](#)

ORCID is an independent non-profit effort to provide an open registry of unique researcher identifiers and open services to link research activities and organizations to these identifiers. [Learn more at orcid.org.](#)

**ORCID** | Member Organization  
Connecting Research and Researchers

The screenshot shows the ORCID sign-in page in a Google Chrome browser window. The address bar shows the URL: https://orcid.org/signin?oauth&client\_id=APP-RCMLGPIHPIA5Z6ML... The page features the ORCID logo at the top, followed by the text "Sign into ORCID or Register now". Below this are two tabs: "Personal account" (selected) and "Institutional account". The main heading is "Sign in with your ORCID account". There are two input fields: "Email or ORCID ID" and "ORCID password". A blue "Sign into ORCID" button is positioned below the password field. A red link "Forgotten your password? Reset it here" is located below the button. At the bottom, there is a section for "Sign in with a social media account" with icons for Facebook and Google.

# OSTI.GOV ORCID Integration (using ORCID membership)

OSTI.GOV U.S. Department of Energy  
Office of Scientific and Technical Information

Search 3+ million Department of Energy research results

Carly Robinson Sign In Create Account

Submit Research Results Search Tools Public Access Policy Data Services & Dev Tools About FAQs News

## ORCID Account Integration


Authorization successful!

ORCID Account Details

ORCID Works in OSTI.GOV

Name: Carly Robinson

ORCID:  <https://orcid.org/0000-0002-8523-1478>

You can search OSTI.GOV and add DOE research records you've authored directly to your ORCID Works. Use the search box above to find records, or search your name using [this customized search](#). From the search results list, you'll see  in the bottom right on each record. Click the button to add that record to your ORCID Works. The record will be added to your ORCID record and will appear in your [ORCID Works in OSTI.GOV](#) list.

# OSTI.GOV ORCID Integration (using ORCID membership)

OSTI.GOV / Search for All Records (filtered) / Page 1 of 1

## 2 Search Results

Sorted by Relevance ▾ Save Results ▾ < Prev ... Next >

All Records Figures / Tables

SEARCH FOR:

All Records

AUTHOR / CONTRIBUTOR

Robinson, Carly [ × ]

[ × clear all ] [ Q modify this search ]

REFINE BY:

RESOURCE TYPE

- Journal Article
- Technical Report
- Data
- Software
- Patent
- [more ▾](#)

AVAILABILITY

- Full Text / Resource Available
- Citation Only

AUTHOR / CONTRIBUTOR

- Robinson, Carly

RESEARCH ORGANIZATION


- Office of Scientific and Technical Information, Oak Ridge, TN (United

- ### 1. Redesigning the DOE Data Explorer to embed dataset relationships at the point of search and to reflect landing page organization

Studwell, Sara ; Robinson, Carly ; Elliott, Jannean - Data Science Journal


Scientific research is producing ever-increasing amounts of data. Organizing and reflecting relationships across data collections, datasets, publications, and other research objects are essential functionalities of the modern science environment, yet challenging to implement. Landing pages are often used for providing 'big picture' contextual frameworks for datasets and data collections, and many large-volume data holders are utilizing them in thoughtful, creative ways. The benefits of their organizational efforts, however, are not realized unless the user eventually sees the landing page at the end point of their search. What if that organization and 'big picture' context could benefit the user at the [more »](#)

<https://doi.org/10.5334/dsj-2017-017> | Full Text Available

 In your ORCID Works
- ### 2. The Many Hosts of Mycobacteria 8 (MHM8): A conference report

Larsen, Michelle H. ; Lacourciere, Karen ; Parker, Tina M. ; ... - Tuberculosis

<https://doi.org/10.1016/j.tube.2020.101914>

 Add to ORCID Works

< Prev ... Next >



# OSTI.GOV ORCID Integration (using ORCID membership)

SEARCH FOR:

All Records

AUTHOR / CONTRIBUTOR  
Robinson, Carly [x]

[x clear all] [Q modify this search]

---

REFINE BY:

RESOURCE TYPE

- Journal Article
- Technical Report
- Data
- Software
- Patent
- [more](#) v

AVAILABILITY

- Full Text / Resource Available
- Citation Only

AUTHOR / CONTRIBUTOR

- Robinson, Carly

RESEARCH ORGANIZATION

- Office of Scientific and Technical Information, Oak Ridge, TN (United States) (1)


Search research orgs ... >

## 1. Redesigning the DOE Data Explorer to embed dataset relationships at the point of search and to reflect landing page organization

Studwell, Sara ; Robinson, Carly ; Elliott, Jannean - Data Science Journal

Scientific research is producing ever-increasing amounts of data. Organizing and reflecting relationships across data collections, datasets, publications, and other research objects are essential functionalities of the modern science environment, yet challenging to implement. Landing pages are often used for providing 'big picture' contextual frameworks for datasets and data collections, and many large-volume data holders are utilizing them in thoughtful, creative ways. The benefits of their organizational efforts, however, are not realized unless the user eventually sees the landing page at the end point of their search. What if that organization and 'big picture' context could benefit the user at the [more](#) »


<https://doi.org/10.5334/dsj-2017-017> | [Full Text Available](#)

 [In your ORCID Works](#)

## 2. The Many Hosts of Mycobacteria 8 (MHM8): A conference report

Larsen, Michelle H. ; Lacourciere, Karen ; Parker, Tina M. ; ... - Tuberculosis

<https://doi.org/10.1016/j.tube.2020.101914>

 [Add to ORCID Works](#)

---

**Add this item to your ORCID Works?**

*The Many Hosts of Mycobacteria 8 (MHM8): A conference report*  
(OSTI ID 1694181)

[Add to my ORCID Works](#)

COMBINE  DELETE

Nine Best Practices for Research Software Registries and Repositories: A Concise Guide

2020-12-24 | preprint

ARXIV: [arXiv:2012.13117v1](https://arxiv.org/abs/2012.13117v1)

Source: Carly Robinson

★ Preferred source

Software Citation Checklist for Authors

Zenodo

2019-10-15 | journal-article

DOI: [10.5281/ZENODO.3479199](https://doi.org/10.5281/ZENODO.3479199)

Source: Carly Robinson

★ Preferred source

Software Citation Checklist for Developers

Zenodo

2019-10-15 | journal-article

DOI: [10.5281/ZENODO.3482769](https://doi.org/10.5281/ZENODO.3482769)

Source: Carly Robinson

★ Preferred source

Software Citation Implementation Challenges

2019-05-21 | preprint

ARXIV: [arXiv:1905.08674v1](https://arxiv.org/abs/1905.08674v1)

Source: Carly Robinson

★ Preferred source

Redesigning the DOE Data Explorer to embed dataset relationships at the point of search and to reflect landing page organization

Data Science Journal

2017-04 | journal-article

OTHER-ID: 1352141

DOI: [10.5334/dsj-2017-017](https://doi.org/10.5334/dsj-2017-017)

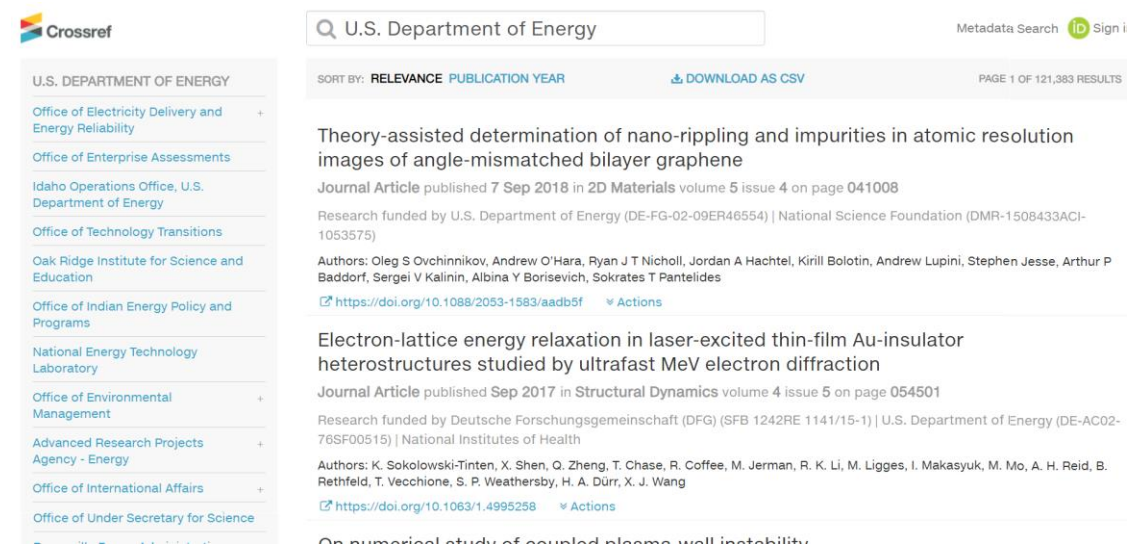
Source: DOE / OSTI

★ Preferred source

# PIDs for Organizations

# Open Funder Registry – DOIs for Funding Orgs

- Funder Registry maintained by Crossref and Elsevier.
- Assigns DOIs to funding organizations in hierarchy.
- OSTI maintains the DOE funding office hierarchy and provide updates as needed.
- DOIs used by publishers to identify funding organizations and implement public access requirements.
- Publishers identify funding information in journal article acknowledgements or when collected upon submission and associate the Funder DOI from the registry and include in journal article DOI metadata.



The screenshot displays the Crossref Funder Registry interface. On the left, a sidebar lists various funding organizations under the heading 'U.S. DEPARTMENT OF ENERGY', including the Office of Electricity Delivery and Energy Reliability, Office of Enterprise Assessments, Idaho Operations Office, U.S. Department of Energy, Office of Technology Transitions, Oak Ridge Institute for Science and Education, Office of Indian Energy Policy and Programs, National Energy Technology Laboratory, Office of Environmental Management, Advanced Research Projects Agency - Energy, Office of International Affairs, and Office of Under Secretary for Science.

The main content area shows a search for 'U.S. Department of Energy'. The search results are sorted by 'RELEVANCE' and 'PUBLICATION YEAR'. Two results are visible:

- Theory-assisted determination of nano-rippling and impurities in atomic resolution images of angle-mismatched bilayer graphene**  
Journal Article published 7 Sep 2018 in 2D Materials volume 5 issue 4 on page 041008  
Research funded by U.S. Department of Energy (DE-FG-02-09ER46554) | National Science Foundation (DMR-1508433ACI-1053575)  
Authors: Oleg S Ovchinnikov, Andrew O'Hara, Ryan J T Nicholl, Jordan A Hachtel, Kirill Bolotin, Andrew Lupini, Stephen Jesse, Arthur P Baddorf, Sergei V Kalinin, Albina Y Borisevich, Sokrates T Pantelides  
<https://doi.org/10.1088/2053-1583/aadb5f> Actions
- Electron-lattice energy relaxation in laser-excited thin-film Au-insulator heterostructures studied by ultrafast MeV electron diffraction**  
Journal Article published Sep 2017 in Structural Dynamics volume 4 issue 5 on page 054501  
Research funded by Deutsche Forschungsgemeinschaft (DFG) (SFB 1242RE 1141/15-1) | U.S. Department of Energy (DE-AC02-78SF00515) | National Institutes of Health  
Authors: K. Sokolowski-Tinten, X. Shen, Q. Zheng, T. Chase, R. Coffee, M. Jerman, R. K. Li, M. Ligges, I. Makasyuk, M. Mo, A. H. Reid, B. Rethfeld, T. Vecchione, S. P. Weathersby, H. A. Dürr, X. J. Wang  
<https://doi.org/10.1063/1.4995258> Actions

A third result is partially visible: 'On numerical study of coupled plasma well instability'.

<https://www.crossref.org/services/funder-registry/>

# Organization Authority – Org IDs

Authority v1.33.0 (Production)  
Primary Organizations

Master Organizations

## Details for: Oak Ridge National Laboratory

Organization ID: 2139  
 Status: Active  
 Aliases: Oak Ridge National Lab. (ORNL), Oak Ridge, TN (United States)  
 Oak Ridge National Laboratory (ORNL), Oak Ridge, TN (United States)  
 Oak Ridge National Laboratory, Oak Ridge, TN (United States)  
 ORNL  
 Oak Ridge Nat. Lab.  
 Oak Ridge National Lab. (ORNL)  
 Oak Ridge National Lab., Tenn.  
 Oak Ridge National Lab., TN (USA)  
 Oak Ridge National Lab., TN (United States)  
 Oak Ridge National Laboratory, Oak Ridge, TN (United States)  
 Oak Ridge National Laboratory (ORNL), Oak Ridge, TN (United States)  
 Oak Ridge National Lab., TN  
 Oak Ridge National Lab., Tenn. (USA)  
 Oak Ridge National Lab., TN (US)  
 Oak Ridge National Laboratory (ORNL)  
 Oak Ridge National Laboratory  
 ORNL (Oak Ridge National Laboratory)  
 ORNL Oak Ridge National Laboratory  
 ORNL Oak Ridge National Laboratory  
 LOCKHEED MARTIN ENRGY SYST IN  
 Oak Ridge National Lab.  
 Oak Ridge National Laboratory, Oak Ridge, TN (United States)  
 Oak Ridge National Laboratory, Oak Ridge, TN (United States)  
 Oak Ridge National Lab., Oak Ridge, TN (United States)  
 Oak Ridge National Lab. (ORNL), TN (United States)

Acronyms: ORNL  
 Types: Facility  
 Wikipedia URL: [http://en.wikipedia.org/wiki/Oak\\_Ridge\\_National\\_Laboratory](http://en.wikipedia.org/wiki/Oak_Ridge_National_Laboratory)  
 Email Address:  
 IP Addresses:  
 Year Established: 1943  
 Links: <http://www.ornl.gov/>  
 Longitude/Latitude: 35.9333344, -84.3166666  
 Address: Oak Ridge, Tennessee  
 United States  
 Parent(s): United States Department of Energy  
 Direct Descendants: Joint Institute for Computational Sciences  
 Comments: grid.135519.a  
 Added by User:  
 Edited by User:  
 Date Added: 07/01/2020  
 Date Updated: 07/01/2020

Inventors: Leigh, Kevin B.; Rosenberg, Paul Kessler; Mathai, Sagi Varghese; Sorin, Wayne Victor; Tan, Michael; Renne Ty; Panotopoulos, Georgios

Issue Date: 2020-09-29

Research Org.: Lawrence Livermore National Laboratory (ROR: <https://ror.org/041nk4h53>)



Sponsoring Org.:

OSTI Identifier:

Patent Number(s):

Application Number:

Assignee: Hewlett-Packard Enterprise Development LP (Houston, TX)

DOE Contract Number: AC52-07NA27344

**Lawrence Livermore National Laboratory**  
 ROR: <https://ror.org/041nk4h53>  
 GRID: grid.250008.f  
 Wikidata: Q519826  
 ISNI: 0000 0001 2160 9702  
 Fundref: <https://doi.org/100006227>  
 Orgref: 39039  
 Geo: 37.6892548, -121.717148B|>

External ID's		
Type	Value	Preferred?
FundRef	100006228	Yes
GeoNames City ID	4646571	Yes
GRID	grid.135519.a	Yes
ISNI	0000 0004 0446 2659	Yes
ORGRRef	38147	Yes
ROR	<a href="https://ror.org/01qz5mb56">https://ror.org/01qz5mb56</a>	Yes
Wikidata	Q714439	Yes
Wikidata	Q6971313	No

- OSTI has maintained organization authority for many years – capturing sponsoring organizations, research organizations, and affiliations provided to OSTI in the records we collect.
- Developing new authority mapped to organization identifiers (ROR, GRID, Wiki).
- Developing reconciliation API for others to use to run against their own organization authorities to add identifiers.

# Using and Connecting PIDs



# Connecting PIDs in Metadata

The screenshot shows the OSTI.GOV website interface. At the top, there is a navigation bar with the OSTI.GOV logo, the U.S. Department of Energy Office of Scientific and Technical Information name, and a search bar containing the text "Search 3+ million Department of Energy research results". Below the navigation bar, there are several menu items: "Submit Research Results", "Search Tools", "Public Access Policy", "Data Services & Dev Tools", "About", "FAQs", and "News".

The main content area displays the title of a journal article: "Association mapping by aerial drone reveals 213 genetic associations for Sorghum bicolor biomass traits under drought". Below the title, there are tabs for "Full Record", "References (43)", and "Other Related Research". The "Full Record" tab is selected.

The article details are organized into two columns. The left column contains links for "JOURNAL ARTICLE:", "Free Publicly Available Full Text", "Publisher's Version of Record at 10.1186/s12864-018-5055-5", "Copyright Statement", "OTHER AVAILABILITY", and "Search WorldCat to find libraries that may hold this journal". The right column contains a list of metadata fields:

Authors:	Spindel, Jennifer E.; Dahlberg, Jeffery; Colgan, Matthew; Hollingsworth, Joy; Sievert, Julie; Staggenborg, Scott H.; Hutmacher, Robert; Jansson, Christer; Vogel, John P.
Publication Date:	2018-09-17
Research Org.:	Pacific Northwest National Lab. (PNNL), Richland, WA (United States); Lawrence Berkeley National Lab. (LBNL), Berkeley, CA (United States)
Sponsoring Org.:	USDOE Advanced Research Projects Agency - Energy (ARPA-E); USDOE Office of Science (SC), Biological and Environmental Research (BER) (SC-23)
OSTI Identifier:	1618569
Alternate Identifier(s):	OSTI ID: 1489292; OSTI ID: 1559146
Report Number(s):	PNNL-SA-131382 Journal ID: ISSN 1471-2164; 679; PII: 5055
Grant/Contract Number:	14/CJ000/09/02; AC02-05CH1123; AC05-76RL01830; AC02-05CH11231

At the bottom of the left column, there is a "CITATION METRICS:" section showing "Cited by: 2 works" and a note that "Citation information provided by Web of Science".

At DOE OSTI, we're working to create connections using PIDs throughout the research lifecycle in connected metadata to show the impact of DOE funding and tell DOE's story.

# Connecting PIDs in Metadata

Crossref DOIs for Publications

ROR IDs & Open Funder Registry DOIs for Funding Organizations

ORCID iDs for Researchers/Authors

ROR IDs for Research Organizations

Crossref DOIs for awards, grants, and contracts

DataCite DOIs for Dataset

DataCite DOIs for Software

OSTI.GOV U.S. Department of Energy Office of Biological and Technical Information Search 3+ million Department of Energy records

Submit Publications Access Policy Data

Full Record References (43) Other Related Research

JOURNAL ARTICLE: Association mapping by aerial drone reveals 213 genetic associations for Sorghum bicolor biomass traits under drought

Authors: Spindel, Jennifer E.; Dahlberg, Jeffery; Colgan, Matthew; Hwangsworn, Joy; Sievers, Julie; Staggenborg, Scott H.; Hutmacher, Robert; Jansson, Christoffer; Vogel, John P.

Publication Date: 2018-09-17

Research Org.: Pacific Northwest National Lab. (PNNL), Richland, WA (United States); Lawrence Berkeley National Lab. (LBNL), Berkeley, CA (United States)

Sponsoring Org.: USDOE Advanced Research Projects Agency - Energy (ARPA-E); USDOE Office of Science (SC), Biological and Environmental Research (BER) (SC-23)

OSTI Identifier: 1618569

Alternate Identifier(s): OSTI ID: 1489292; OSTI ID: 1559146

Report Number(s): PNNL-SA-131382  
Journal ID: ISSN 1471-2164; 679; PII: 5055

Grant/Contract Number: 14/CJ000/09/02; AC02-05CH1123; AC05-76RL01830; AC02-05CH11231

Full Record References (1) Other Related Research

Similar Records

Related Works

- Collection (2)
- Dataset (26)
- Figure (2)

Similar records in OSTI.GOV collections:

Association mapping by aerial drone reveals 213 genetic associations for Sorghum bicolor biomass traits under drought

JOURNAL ARTICLE: Spindel, Jennifer E.; Dahlberg, Jeffery; Colgan, Matthew; ... - BMC Genomics

BACKGROUND: Sorghum bicolor is the fifth most commonly grown cereal worldwide and is remarkable for its drought and abiotic stress tolerance. For these reasons and the large size of biomass varieties, it has been proposed as a bioenergy crop. However, little is known about the genes underlying sorghum's abiotic stress tolerance and biomass yield. RESULTS: To uncover the genetic basis of drought tolerance in sorghum at a genome-wide level, we undertook a high-density phenomics genome wide association study (GWAS) in which 648 diverse sorghum lines were phenotyped at two locations in California once per week by drone over the course of more »

DOI: 10.1186/s12864-018-5055-5 Full Text Available

figshare Browse Search on figshare... Log in Sign up

1 Significantly enriched protein domains. Protein domains were scraped from PhytoMine for all genes found in the region of each GWAS peak (as defined by the wide range, i.e. the range of the union of all SNP

2 Domain name

3 Alpha/Beta hydrolase fold

4 F-box domain

5 Protein of unknown function DUF1677, Oryza sativa

6 Alpha/beta hydrolase fold-3

7 Timeless protein

8 Timeless C-terminal

9 TMP21-related

10 Domain of unknown function DUF4378

11 GOLD domain

12 Phloem protein 2-like

13 Membrane insertase YidC/Oxa1, C-terminal

14 Myb-like domain

Significantly\_enriched\_domains

12864\_2018\_5055 MD5: 923d18f4940f6a176d91921b283e48

Enterprise Explore Marketplace Pricing Search Sign in Sign up

pnnl / nims

Code Issues Pull requests Projects Insights

Join GitHub today

GitHub is home to over 31 million developers working together to host and review code, manage projects, and build software together.

2 branches 0 releases 1 contributor View license

Find File Clone or download

Latest commit c1ee276 on Apr 5, 2017

- Edited doc/ftp.txt to remove PNNL-specific references. Deleted pdf. 2 years ago
- added playback with no looping 3 years ago
- Need to keep highgui openCV module in CMakeLists.txt for viewer.cpp: ... 2 years ago
- eval\_detections initial revision 3 years ago
- added blueview libs 3 years ago
- latest from Ross 3 years ago
- Need to keep highgui openCV module in CMakeLists.txt for viewer.cpp: ... 2 years ago
- Added LICENSE and DISCLAIMER 2 years ago
- Added LICENSE and DISCLAIMER 2 years ago

# Visualizing PIDs

$B \rightarrow \pi l \bar{\nu}$  and  $B_s \rightarrow K l \bar{\nu}$  form factors and  $|V_{ub}|$  from 2+1-flavor lattice QCD with domain-wall light quarks and relativistic heavy quarks

## Persistent / Related Identifier Connections

OSTI ID: 1180799

PUBLICATION YEAR  
2015

### ABSTRACT

We calculate the form factors for  $B \rightarrow \pi l \bar{\nu}$  and  $B_s \rightarrow K l \bar{\nu}$  decay in dynamical lattice quantum chromodynamics (QCD) using domain-wall light quarks and relativistic b-quarks. We use the (2+1)-flavor gauge-field ensembles generated by the RBC and UKQCD collaborations with the domain-wall fermion action and Iwasaki gauge action.

[\[see more\]](#)

### PUBLISHER'S VERSION OF RECORD

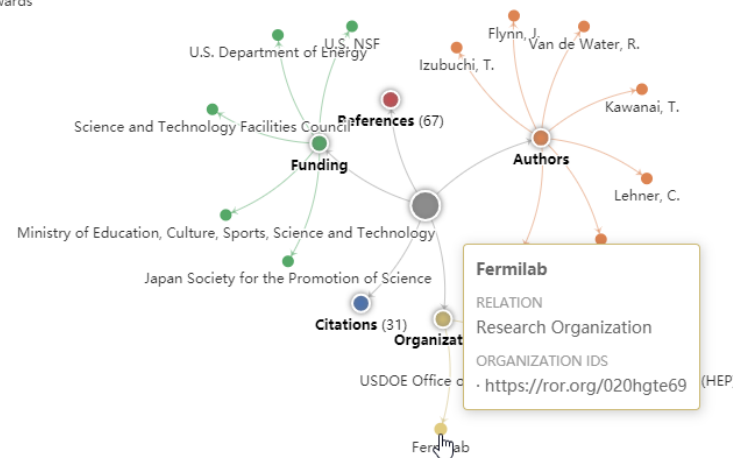
<https://doi.org/10.1103/PhysRevD.91.074510>

### CITATION METRICS

Cited by:	31
Impact Factor:	4.833
Citation Impact by Journal:	2.64
Citation Impact by Field:	2.9717
% Rank by Field / Year:	5.5053

Citation information provided by  
Web of Science

- OSTI ID 1180799
- Authors
- Organizations
- References
- Citations
- Awards



### NODE DETAILS

#### FERMILAB

#### RELATION

Research Organization

<http://www.fnal.gov/>

Batavia, Illinois  
United States

41.8319435, -88.257225



#### ROR

<https://ror.org/020hgte69>

#### GRID

grid.417851.e

#### Funder Registry

100006230

#### ISNI

0000 0001 0675 0679

#### ORGRRef

53301

#### Wikidata

Q337641

# Thank you!

**Carly Robinson**

[Carly.Robinson@science.doe.gov](mailto:Carly.Robinson@science.doe.gov)



[www.osti.gov](http://www.osti.gov)



[pids@osti.gov](mailto:pids@osti.gov)



[@osti.gov](https://twitter.com/osti.gov)