

- Motivation for Working Group:
  - Develop materials science-specific metadata standards
  - Lay groundwork for a network of international Materials Resource Registries
  - Can be the basis for other domain-specific metadata schemas
- MRR WG comprises
  - An international team representing different regions and sectors, including Asia, Europe, and North America
  - Materials IG Co-Chairs as ex-officio members
  - Co-Chairs who coordinate activities and facilitate interactions with other closely-related Interest and Working groups
  - Recommended core members as “doers” in the materials and cognate communities to identify those in their organizations who need to be involved.
- RDA as a platform for building international consensus

## ■ Core members

- Chandler Becker (NIST), convenor US
- Scott Henry (ASM Int'l) US
- Brian Matthews (STFC) UK
- Debbie Mies (Granta) UK/US
- Raphael Ritz? (NOMAD) EU
- Yibin Xu (NIMS) JP
- Haiqing Yin (Univ. Sci. & Tech.) CN
- Laura Bartolo (Northwestern), ex officio US
- James Warren (NIST), ex officio US

# Materials Resource Description WG

- Resource types
  - Organizations
  - Data collections
  - Data sets
  - Data services (APIs)
  - Websites
  - Software
- Starting with NIST materials science inputs
  - Strawman metadata schema
  - Dublin Core plus extensions
  - Using controlled vocabulary as much as possible
- OAI-PMH for harvesting, synchronization

- Materials Resource Registry
  - <http://bit.ly/MaterialsResourceRegistry>

# Materials Resource Registry

## Search for Resources

General Keyword search:

Results view: ☐ Simple ☒ Detailed

Access Policy



SEARCH

CLEAR

ADD MORE SEARCH FIELDS

# Materials Resource Registry

Search Results for 'compound'

[Edit Search Criteria](#)
[New Search](#)

[All Resources](#)

[Organizations](#)

[Data Collections](#)

[Datasets](#)

[Services](#)

[Informational Sites](#)

[Software](#)

Detailed Results View

Resource Type:

- ☒ All Resources
- ☐ Organization
- ☐ Data Collection
- ☐ Repository
- ☐ Project Archive
- ☐ Database

AFLOW

[Resource Details](#)
[Go To](#)

Publisher

AFLOW Consortium

Resource Type

Repository

Material Science

Material Types: Metal, Semiconductor, Organic  
Morphology/Structures: Crystalline, Bulk

# Materials Resource Registry



Add New Repository

My Repositories

My Resources

Repository Name

The Materials Project

(required)

Short Name

MaterialsProject

(recommended)

Description

The Materials Project provides a database and associated portal of calculated properties of materials. By computing properties of all known materials, the Materials Project aims to remove guesswork from materials design in a variety of applications. Experimental research can be targeted to the most promising compounds from

(required)

Subjects

compounds, materials

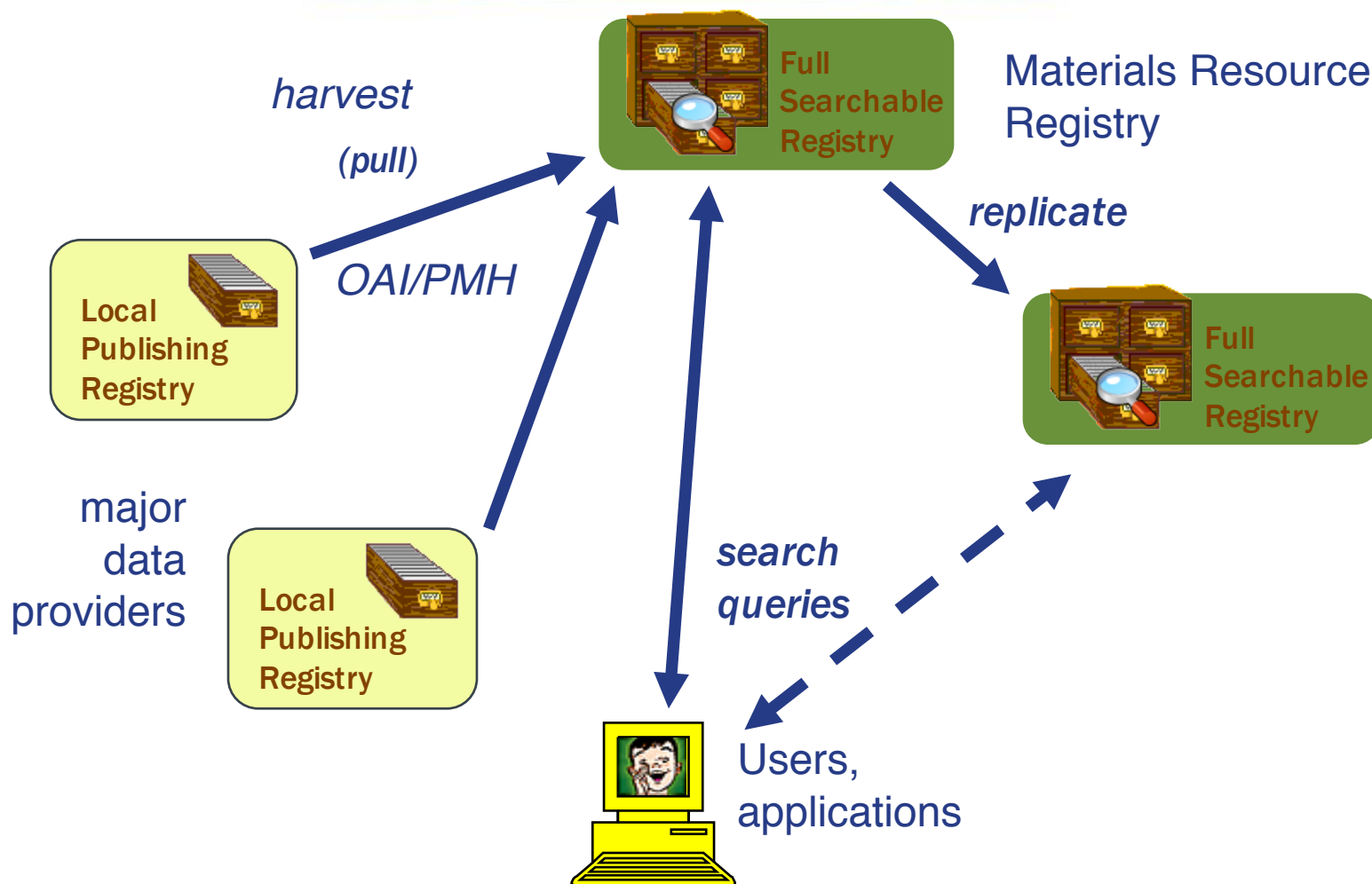
Reference URI

<https://materialsproject.org/>

We would register resources like

- [nanomaterialregistry.org](https://nanomaterialregistry.org)
- [nanohub.org](https://nanohub.org)
- ...

Material Types	<div><input type="checkbox"/> Metal</div> <div><input type="checkbox"/> Semiconductor</div> <div><input type="checkbox"/> Ceramic</div> <div><input type="checkbox"/> Polymer</div> <div><input type="checkbox"/> Biomaterial</div>	<div><input type="checkbox"/> Organic</div> <div><input type="checkbox"/> Inorganic</div> <div><input type="checkbox"/> Oxide</div> <div><input type="checkbox"/> Composite</div> <div><input type="checkbox"/> Nanomaterials</div>	<div><input type="checkbox"/> Superconductor</div> <div><input type="checkbox"/> Non-Specific</div> <div><input type="checkbox"/> Other</div>	②	(recommended)
Morphology/Structures	<div><input type="checkbox"/> Crystalline</div> <div><input type="checkbox"/> Amorphous</div> <div><input type="checkbox"/> Fluid</div> <div><input type="checkbox"/> Quasi-periodic</div> <div><input type="checkbox"/> Bulk</div> <div><input type="checkbox"/> 2-Dimentional</div>	<div><input type="checkbox"/> 1-Dimentional</div> <div><input type="checkbox"/> Film</div> <div><input type="checkbox"/> Nanotube</div> <div><input type="checkbox"/> Fiber</div> <div><input type="checkbox"/> Composite</div> <div><input type="checkbox"/> Interfacial</div>	<div><input type="checkbox"/> Interphase</div> <div><input type="checkbox"/> Line Defect</div> <div><input type="checkbox"/> Point Defect</div> <div><input type="checkbox"/> Non-Specific</div> <div><input type="checkbox"/> Other</div>	②	(recommended)
Material Property Classes	<div><input type="checkbox"/> Optical</div> <div><input type="checkbox"/> Mechanical</div> <div><input type="checkbox"/> Thermodynamic</div>	<div><input type="checkbox"/> Structural</div> <div><input type="checkbox"/> Simulation</div>	<div><input type="checkbox"/> Defect</div> <div><input type="checkbox"/> Non-Specific</div> <div><input type="checkbox"/> Other</div>	②	(recommended)
Experimental Data Aquisition Methods	<div><input type="checkbox"/> Electron Microscopy</div> <div><input type="checkbox"/> Scattering/Diffraction</div> <div><input type="checkbox"/> Calorimetry</div> <div><input type="checkbox"/> Load Frame Test</div>	<div><input type="checkbox"/> Atomic Force Microscopy</div> <div><input type="checkbox"/> Spectroscopy</div> <div><input type="checkbox"/> Optical Microscopy</div> <div><input type="checkbox"/> Impact Testing</div>	<div><input type="checkbox"/> Indentation</div> <div><input type="checkbox"/> Dilatometry</div> <div><input type="checkbox"/> Other</div>	②	(recommended)
Computational Data Aquisition Methods	<div><input type="checkbox"/> Density Functional Theory</div> <div><input type="checkbox"/> Molecular Dynamics Simulation</div> <div><input type="checkbox"/> Numerical Simulations</div> <div><input type="checkbox"/> Multiscale Modeling</div> <div><input type="checkbox"/> Finite Element Analysis</div> <div><input type="checkbox"/> Computational Thermodynamics</div>	<div><input type="checkbox"/> Statistical Mechanics</div> <div><input type="checkbox"/> Dislocation Dynamics</div> <div><input type="checkbox"/> Phase Field</div> <div><input type="checkbox"/> Crystal Plasticity</div> <div><input type="checkbox"/> Other</div>	②	(recommended)	
Sample Processing Methods	<div><input type="checkbox"/> Casting</div> <div><input type="checkbox"/> Annealing</div> <div><input type="checkbox"/> Vapor Deposition</div> <div><input type="checkbox"/> Milling</div>	<div><input type="checkbox"/> Extrusion</div> <div><input type="checkbox"/> Pressing</div> <div><input type="checkbox"/> Exfoliation</div> <div><input type="checkbox"/> Melt Blending</div>	<div><input type="checkbox"/> Polymerization</div> <div><input type="checkbox"/> Curing</div> <div><input type="checkbox"/> Evaporation</div> <div><input type="checkbox"/> Other</div>	②	(recommended)



## NDS LABS AND NDS SHARE

These new platforms allow the NDS community to try out new tools and explore new ideas for sharing data as we prototype key NDS capabilities.

READ MORE ABOUT NDS LABS →

READ MORE ABOUT NDS SHARE →

The National Data Service (NDS) is an emerging vision for how scientists and researchers across all disciplines can find, reuse, and publish data. It builds on the data archiving and sharing efforts already underway within specific communities and links them together with a common set of tools designed around the following capabilities:

### Search

The NDS will allow users to easily search for data across disciplinary boundaries. As users hone in on data of interest, they can easily switch to discipline-specific tools.

### Publish

The NDS will connect users to tools for building and sharing collections of data. It will help users find and deliver data to the best repository for data-publishing.

### Link

The NDS will create robust connections between data and published articles. When researchers reference an article, they have ready access to the underlying data.

### Reuse

The NDS will not only provide access to data for download, it will provide tools for transferring data to processing platforms or allow analysis to be attached to the data.

<http://www.nationaldataservice.org/>

