



**Research Resources  
in Physics and Astronomy**




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<https://www.libraries.rutgers.edu/>

Rutgers Home | Search Rutgers

 **RUTGERS** University Libraries

 Hours  My Account  Ask Us

Find Services & Tools Get Help Places & Spaces Info for... About

## QuickSEARCH

Search library resources 

HELP **ADVANCED SEARCH**

### Resources

- [Databases](#)
- [Journals](#)
- [Course Reserves](#)
- [Research Help](#)
- [Health Sciences Libraries](#)

### Services

- [Reserve a Room](#)
- [Request Books & Articles](#)
- [Services for Students](#)
- [Services for Faculty](#)

### Today's Hours | [All Hours and Locations](#)

- Alexander 7:45 am–11 pm
- Art 9 am–6 pm
- Carr 8 am–6 pm
- Chang 9 am–5 pm
- Dana 8 am–10 pm
- Douglass 8 am–6 pm
- LSM 8 am–11 pm

# Advanced search for known items

New Search Browse Journals Citation Lookup
? ↺ 📌 Ask Us Sign i

Search for:  Rutgers Libraries  Course Reserves

↓ ↓ ↓

Title

AND

+ ADD A NEW LINE ↻ CLEAR

Resource Type: Books

Language: Any language

Start Date: Day  Month

End Date: Day  Month

→ Title *is (exact)* Current trends of surface science and catalysis 🔍 SEARCH

BASIC SEARCH

# Use limiters

The screenshot shows the Rutgers University Libraries search interface. At the top, there is a navigation bar with links for 'New Search', 'Browse', 'Journals', and 'Citation Lookup'. A search bar contains the text 'quantum field theory' and a search button. Below the search bar, a yellow banner prompts the user to 'Sign in to view full results from off campus'. The main content area displays search results for 'quantum field theory'. On the left side, there is a 'Filter my results' section with several options: 'Expand My Search', 'Sort by Relevance', and 'Limit to'. The 'Limit to' section is circled in red and includes a checked checkbox for 'Available online'. Below the filters are 'CLEAR' and 'APPLY FILTERS' buttons. The search results list two books: 'Quantum field theory' by Sadovskii, M. V. (1948-2013) and 'Quantum field theory' by Srednicki, Mark Allen (2007). A 'PAGE 1' indicator and a 'Personalize' toggle are also visible.

# <http://libguides.rutgers.edu/physics>

## Physics and Astronomy: Indexes & Databases

- [Home](#)
- [Find Books](#)
- [Find Journals](#)
- [Indexes & Databases](#)
- [Web Resources](#)
- [Professional & Scholarly Organizations](#)

### Rutgers Restricted Indexes & Databases

See a full list of Indexes and Databases available at Rutgers, click [here](#).

- [IEEE Xplore](#)

The *IEEE/IEE Electronic Library (IEL)* is a collaboration between the Institute of Electrical and Electronics Engineers (IEEE) in the US and the Institution of Engineering and Technology (IET) in the UK. It covers more than 30% of the world's literature in electrical engineering, electronics, computer science, information science, materials science, physical sciences and biomedical engineering. The database allows for full text access to over 140 journals, over 800 conference proceedings and 800 standards from more than 36 not-for-profit IEEE societies and IEEE.

- [MathSciNet](#)

MathSciNet is the most comprehensive resource for the international literature of mathematics and statistics. Coverage includes the bibliographic data and reviews of mathematical research contained in the Mathematical Reviews Database.

- [SciFinder](#)

SciFinder is the electronic version of the print publication "Chemical Abstracts". SciFinder comprehensively covers the world-wide literature of

### Freely Accessible Indexes & Databases

- [arXiv](#)

arXiv is a pre-print repository that provides open access to over 1 million e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics.

- [Astrophysics Data System](#)

ADS is a Digital Library portal for researchers in Astronomy and Physics. It maintains three bibliographic databases containing more than 8.5 million records: Astronomy and Astrophysics, Physics, and arXiv e-prints.

- [HEPDATA: Reaction Data Database](#)

HEPDATA is a database containing numerical reaction data such as cross sections (differential and total), polarization measurements, structure functions, fragmentation functions etc.

- [INSPIRE \(formerly SPIRES\): High-Energy Physics Literature Database](#)

SPIRES HEP is a joint project of SLAC, DESY & FNAL as well as the worldwide HEP community. Besides HEP search, it also offers search for HEPName, Institutions, Conferences, Experiments, Jobs, and Videos.

- [PDG: Particle Data Group](#)

## Databases to consider:

Rutgers restricted- log in through the Libraries website if not on campus

IEEE Xplore <http://www.libraries.rutgers.edu/indexes/ieee>

Quantum computing, semiconductors, nanomaterials,  
biological physics

MathSciNet

<http://www.libraries.rutgers.edu/indexes/mathscinet>

Mathematical physics

SPIE Digital Library

<https://www.libraries.rutgers.edu/indexes/spie>

Optics and photonics

# Databases

## Web of Science

[http://www.libraries.rutgers.edu/indexes/web\\_of\\_science](http://www.libraries.rutgers.edu/indexes/web_of_science)

Useful for cited reference searches

## Scopus

<https://www.libraries.rutgers.edu/indexes/scopus>

### Similar to Web of Science

- Uses different metrics (ex: SNIP Source Normalized Impact per Paper vs. JIF Journal Impact Factor)
- Indexes different sources

# Databases

## SciFinder

[http://www.libraries.rutgers.edu/indexes/scifinder\\_scholar](http://www.libraries.rutgers.edu/indexes/scifinder_scholar)

**Chemistry- use for condensed matter physics**

- Need to create account- must be on campus, use Rutgers e-mail to register (**See [instructions for creating an account](#)**)
- After initial registration, can use off campus

## Reaxys

<https://www.libraries.rutgers.edu/indexes/reaxys>

**Another option for chemistry/condensed matter physics**

- No account needed
- Simplified search





Welcome to [INSPIRE](#), the High Energy Physics information system. Please direct questions, comments or concerns to [feedback@inspirehep.net](mailto:feedback@inspirehep.net).

[HEP](#) :: [HEPNAMES](#) :: [INSTITUTIONS](#) :: [CONFERENCES](#) :: [JOBS](#) :: [EXPERIMENTS](#) :: [JOURNALS](#) :: [HELP](#)

## HEP Search

### High-Energy Physics Literature Database

Use "find" for SPIRES-style search ([other tips](#))

Brief format Search [Easy Search](#) [Advanced Search](#)

[find j "Phys.Rev.Lett..105"](#) :: [more](#)

#### HOW TO SEARCH

SPIRES syntax is (mostly) supported (requires "find")

`find a richter, b and t quark and date > 1984`

`find j phys.rev.,D50,1140 or j jhep,0903,112`

`find eprint arxiv:1007.5048` (Note the plots available on the detailed record)

`find fulltext "quark-gluon plasma"` (Note new "fulltext" operator)

`find a ellis and refersto a witten` (Note "refersto")

`find a kane and citedby title SUSY and topcite 200+` (Note "citedby")

New techniques:

`4005 citates exact multiplicity`

#### HEP

[Additions](#)

[Corrections](#)

[Search Tips](#)

[FAQ](#)

[Topcites: annual | recent](#)

[Reviews](#)

[HEP Citesummary](#)

[Tools](#)

#### INSPIRE

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[INSPIRE Help Central](#)

[Blog](#)

[Twitter](#)

[feedback@inspirehep.net](mailto:feedback@inspirehep.net)

#### RESOURCES

[ADS](#)

# Easy Search Interface



Welcome to [INSPIRE](#), the High Energy Physics information system. Please direct questions, comments or concerns to [feedback@inspirehep.net](mailto:feedback@inspirehep.net).

HEP :: HEPNAMES :: INSTITUTIONS :: CONFERENCES :: JOBS :: EXPERIMENTS :: JOURNALS :: **HELP**

## Easy Search

Welcome to Easy Search of HEP.

Author:

Title:

Report Number:

Affiliation:

Collaboration:

Keywords:

Eprint: Any Type  Number

Topcite: Don't care

Journal: Any Journal  vol:  pg:

Date:  until:

Search

# ADS Astrophysics Data System

<https://ui.adsabs.harvard.edu/>

QUICK FIELD: Author First Author Abstract Year Fulltext All Search Terms

- |                  |                            |            |                                  |
|------------------|----------------------------|------------|----------------------------------|
| author           | author:"huchra, john"      | citations  | citations(author:"huchra, j") ?  |
| first author     | author:"^huchra, john"     | references | references(author:"huchra, j") ? |
| abstract + title | abs:"dark energy"          | reviews    | reviews("gamma-ray bursts") ?    |
| year             | year:2000                  |            |                                  |
| year range       | year:2000-2005             | refereed   | property:refereed ?              |
| full text        | full:"gravitational waves" | astronomy  | database:astronomy ?             |
| publication      | bibstem:ApJ ?              | OR         | abs:(planet OR star) ?           |

# Citation Managers

[Comparing Zotero, Mendeley, and Endnote Web](#)

[Citation Management Tools available through Rutgers Libraries](#)

[LaTeX Basics for Students](#)



LATEX

## Did you know...

**Rutgers University Libraries** have data experts ready to help you with:

- **Data Management Plans**
- **Guidance on Access and Preservation of Research Data**
- **Data Management Best Practices**

# A brief history of data sharing requirements

- As of **January 2011**, **NSF** is requiring a two page **Data Management Plan**. DMPs are subject to peer review; proposals without a plan will be rejected.  
<http://www.nsf.gov/bfa/dias/policy/dmpdocs/che.pdf>
- **February 2013**: Office of Science and Technology Policy requires public access to literature and data for 15 federal agencies (R&D budgets >\$100 M)  
[http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=127043](http://www.nsf.gov/news/news_summ.jsp?cntn_id=127043)
- **January 2014** Omnibus Spending Bill includes Departments of Labor, Health and Human Services, and Education in public access mandate

# Data sharing timeline

- **March 2015 NSF** update: “[Today’s Data, Tomorrow’s Discoveries](http://www.nsf.gov/pubs/2015/nsf15052/nsf15052.pdf)” outlines expectations for publishing, sharing data  
<http://www.nsf.gov/pubs/2015/nsf15052/nsf15052.pdf>
- By the end of **2016**, [16 Federal Agencies](#) require public access plans
- In **2017**, we saw some Federal Agency sites shut down, their data removed
- [OSTP Letter to the US Research Community](#) about research security, working with international researchers, declaring conflicts of interest

# We can help you

## Create or advise on Data Management Plans for Federal Agencies



The screenshot shows the NSF website interface. At the top left is the NSF logo with the tagline "WHERE DISCOVERIES BEGIN". To the right is a search bar and "Contact Help" links. Below this is a navigation menu with categories: Research Areas, Funding, Awards, Document Library, News, and About NSF. The left sidebar lists various offices under the "Office of Budget Finance and Award Management (BFA)", including the Budget Division, Division of Acquisition and Cooperative Support, Division of Financial Management, Division of Grants & Agreements, and Division of Institution & Award Support. The main content area is titled "Dissemination and Sharing of Research Results" and contains two sections: "NSF DATA SHARING POLICY" and "NSF DATA MANAGEMENT PLAN REQUIREMENTS".

**NSF** National Science Foundation WHERE DISCOVERIES BEGIN

Contact Help

Search

Research Areas Funding Awards Document Library News About NSF

Home > Budget Finance & Award Managem... > Institution and Award Support

Email Print Share

### Dissemination and Sharing of Research Results

#### NSF DATA SHARING POLICY

Investigators are expected to share with other researchers, at no more than incremental cost and within a reasonable time, the primary data, samples, physical collections and other supporting materials created or gathered in the course of work under NSF grants. Grantees are expected to encourage and facilitate such sharing. See [Proposal & Award Policies & Procedures Guide \(PAPPG\) Chapter XI.D.4](#).

#### NSF DATA MANAGEMENT PLAN REQUIREMENTS

Proposals submitted or due on or after January 18, 2011, must include a supplementary document of no more than two pages labeled "Data Management Plan". This supplementary document should describe how the proposal will conform to NSF policy on the dissemination and sharing of research results. See [PAPPG Chapter II.C.2.j](#) for full policy implementation.



# NSF Data Management Plans

An **NSF DMP consists of 5 components**, which describe:

- **Products of research:** spectra, diffraction patterns, physical properties, computational strategies, software, numerical results, etc.
- **Data Format:** instrument output, html, file types- .jpg, .tif... Conversions may be necessary. File names and versions should be standard. Metadata is required.
- **Access to Data and Data Sharing Practices and Policies:** how your data will be made freely accessible. Websites, HEP Data, SIMBAD Astronomical Database...

## DMP components

- **Policies for Re-Use, Re-Distribution, and Production of Derivatives:** Who will be able to use your data? Will there be disclaimers on your website? Conditions concerning publication?
- **Archiving of Data:** How will it be preserved? Will hardcopies be transferred to digital format? Will digital media be migrated? Software? How long will the data be retained?

**This is a simplified list from NSF - see your directorate**  
<https://www.nsf.gov/staff/orglist.jsp>

# We can help

## Provide resources for data management preservation and access

MENU ▾

SCIENTIFIC DATA



Search



E-alert



Submit



Login

### Recommended Data Repositories

*Scientific Data* mandates the release of datasets accompanying our Data Descriptors, but we do not ourselves host data. Instead, we ask authors to submit datasets to an appropriate public data repository. Data should be submitted to discipline-specific, community-recognized repositories where possible, or to [generalist repositories](#) if no suitable community resource is available.

Repositories included on this page have been evaluated to ensure that they meet our requirements for data access, preservation and stability. Please be aware, however, that some repositories on this page may only accept data from those funded by specific sources, or may charge for hosting data. Please ensure you are aware of any deposition policies for your chosen repository. If your repository of choice is not listed please see our [guidelines for suggesting additional repositories](#).

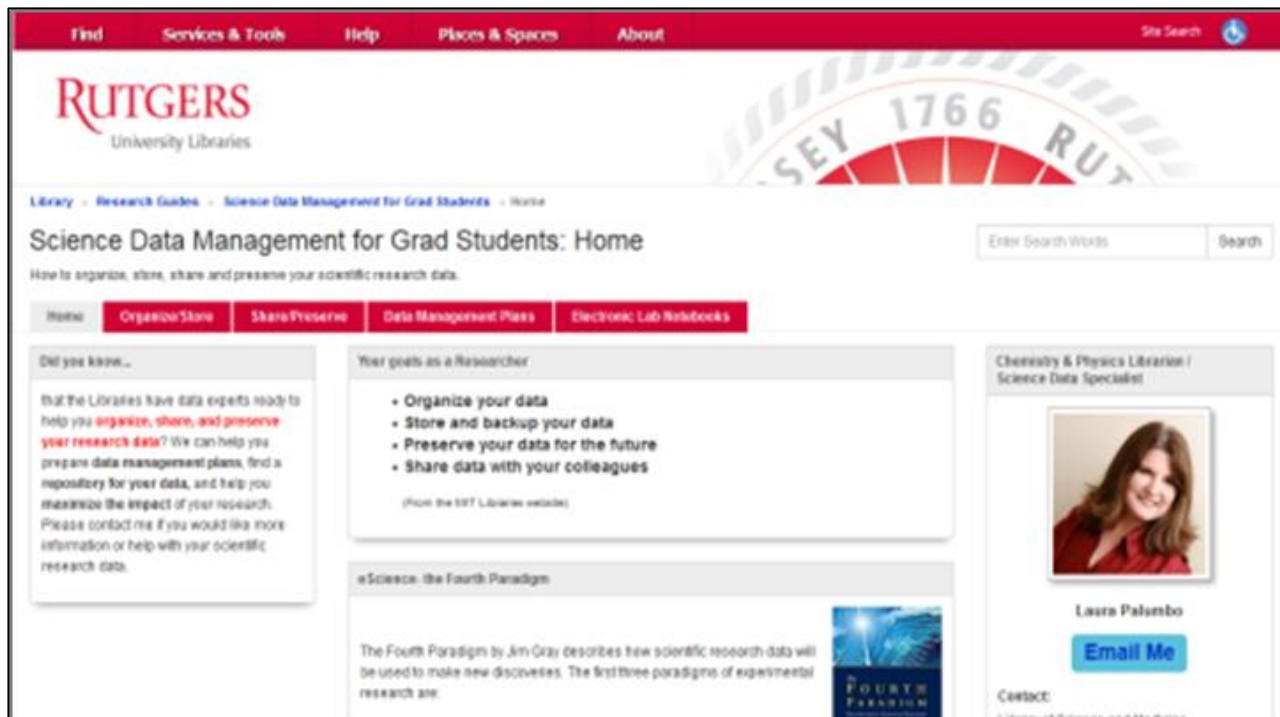
Authors must deposit their data to a recommended data repository as part of the manuscript submission process; manuscripts will not otherwise be sent for review. If data have not been deposited to a repository prior to manuscript submission, authors can upload their data to figshare or the Dryad Digital Repository during the submission process. Data may also be deposited to these resources temporarily, if the main host repository

# Resources – Rutgers University Libraries

Research Guides- Science Data for Grad Students,  
Data Management

[http://libguides.rutgers.edu/grad\\_sciencedata](http://libguides.rutgers.edu/grad_sciencedata)

<https://libguides.rutgers.edu/datamanagement>



The screenshot shows the 'Science Data Management for Grad Students: Home' page. At the top, there is a navigation bar with links for 'Find', 'Services & Tools', 'Help', 'Places & Spaces', and 'About', along with a 'Site Search' button. The Rutgers University Libraries logo is prominently displayed. Below the logo, a breadcrumb trail reads 'Library > Research Guides > Science Data Management for Grad Students > Home'. A search bar is located on the right side of the page. A horizontal menu contains links for 'Home', 'Organize/Store', 'Share/Preserve', 'Data Management Plans', and 'Electronic Lab Notebooks'. The main content area is divided into several sections: 'Did you know...' with introductory text, 'Your goals as a Researcher' with a bulleted list of actions (Organize your data, Store and backup your data, Preserve your data for the future, Share data with your colleagues), and 'eScience: the Fourth Paradigm' with a book cover image. On the right, there is a profile for 'Laura Palumbo', Chemistry & Physics Librarian / Science Data Specialist, with a photo and an 'Email Me' button.

# We can help you with

## Good Data Management practices



Site  DataONE Search

[About](#) [News](#) [Participate](#) [Resources](#) [Education](#) [Data](#)

[Home](#) » [Resources](#) » [Best Practices](#)

## Resources

### Tools

[Investigator Toolkit](#)  
[Data Management Planning](#)  
[Software Tools Catalog](#)

### Materials

[Publications](#)  
[Best Practices](#)  
[Data Life Cycle](#)  
[Librarian Outreach Kit](#)  
[Developer Resources](#)  
[Research Notebooks](#)

## Best Practices

The DataONE Best Practices database provides individuals with recommendations on how to effectively work with their data through all stages of the data lifecycle. Users can access best practices within the database by either clicking on a stage of the lifecycle or selecting keywords under [search](#).

### [Best Practices Primer](#)

For students and others new to data management, we provide a [Best Practices Primer](#) as an introduction to the DataONE Best Practices database and data management in general.

### [Public Participation in Science Research Data Management Guide](#)

We also provide a [Data Management Guide](#) written specifically for the Citizen Science community that takes the users through the steps of the data lifecycle and links to various DataONE Best Practices online.

# Good Data Management- Organizing

## File naming:

- Keep it short if possible, but descriptive- 25 characters. Names should be easily understood by colleagues
- 3 letter file types- .jpg, not .jpeg
- No special characters, no spaces, lowercase
- Use leading zeros-myfile001.tif, not myfile1.tif

## Versioning:

- All versions of data need to be clearly identified
- **Be consistent! Documentation is key.**

# Good Data Management - Storing

## Types of data:

- Raw data, working data, processed data, data for reuse

## Where will you keep it?

- Department server? Hard drive of your computer? Flash drive? Paper notebooks?



## How will you back it up?

- External hard drive? Flash drive? In a drawer in your office? **Use the Rule of 3**

# Good Data Management- Preserving

## Preserving for the long term:

- Subject specific repository- [re3data.org](http://re3data.org)
- Institutional Repository- [Rucore/Ruresearch](http://Rucore/Ruresearch)

A website, YouTube video, or relational database are not ways to ***preserve*** your data!



# Good Data Management- **Sharing**

## **How will others gain access to your data?**

- Will permission be required? ( Necessary for sensitive data.)
- What will happen to the data if the PI leaves the institution? Who controls access?
- How will they find your data? **Persistent URLs** or **DOIs** are good practices.

# Would someone else be able to find your work?

- Cite your data: Digital Object Identifiers
- Register for an ORCID id:

## Open **R**esearcher and **C**ontributor **ID**

[What is ORCID?](#)

[Register for an ORCID id](#)

<http://orcid.org>



Image from orcid.org



Thank you!

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