



RUHR-UNIVERSITÄT BOCHUM

RESEARCH DATA MANAGEMENT

at Ruhr-University Bochum

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BOCHUM

IT.SERVICES

Outline

1. Introduction to RDM at RUB
 - Getting started
 - Storing research data

Time for questions

2. ReSeeD
 - Overview
 - Examples of Workflows
 - The Future

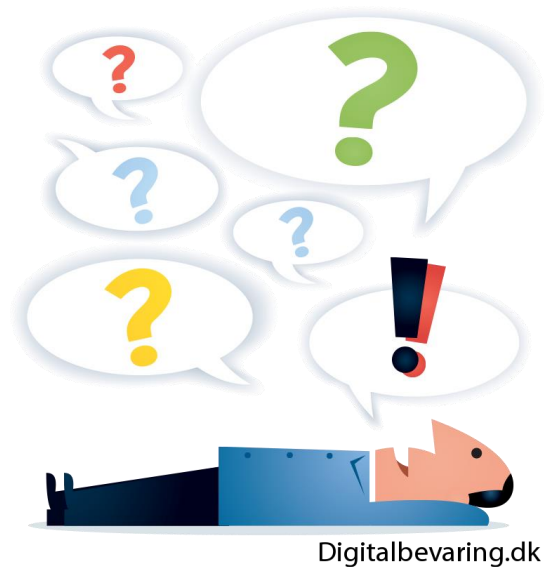
Questions and Discussion

Introduction to RDM

at Ruhr-University Bochum

RDM at RUB: Introduction

- Training courses
- Moodle course
- Website (new version in spring 2024)
- Framework:
 - RDM Policy (2018)
 - Open Science Policy (2022)
- Research Data Management Organiser (RDMO) as a tool for creating data management plans



RDM at RUB: Introduction

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- **Research Data Management Organiser (RDMO) as a tool for creating data management plans**



RDMO: A tool for data management plans

Usage

- RDMO instance for UA Ruhr
- Login via Shibboleth / ORCID
- 3 UA Ruhr questionnaires (full catalog, proposals, archiving) + catalog Horizon 2020
- Detailed tutorial on RDM website

Background:

RDMO: Research Data Management *Organiser*

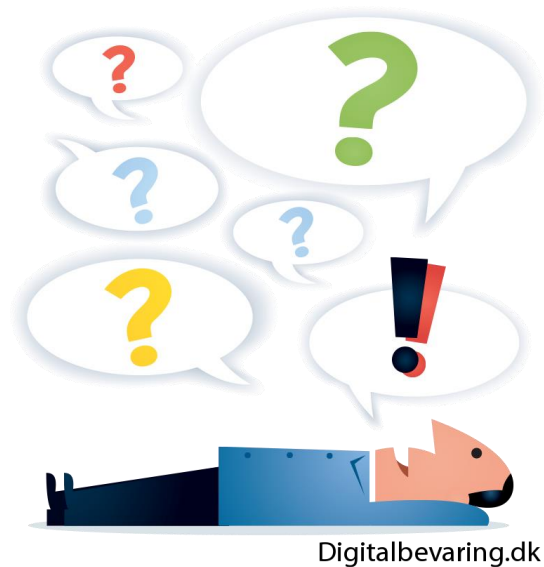
Originated from a DFG project

Germany-wide community
(in use at about 40 institutions)

The screenshot shows the RDMO web interface. At the top, there is a dark blue navigation bar with the RDMO logo and links for 'My projects', 'Help', and 'Back to project'. The main content area is titled 'Questionnaire' and 'Technical classification / Data size'. Below the title, there is a text instruction: 'Please fill in the form for each dataset. The different datasets will be referred to in following questions. You can add a new dataset using the green button. Once created, you can edit or delete datasets using the buttons in the top right corner.' Below this, there is a form with a text input field containing 'dataset1' and a green 'Add dataset' button. The next section is 'What is the actual or expected size of the dataset?' with a list of radio button options: 'less than 1 GB', '1 GB to 1 TB', '1 TB to 100 TB', 'more than 100 TB', 'exact size: [input field]', and 'not yet defined'. The final section is 'How much data is produced per year?' with a text input field and a note: 'Optional. This is only of concern if the data production rate reaches TB scale.' At the bottom, there are 'Back', 'Skip', 'Save', and 'Save and proceed' buttons.

RDM at RUB: Introduction

- Training courses
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- Framework:
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- Research Data Management Organiser (RDMO) as a tool for creating data management plans
- **Consulting services**



RDM: Consulting Topics

- Creating data management plans
 - Tool: RDMO (RDM Organiser)
- Application for RDM resources in third-party funding applications
- Use of tools and methods
- Data documentation / creation of metadata schemas
- Data publication and archiving (including non-RUB infrastructure)
- Creating RDM policies and defining project-specific responsibilities
- General guidance concerning legal questions (no legal advice!)

Contact:
researchdata@rub.de

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Storing Research Data

at Ruhr-University

Tools for “hot” data

- **Gitlab:** versioning of program code and small files
 - 2 GB per project
 - Data storage at RUB
- **Sciebo:** cloud service for NRW universities
 - 30 GB for students, 500 GB for employees
 - Data storage in Münster

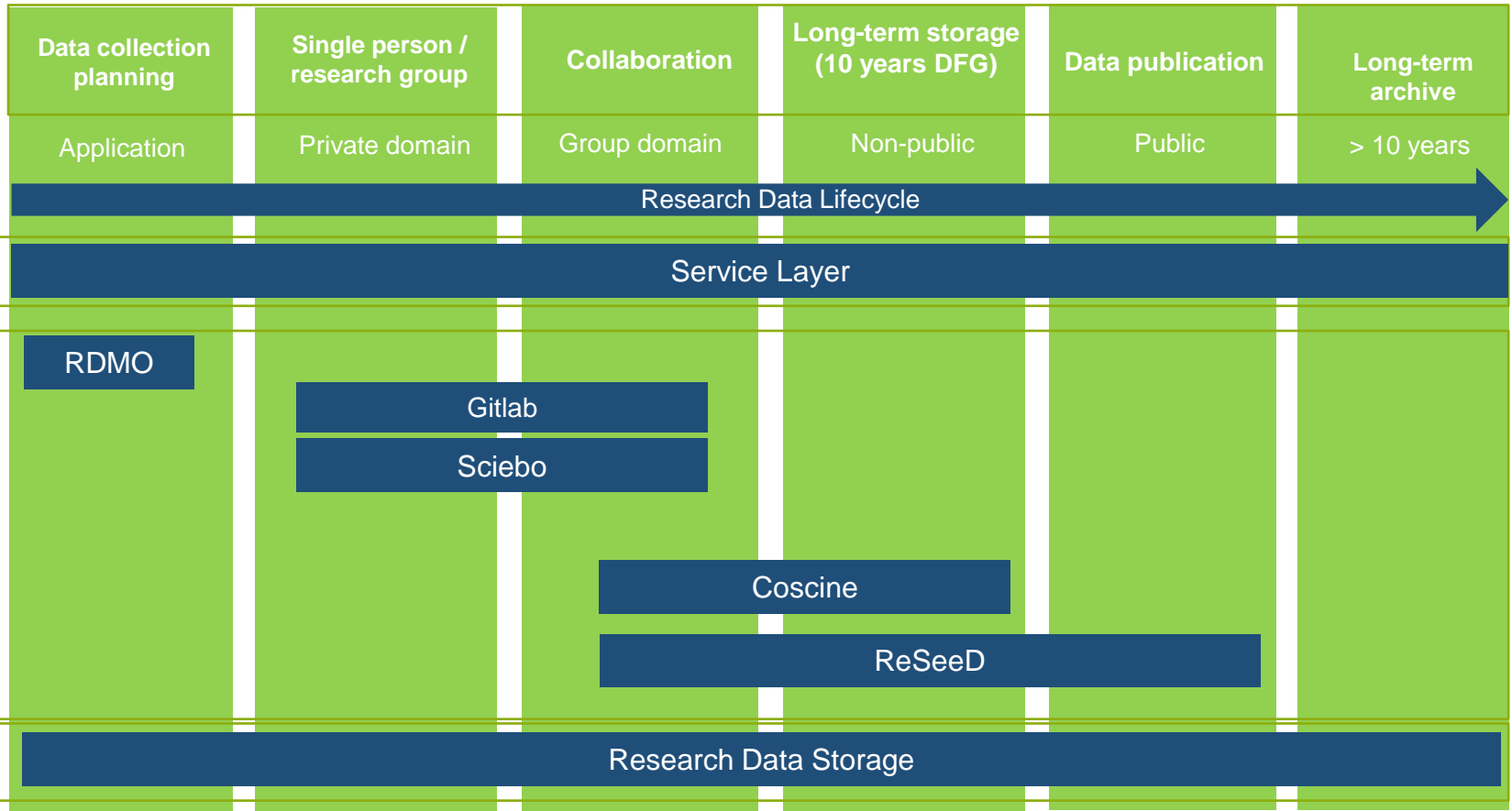
→ Tools for **active** data management and collaboration
(data is deleted after leaving RUB)

Tools for long-term data retention

- **Coscine**: tool for structured data storage and archiving
 - Tool of RWTH Aachen, **will be available at RUB in 2024**
 - Metadata storage in Aachen, data storage at RUB
 - 100 GB per person
 - Tool for archiving, not for publication
- **ReSeeD**
 - New RDM tool at RUB
 - Data and metadata storage at RUB
 - 50 GB for *active data*, 250 GB for *archive*
 - Archiving and **publication**



- Storage up to 10 years after end of project
- Mandatory assignment of metadata



Research data storage at RUB

Object storage for central storage of research data

- Hardware redundancy, **no backup**
- 2 infrastructures: **consortium UA Ruhr** (150-300 TB storage for RUB, depending on redundancy model) and **NRW consortium**: UA Ruhr, RWTH Aachen, FH Aachen, University of Cologne (2 PB storage for RUB)

Research data storage also possible independently of RDM tools

Requirements:

- Documented RDM concept and metadata assignment for all data
- Estimated data volume and end of data storage
- Contact person and Finanzstelle (33 Euros per TB and year)

Questions?

...up to now

ReSeeD

Research Data Management System

ReSeeD: How it all began

Market standard system scope:

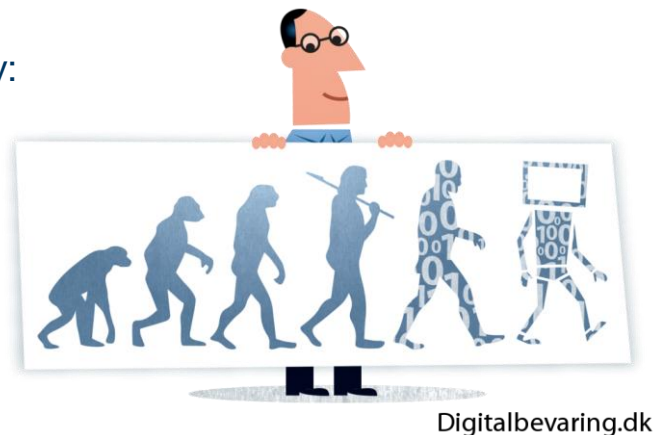
- Metadata assignment, up- and download, simple search

Starting point: Collecting requirements with research use case

Aim: Enable collaboration in **active research** workflows, especially:

- Differentiated visibility of data
- Review process within the system
- Archiving and publication **in the same tool**
- Faceted search

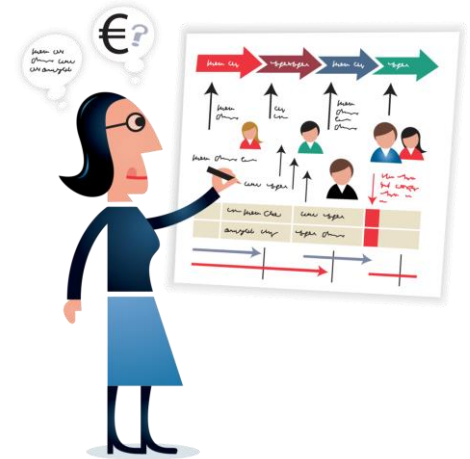
→ **No software on the market that covers all requirements**



ReSeeD: Implementation

Various open source solutions, **but adjustments** always necessary, therefore:

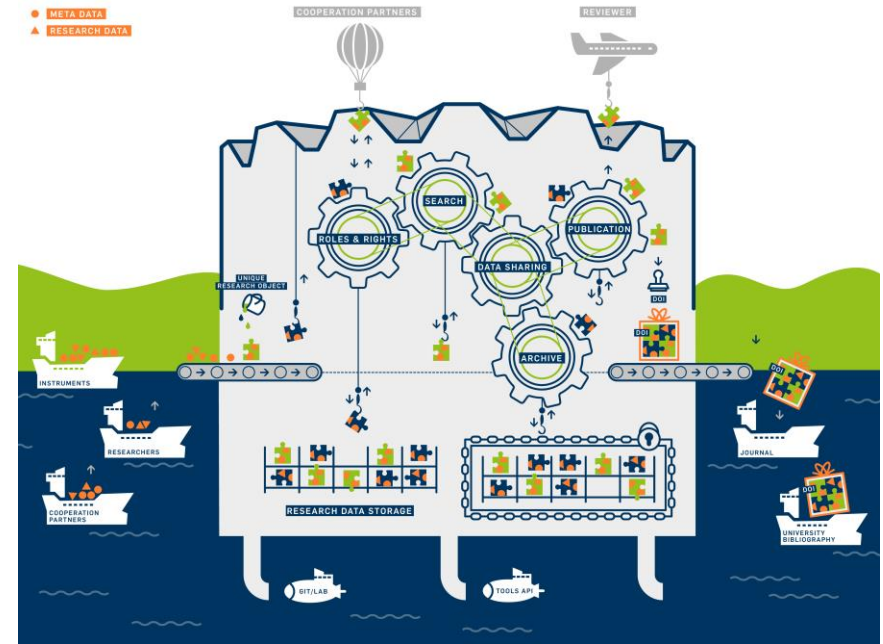
- Selection of a **globally** used software stack with **broad** and **active community** support, wide range of **functions** and high **flexibility**
- Implementation of required adjustments by an external service provider
- Development started in early 2022



Digitalbevaring.dk

ReSeeD: Key features

- Differentiated visibility of data
→ roles & permissions
- Review process within the system
- Data sharing (also outside the tool)
- Login for project partners via ORCID
- Archiving and publication **in the same tool**
- Faceted search
- flexible adjustments to the system possible
(e.g. API for ingest tools)

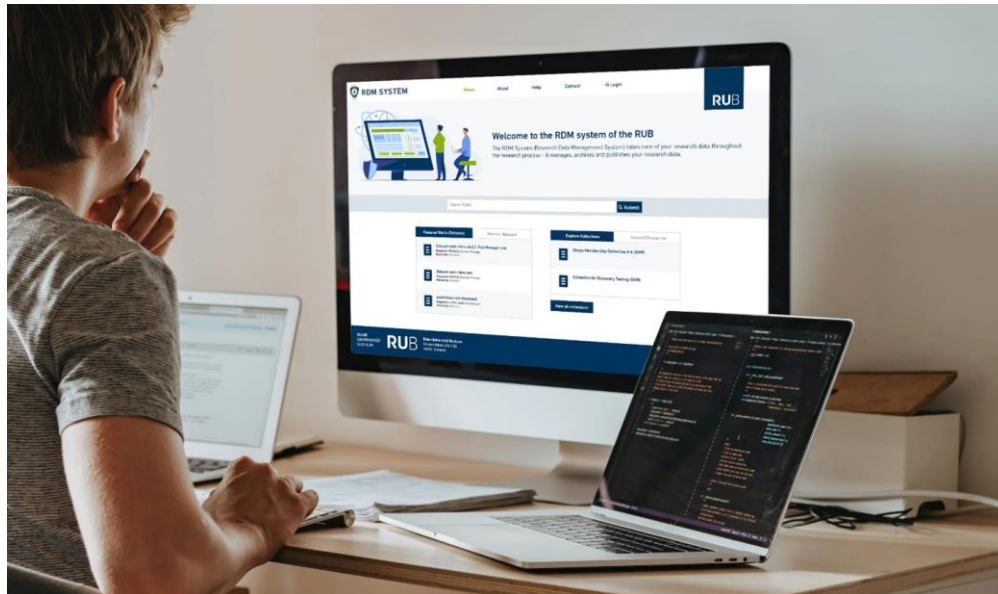


ReSeeD

Examples of Workflows

Examples of working with RDM system

1. Login
2. Create & archive dataset
3. Search



1. Login

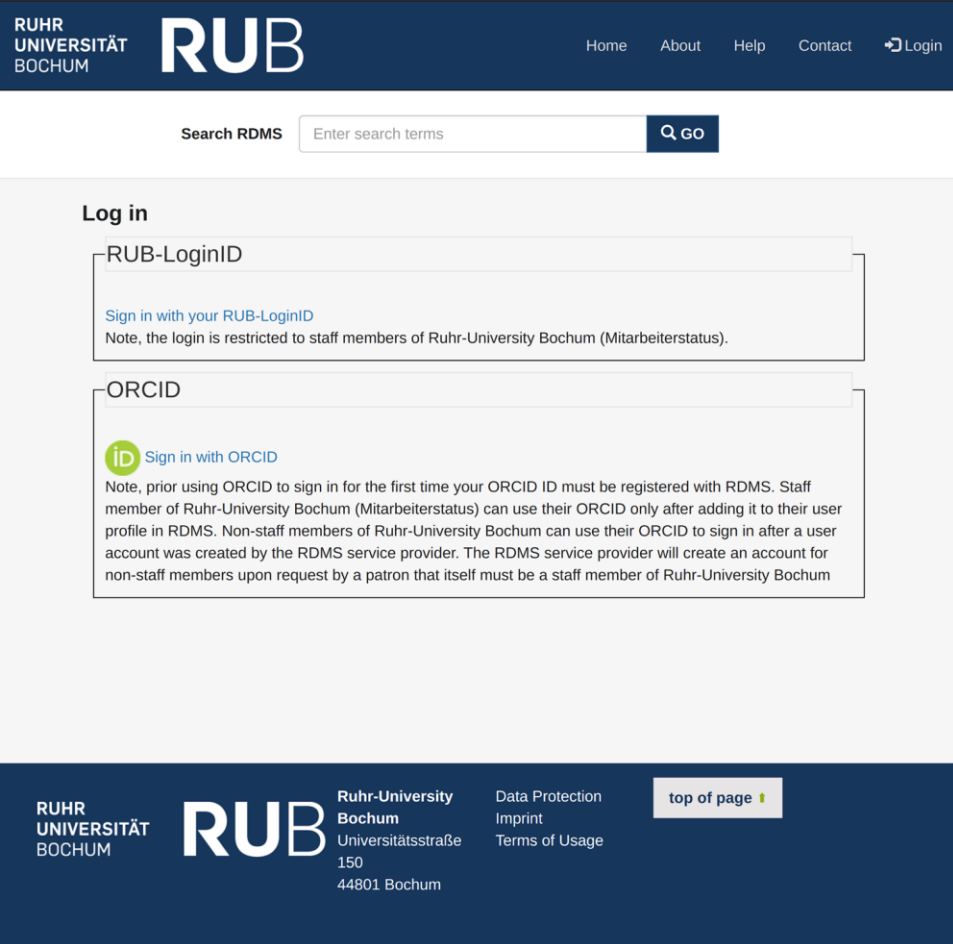
RUB login

Easily accessible for all RUB employees

ORCID login

Login with the most widely used author ID in scholarly publishing

<https://rdms.rd.ruhr-uni-bochum.de>



The screenshot shows the top navigation bar of the RUB website with links for Home, About, Help, Contact, and Login. Below is a search bar for RDMS with the text "Search RDMS" and "Enter search terms" and a "GO" button. The main content area is titled "Log in" and contains two login options: "RUB-LoginID" and "ORCID". The "RUB-LoginID" section includes a link "Sign in with your RUB-LoginID" and a note: "Note, the login is restricted to staff members of Ruhr-University Bochum (Mitarbeiterstatus)". The "ORCID" section includes a link "Sign in with ORCID" and a note: "Note, prior using ORCID to sign in for the first time your ORCID ID must be registered with RDMS. Staff member of Ruhr-University Bochum (Mitarbeiterstatus) can use their ORCID only after adding it to their user profile in RDMS. Non-staff members of Ruhr-University Bochum can use their ORCID to sign in after a user account was created by the RDMS service provider. The RDMS service provider will create an account for non-staff members upon request by a patron that itself must be a staff member of Ruhr-University Bochum". The footer contains the RUB logo, contact information for Ruhr-University Bochum, and links for Data Protection, Imprint, and Terms of Usage, along with a "top of page" button.

2. Create & archive dataset

Enter metadata

Upload files

Share Data

Submit archiving request, review starts, archiving and publication after approval

Add New Dataset

Required Description References Funding Files Relationships

Sharing

Title required

A name to aid in identifying a work (dataset).

The Influence of Nitsche Stabilization on Geometric Multigrid for the Finite Cell Method

Creators and Contributors required

Authors or contributors to the work (dataset). Enter the Surname, the Given name, and select their Role. A person can have multiple Given names.
For affiliation, enter details of the affiliation, e.g. Chair, Institute, Faculty, University

Given name * Günther

Surname * Meschke

Role * author

Orcid https://orcid.org/0000-0003-2277-1327

Affiliation Institute for Structural Mechanics, Ruhr University Bochum, Un

Given name * Andreas

Surname * Vogel

Role * author

Orcid https://orcid.org/0000-0002-7429-0667

Affiliation High Performance Computing, Ruhr University Bochum, Unive

[✖ Remove](#)

Save Work (dataset)

Requirements

- ✓ Describe your work (dataset)
- ✓ Check deposit agreement

Visibility

- Public**
Make available to all.
- RUB**
Restrict access to RUB.
- Embargo**
Set date for future release.
- Lease**
Set date for future reduced access.
- Private**
Keep to myself with option to share.

I have read and agree to the **Deposit Agreement**

SAVE

2. Create & archive dataset

Enter metadata

Upload files

Share data

Submit archiving request,
review starts, archiving and
publication after approval

Home / Dashboard / Works (datasets) / Add New Work (Dataset)

Add New Dataset

Required Description References Funding **Files** Relationships

Sharing

RDMS-Screenshot_DescribeDataSet-2023-06-12_12-25-12.png	473.72 KB	Delete
RDMS-Screenshot_Signed_in-2023-06-12_12-25-12.png	260.53 KB	Delete
RDMS-Screenshot_Login-2023-06-12_12-25-12.png	371.03 KB	Delete

You can add one or more files to associate with this work (dataset).

+ ADD FILES... + ADD FOLDER...

Drop files here.

Save Work (dataset)

Requirements

- ✓ Describe your work (dataset)
- ✓ Check deposit agreement

Visibility

- Public
Make available to all.
- RUB
Restrict access to RUB.
- Embargo
Set date for future release.
- Lease
Set date for future reduced access.
- Private
Keep to myself with option to share.

I have read and agree to the [Deposit Agreement](#)

SAVE

2. Create & archive dataset

Enter metadata

Upload files

Share data

Submit archiving request, review starts, archiving and publication after approval

Home / Dashboard / Works (datasets) / RDM-System Presentation / Edit

Edit Work (dataset)

Required Description References Funding Thumbnail Files Relationships **Sharing**

Regardless of the visibility settings for this work (dataset), you can also share it with other users and groups.

Add Sharing

Permissions are **not** saved until the "Save" button is pressed at the bottom of the page.

Add group: Choose Access **ADD**

Add user: Choose Access **ADD**

Currently Shared With

Person/Group	Access Level
Depositor (Johannes Frenzel)	Edit access
veronika.josenhans@ruhr-uni-bochum.de	View/Download <input type="checkbox"/>
admin@hyrax (admin@hyrax) Access granted via collection h415p952n	Edit access
Publication Manager (publication_manager@rdms) Access granted via collection h415p952n	Edit access

Save Work (dataset)

Requirements

- Describe your work (dataset)
- Check deposit agreement

Visibility

- Public**
Make available to all.
- RUB**
Restrict access to RUB.
- Embargo**
Set date for future release.
- Lease**
Set date for future reduced access.
- Private**
Keep to myself with option to share.

I have read and agree to the **Deposit Agreement**

SAVE CHANGES

2. Create & archive dataset

Enter metadata

Select visibility

Upload files

Submit archiving request, review starts, archiving and publication after approval

Home / Dashboard / Works (datasets) / RDM-System Presentation

Dataset

RDM-System Presentation Private Draft

[Add to collection](#) [Analytics](#) [Edit work \(dataset\)](#) [File Manager](#) [Attach Child](#) [Delete](#)

Review and Approval >

Actions

Deposit

Comment Only

Review Comment:

Let the reviewer know if you would like the dataset to be published or archived.

Dear Reviewer, please consider this dataset for archiving with the RDM-System. Regards, John Doe (RDS, RUB)

SUBMIT

Previous Comments

2. Create & archive dataset

Enter metadata

Select visibility

Upload files

Submit archiving request, review starts, archiving and publication after approval

Home / Dashboard / Works (datasets) / RDM-System Presentation

Dataset

RDM-System Presentation

Private Pending review from publication manager

Add to collection Analytics Edit work (dataset) File Manager Attach Child Delete

Review and Approval

Actions

- Request Changes From Publication Manager
- Archive From Publication Manager
- Approval From Publication Manager
- Comment Only

Review Comment:

Let the reviewer know if you would like the dataset to be published or archived.

Approved. |

SUBMIT

Previous Comments

johannes.frenzel@ruhr-uni-bochum.de
Dear Reviewer, please consider this dataset for archiving with the RDM-System. Regards,
John Doe (RDS, RUB)

3. Search

Filter

Sort

Download

Search RDMS Q GO ALL ▾


Limit your search

Filtering by: **KEYWORD > NITSCHÉ'S METHOD** ✕ Start Over

1 entry found

SORT BY RELEVANCE **10 PER PAGE** ☰ ☰ ☰ 📄

The Influence of Nitsche Stabilization on Geometric Multigrid for the Finite Cell Method

 **Keyword:** Nitsche's method , finite element method, and Geometric multigrid solver ←

Depositor: Johannes Frenzel
Owner: publication_manager@rdms
Date Uploaded: 2023-06-20
Date Modified: 2023-06-20
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CC0 1.0 Universal
Resource Type: Dataset

Keyword ▾

Geometric multigrid solver	1
Nitsche's method ✕	1
finite element method	1

Date published ▸

Author ▾

Andreas Vogel	1
Günther Meschke	1
Seyed Saberi	1

Affiliation ▾

High Performance Computing, Ruhr University Bochum, Universitätsstr. 150, 44801 Bochum, Germany	1
Institute for Structural Mechanics, Ruhr University Bochum, Universitätsstr. 150, 44801 Bochum, Germany	1

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Search RDMS Q GO ALL ▾


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Filtering by: **KEYWORD > NITSCHES METHOD** ✕ Start Over

1 entry found

SORT BY RELEVANCE | 10 PER PAGE |

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Resource Type: Dataset

Type >

Resource type >

Keyword ▾

Geometric multigrid solver	1
Nitsche's method ✕	1
finite element method	1

Date published >

Author ▾

Andreas Vogel	1
Günther Meschke	1
Seyed Saberi	1

Affiliation ▾

High Performance Computing, Ruhr University Bochum, Universitätsstr. 150, 44801 Bochum, Germany	1
Institute for Structural Mechanics, Ruhr University Bochum, Universitätsstr. 150, 44801 Bochum, Germany	1

The Influence of Nitsche Stabilization on Geometric Multigrid for the Finite Cell Method

Public Published

Add to collection Analytics

DOWNLOAD ALL

CITATIONS

CITATIONS: ▾



Immersed finite element methods have been developed as a means to circumvent the costly mesh generation required in conventional finite element analysis. However, the numerical ill-conditioning of the resultant linear system of equations in such methods poses a challenge for iterative solvers. In this work, we focus on the finite cell method (FCM) with adaptive quadrature, adaptive mesh refinement (AMR) and Nitsche's method for the weak imposition of boundary conditions. An adaptive geometric multigrid solver is employed for the discretized problem. We study the influence of the mesh-dependent stabilization parameter in Nitsche's method on the performance of the geometric multigrid solver and its implications for the multilevel setup in general. A global and a local estimate based on generalized eigenvalue problems are used to choose the stabilization parameter. We find that the convergence rate of the solver is significantly affected by the stabilization parameter, the choice of the estimate and how the stabilization parameter is handled in multilevel configurations. The local estimate, computed on each grid, is found to be a robust method and leads to rapid convergence of the geometric multigrid solver.

Description ▾

Title

The Influence of Nitsche Stabilization on Geometric Multigrid for the Finite Cell Method

Creator or Contributor

Name [Seyed Saberi](#)
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Affiliation High Performance Computing, Ruhr University Bochum, Universitätsstr. 150, 44801 Bochum, Germany

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Name [Günther Meschke](#)
Role author
ORCID <https://orcid.org/0000-0003-2277-1327>
Affiliation Institute for Structural Mechanics, Ruhr University Bochum, Universitätsstr. 150, 44801 Bochum, Germany

Resource type

[Dataset](#)

Keyword

3. Search

Filter

Sort

Download

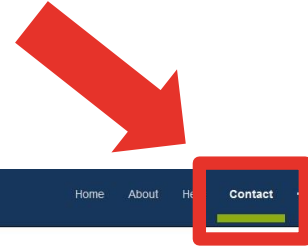
ReSeeD

The Future

Current status of ReSeeD

- System in Test/Beta operation
- Bugs / Unavailability of system possible
- Publication not yet available

Feedback wanted!



Home About Help **Contact** Login

Search ReSeeD

Please use the contact form to submit inquiries about this system; to report a problem you are experiencing with the system; to request assistance using the system; or to provide general feedback. See the Help page for additional information about this system.

Contact Form

Issue Type

Your Name

Your Email

Subject

Message

ReSeed: Next steps

Planned for spring/sommer 2024

- Regular hands-on user introductions
- Extended user tutorial on new homepage
- Feature: Publication available
- Structured user survey
→ optimization of usability and future feature requests



Digitalbevaring.dk

ReSeed: More Information

Test the system!

→ Hands-on workshop in **test environment**

→ **Today, 15:30 – 16:30 pm**

Registration:



Tutorial on RDM webpage (to be updated):

The screenshot shows the RDM Knowledge Base webpage. The header includes the RUB logo and navigation links for 'Browse Pages', 'Deutsch', and 'Feedback'. A sidebar menu on the left lists various resources, with 'ReSeed Guide' expanded to show 'ReSeed Tutorial Overview' as the selected item. The main content area displays the 'ReSeed Tutorial Overview' page, which includes a summary of the system's purpose, a table of contents with links to 'First steps', 'Adding and managing datasets', and 'Explore and preserve datasets', and a 'First steps' section with a link to the login page.

ReSeed: Stay in touch

Mailinglist

RDM at RUB

- Announcement of training on ReSeed and other tools
- Information about new tutorials
- Announcement of new features
- RDM networking events

→ Request for (structured) user feedback in spring 2024

Please subscribe!



<https://lists.ruhr-uni-bochum.de/mailman/listinfo/researchdata-news>

RDM at RUB: Colleagues wanted!

Software developer (E13, until end of 2028)

- Future development of ReSeeD



RDM consultant (E13, until end of 2028)

- Collection of user feedback
- Evaluation of feature requests
- Community building on RDM



Application Deadline (for both): 10th December

Link Collection

RDM at RUB

Link collection RDM at RUB

- **Website:** <https://www.ruhr-uni-bochum.de/researchdata/index.html>
- **RDM trainings:** <https://www.ruhr-uni-bochum.de/researchdata/training.html>
- **Moodle course:** <https://moodle.ruhr-uni-bochum.de/m/enrol/index.php?id=19338>
- **RDM Policy:** <https://www.ruhr-uni-bochum.de/researchdata/files/GuidelinesRDM.pdf>
- **Open Science Policy:** <https://public.ruhr-uni-bochum.de/ab/Lists/ab/Attachments/1815/ab1469.pdf>
- **Research Data Management Organiser (RDMO)**
 - Tutorial: https://www.ruhr-uni-bochum.de/researchdata/de/rdm_o_guide.html
 - Login: <https://rdmo.uaruhr.de/>
- **Gitlab:** <https://gitlab.ruhr-uni-bochum.de/>
- **Sciebo:** <https://hochschulcloud.nrw/en/index.html>
- **ReSeeD:**
 - Login: <https://datarepository.ruhr-uni-bochum.de/en/>
 - Tutorial (to be updated): https://www.ruhr-uni-bochum.de/researchdata/rdms_guide.html
- Information on **research data storage** (German): <https://www.it-services.ruhr-uni-bochum.de/services/fowi/forschungsdatenspeicher.html.de>
- **Mailinglist RDM at RUB:** <https://lists.ruhr-uni-bochum.de/mailman/listinfo/researchdata-news>

Thank you very much for your attention!

Dr. Nina Winter
Research Data Services @ RUB

