

• NFDI4Ing Conference 2022 Unifying the Understanding of RDM in Engineering Science

Fringe Programme



Unless otherwise noted for individual content, this work is licensed under a Creative Commons Attribution 4.0 International License. <u>https://creativecommons.org/licenses/by/4.0/</u> Author: Tobias Hamann WZL | RWTH Aachen University Organizational Development | Industrial Capabilities

> Campus Boulevard 30 52074 Aachen | GERMANY Phone: +49 151 72921981 t.hamann@wzl-mq.rwth-aachen.de www.wzl.rwth-aachen.de ORCiD 0000-0002-8021-5524

NFDI4Ing Conference 2022

Unifying the Understanding of RDM in Engineering Science

Arrival and virtual Check-In

08:45 - 09:00

NFDi4ing



(cc) BY

Welcome to the NFDI4Ing Conference

NFDI4Ing Conference 2022

Unifying the Understanding of RDM in Engineering Science

Welcome and program overview

09:00 - 09:15

NFDi4ing



Organization

Some organizational notes



Please mute yourself during the presentations.

For content-related questions or comments on presentations, please feel free to use the "raise your hand" reaction or the chat function.

For organizational questions we are available throughout the conference (preferably via chat).

Please remember that presenters are encouraged not to exceed their time slot. Sufficient breaks will be provided. Please also take advantage of the networking sessions. All submitted presentation slides will be published collectively at the end. The conference will not be recorded.





Agenda

General agenda structure



Fringe programme Everything taking place around the contributions and key notes

Key Notes Invited speakers present on one of their topics in the field of RDM

Presentations Contributors present on one of their topics in the field of RDM Workshops and Demonstrations Behold what RDM can offer as contributors get into exchange with you

It is possible to switch between the contributions.







(CC) BY

Agenda

Today's agenda structure

		09:00-09:15	Welcome and program overview		
***	A Contraction of the second se	09:15-09:45	"Unifying the Understanding of RDM in Engineering Science"		
		09:45-10:15	"On the FAIRness of Wireless Industrial Networking Datasets: Experiences from Experimental Research"		
		10:15-10:30	Short Break		
		10:30-12:00	Data Insight	Knowledge & Best Practices	re3data
		12:00-13:00	Lunch Break		
		13:00-14:30	Tools and Repositories	Ontologies	Data Literacy
		14:30-15:00	Coffee break and networking session		
		15:00-16:00	Data Handling	Interoperability	Coscine
		16:00-16:30	"Help!: Data Help Desk spurs scientists toward responsible research data management"		
	STIL on Unsplash splash.com/photos/fIRm0z3MEoA	16:30-17:00	Wrap up of the day and outlook	on the next day	





Organizational orientation of the conference



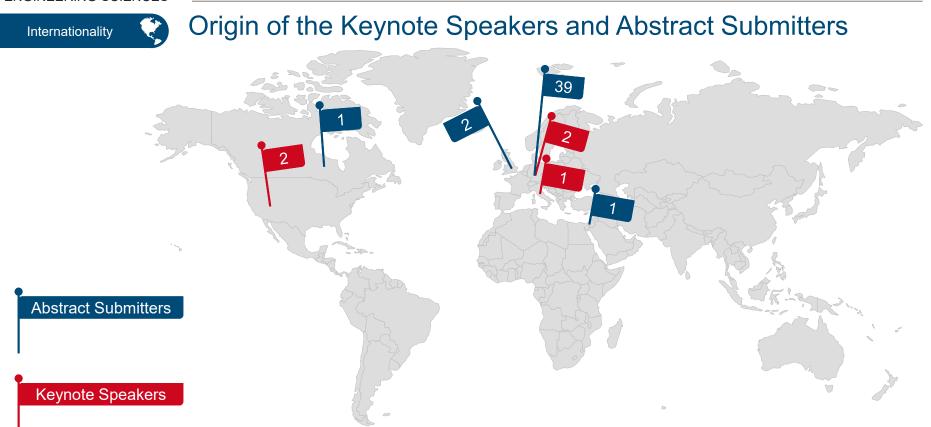


Internationality





(cc) BY

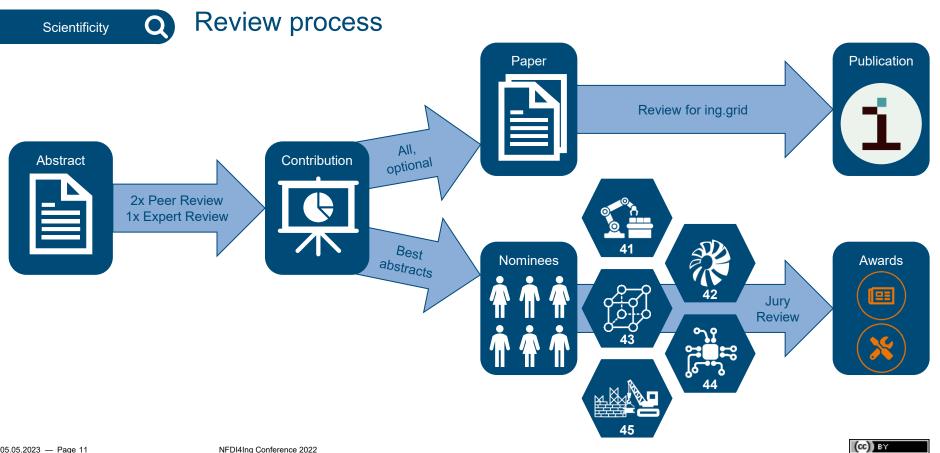




(cc) BY









Meet the Jury!

Dr.-phil. Ina Heine RWTH Aachen University



Mechanical and industrial engineering



Dr.-Ing. Benjamin Lambie TU Darmstadt



Thermal engineering and process engineering



Dr.-Ing. Michael Selzer Karlsruhe Institute of Technology



Materials science and engineering



Dr. David Hecker German Aerospace Center (DLR)



Computer science, systems and electrical engineering



Dr. Jan Linxweiler TU Braunschweig



Construction engineering and architecture



(cc)) BY



Scientificity







NFDI4Ing Award 2022 for the best Conference Contribution NFDI4Ing Award 2022 for the best RDM Solution

Contribution in this year's conference Endowment: 500€

Conditions apply: Nominated and awarded can be all **RDM** solutions that were created outside NFDI4Ing.

NFDI4Ing-external (Software) RDM-tools Endowment: 500€

Conditions apply: Nominated and awarded can be **all conference contributions**.

Please note: A tool and its related conference contribution cannot win both awards at the same time.





Today's nominees

11:00 - 11:30

ID: 809

Effective Research Data Sharing during the Plant Evolution in the automated Production Domain

Fan Ji

(Institute of Automation and Information Systems, TUM School of Engineering and Design, Technical University of Munich, Munich, Germany)

Nominee for:



NFDI4Ing Award 2022 for the best RDM Solution 13:00 - 14:30

ID:

Beyond Data Literacy in Engineering – What Media Literacy has to offer for Critical Data Literacy

Samira Khodaei (Information Management in Mechanical Engineering (IMA), RWTH Aachen University, Aachen, Germany)

Nominee for:



NFDI4Ing Award 2022 for the best Conference Contribution 15

15:30 - 16:00

ID: 852

Prepare RDM for Decentralized and Blockchain-Based Data Source

Wendy (Pengyin) Shan (Digital Initiatives, University of Alberta Library, Canada)

Nominee for:





NFDI4Ing Award 2022 for the best Conference Contribution NFDI4Ing Award 2022 for the best RDM Solution

(cc) BY



09:15 – 09:45 **Keynote: "Unifying the Understanding of RDM in Engineering Science"** Prof. Dr. Robert Schmitt Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University Co-Spokesperson of the NFDI4Ing







(CC) BY

09:45 – 10:15 Keynote: "On the FAIRness of Wireless Industrial Networking Datasets: Experiences from Experimental Research" Dr. Theofanis P. Raptis

Institute of Informatics and Telematics, National Research Council of Italy





NFDi4ing

10:15 – 10:30 Short Break

> Take part in our survey on the topic of research data management (RDM) in engineering.

nfdi4ing.de/survey



Next Presentation: 10:30

Photo by Nathan Dumlao on Unsplash https://unsplash.com/photos/6VhPY27jdps



<u>Б</u>

Currently the contributions take place in the breakout rooms

	Presentations A	Presentations B	Workshops	
10:30 – 12:00	Data Insight	Knowledge and Best Practices	How to use re3data – Creating,	
10:30 - 11:00	PIA – A concept for a Personal Information Assistant for Data Analysis	Competency Questions in Practice: Metadata Schema for Terahertz Research	editing, and analysing information on research data repositories	
11:00 – 11:30	Effective Research Data Sharing during the Plant Evolution in the automated Production Domain	Establishment of a Guideline for the Intuitive Creation of Semantic Models in the Internet of Production (IoP)		
11:30 – 12:00	Adaptive Visualizations for Cross- Stakeholder Development of Ontologies for Research Data Management	Data literacy right from the start - FAIR Data Management in Engineering Sciences in the first semester of the Bachelor of Mechanical Engineering - Sustainable Engineering at TU Darmstadt	to our agenda	
Click	this icon in your zoom menu to go to one of the Breakout Rooms	Breakout Session Reaktionen Mehr		





12:00 – 13:00 Lunch Break

Take part in our survey on the topic of research data management (RDM) in engineering.

nfdi4ing.de/survey



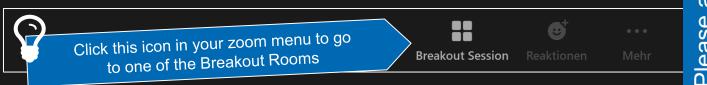
Next Presentation: 13:00



lease

Currently the contributions take place in the breakout rooms

	Presentations A	Presentations B	Workshops	
13:00 – 14:30	Tools and Repositories	Ontologies	Beyond Data Literacy in Engineering – What Media Literacy has to offer for Critical Data Literacy	
13:00 – 13:30	Metadata and Terminology Services. A Toolchain for comprehensive Data- and Knowledge Management	Metadata4Ing: An ontology for describing the generation and provenance of research data within a scientific activity		
13:30 – 14:00		Some important aspects of the NFDI4Cat ontology and metadata design		
14:00 – 14:30	Betty's (Re)Search Engine: A client- based search engine for research software stored in repositories	Expanding an Ontology with semantically linked CFD-Simulation Data by Segmentation into reusable Concepts		







14:30 – 15:00 Coffee Break and Networking Session

Breakout Session

Grab a coffee and join one of our Breakout Sessions to get in touch with others!

Next Presentation: 15:00



Currently the contributions take place in the breakout rooms

	Presentations A	Presentations B	Workshops
15:00 – 16:00	Data Handling	Interoperability	FAIR play integrated right from the
15:00 – 15:30	Metadata Standards and Metadata Generation in HPMC	OntoHuman: User Interface for Ontology-based Information Extraction from Technical Documents with Human-in-the-loop interaction	start - Coscine
15:30 – 16:00	Prepare RDM for Decentralized and Blockchain-Based Data Source	Implementing usability-improved data management plans in interdisciplinary engineering projects	to our agenda
Click	this icon in your zoom menu to go to one of the Breakout Rooms	Breakout Session Reaktionen Mehr	



16:00 – 16:30 Keynote: "Help!: Data Help Desk spurs scientists toward responsible research data management" Bradley Wade Bishop Ph.D. University of Tennessee





NFDI4Ing Conference 2022

Unifying the Understanding of RDM in Engineering Science

Wrap up and outlook

16:30 - 17:00





Link to today's slides



As of now:

Today's slides are available as filedrop on Sciebo.

Via the "**✓**"-symbol and then "**★**" all files can be downloaded together.

URL:

<u>https://rwth-</u> aachen.sciebo.de/s/tCKt7Az2oipvek4

Passwort:

FetchMelfYouCan

At a later date:



All presentation slides will be made available as conference proceedings on zenodo.org with DOI https://zenodo.org/communities/nfdi4ing/ (Will be announced via conference page)





Interactive feedback session

We would like to receive your feedback directly: What did you like? What can be improved?



The feedback will be collected via Zoom

All responses are presented to all participants and are anonymous.



Agenda

Toworrow's agenda structure

	09:00-09:15	Welcome and programme overv	iew	
09:15-09:45		"Data Management: Global challenges, Global Collaborations"		
- TR	09:45-10:15	ing.grid – FAIR Publishing with Open Review		
Manage Manag Manage Manage Manag	10:15-10:30	Short Break		
4 00 - 10 0 Act of the second	10:30-12:00	Research Software	FAIR Research	Wikidata
Minor Reserver	12:00-13:00	Lunch Break		
	13:00-13:30	"Data literacy - prerequisite for FAIR data supply and usage"		
	13:30-14:30	Collaborative Metadata	Supporting Software	RSpace
	14:30-15:00	Coffee break and networking session		
	15:00-16:00	Interoperable Metadata	How to be FAIR	Higher Code Quality
	16:00-16:30	"Building LIMS in FAIR Research Data communities"		
Photo by STIL on Unsplash	16:30-16:45	Awards		
https://unsplash.com/photos/flRm0z3MEoA	16:45-17:00	Outlook and farewell		
05.05.2023 — Page 27	NFDI4Ing Conference	e 2022		(CC) BY



Today's nominees

11:00 - 11:30

ID: 812

Towards Improved Findability of Energy Research Software by Developing a Metadata-based Registry

Stephan Ferenz (University of Oldenburg – Department of Computer Science, Oldenburg, Germany)

Nominee for:



NFDI4Ing Award 2022 for the best RDM Solution 13:30 - 14:30

RSpace: An Electronic Lab Noteook designed to enhance FAIR workflows and FAIRification of research data

Rory Macneil (Research Space, Edinburgh, Scotland, United Kingdom)

Nominee for:



NFDI4Ing Award 2022 for the best Conference Contribution



NFDI4Ing Award 2022 for the best RDM Solution

15:30 - 16:00

ID: 800

A-Match: Facilitating Data Exchange Between Different Applications via API Matching

Sarah Böning (German Aerospace Center (DLR) Institute of Data Science, Germany)

Nominee for:



NFDI4Ing Award 2022 for the best Conference Contribution





How to stay in touch

Arc	hetv	pes
	liety	PUU

Solving problems of special engineering archetypes



Base Services

Generation of tools and engineeringrelated RDM solutions



Special interest groups and sections

Overarching issues and solutions



NFDI4Ing Newsletter

Regular information from across NFDI4Ing

https://nfdi4ing.de/news/



NFDI4Ing Office

Reach our office via

geschaeftsstelle@nfdi4ing.de

ce via



Organizator E-Mail

Tobias Hamann: t.hamann@wzl-mq.rwthaachen.de

Mario Moser: m.moser@wzl-mq.rwthaachen.de



(cc) BY

Save the Date

NFDI4Ing conference

September 27th & 28th 2023 hosted by TU Dresden and SLUB Dresden

Pictures of the auditorium center: "© TUD/Liebert" Image of the SLUB: "©SLUB Dresden/Henrik Ahlers".

We look forward to seeing you!



NFDI4Ing Survey 2022 https://nfdi4ing.de/survey

NFDi4ing





Virtual Afterparty



Did you already take part in our survey on the topic of research data management (RDM) in engineering?

SAVE THE DATE: The NFDI4Ing conference 2023 will take place September 27th and 28th

NFDI4Ing Conference 2022

Unifying the Understanding of RDM in Engineering Science

Arrival and virtual Check-In

08:45 - 09:00

NFDi4ing



Welcome back to the NFDI4Ing Conference

NFDI4Ing Conference 2022

(cc) BY

NFDI4Ing Conference 2022

Unifying the Understanding of RDM in Engineering Science

Welcome and program overview

09:00 - 09:15

NFDi4ing



Organization

Some organizational notes



Please mute yourself during the presentations.

For content-related questions or comments on presentations, please feel free to use the "raise your hand" reaction or the chat function.

For organizational questions we are available throughout the conference (preferably via chat).

Please remember that presenters are encouraged not to exceed their time slot. Sufficient breaks will be provided. Please also take advantage of the networking sessions. All submitted presentation slides will be published collectively at the end. The conference will not be recorded.





Agenda

General agenda structure



Fringe programme Everything taking place around the contributions and key notes

Key Notes Invited speakers present on one of their topics in the field of RDM

Presentations Contributors present on one of their topics in the field of RDM *Workshops and Demonstrations Behold what RDM can offer as contributors get into exchange with you*

It is possible to switch between the contributions.





Agenda

Today's agenda structure







Organizational orientation of the conference



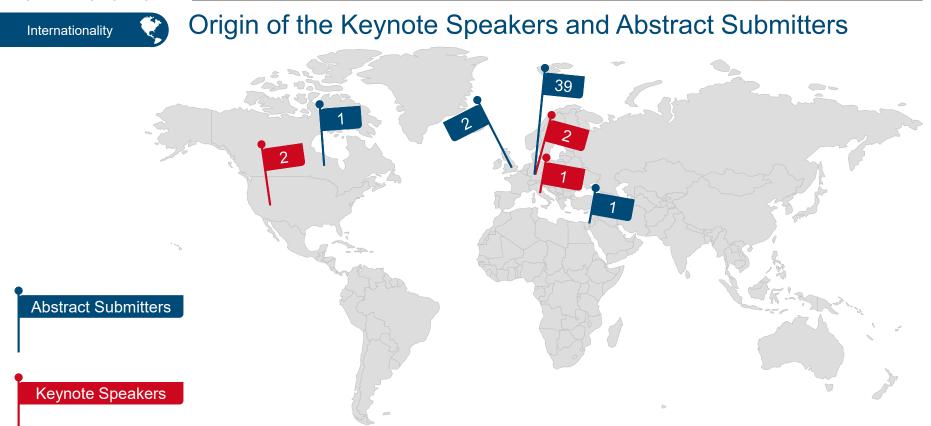
Internationality

Scientificity





(CC) BY

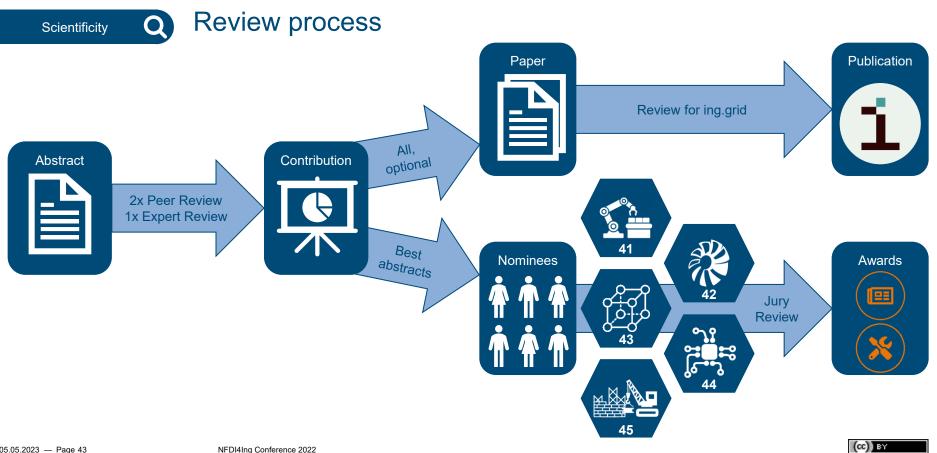




(cc) BY









Meet the Jury!

Dr.-phil. Ina Heine RWTH Aachen University



Mechanical and industrial engineering



Dr.-Ing. Benjamin Lambie TU Darmstadt



Thermal engineering and process engineering



Dr.-Ing. Michael Selzer Karlsruhe Institute of Technology



Materials science and engineering



Dr. David Hecker German Aerospace Center (DLR)



Computer science, systems and electrical engineering



Dr. Jan Linxweiler TU Braunschweig



Construction engineering and architecture







Scientificity







NFDI4Ing Award 2022 for the best Conference Contribution NFDI4Ing Award 2022 for the best RDM Solution

Contribution in this year's conference Endowment: 500€

Conditions apply: Nominated and awarded can be all **RDM** solutions that were created outside NFDI4Ing.

NFDI4Ing-external (Software) RDM-tools Endowment: 500€

Conditions apply: Nominated and awarded can be **all conference contributions**.

Please note: A tool and its related conference contribution cannot win both awards at the same time.





Today's nominees

11:00 - 11:30

ID: 812

Towards Improved Findability of Energy Research Software by Developing a Metadata-based Registry

Stephan Ferenz (University of Oldenburg – Department of Computer Science, Oldenburg, Germany)

Nominee for:



NFDI4Ing Award 2022 for the best RDM Solution 13:30 - 14:30

RSpace: An Electronic Lab Noteook designed to enhance FAIR workflows and FAIRification of research data

Rory Macneil (Research Space, Edinburgh, Scotland, United Kingdom)

Nominee for:



NFDI4Ing Award 2022 for the best Conference Contribution



NFDI4Ing Award 2022 for the best RDM Solution

15:30 - 16:00

A-Match: Facilitating Data Exchange Between Different Applications via API Matching

Sarah Böning (German Aerospace Center (DLR) Institute of Data Science, Germany)

Nominee for:



NFDI4Ing Award 2022 for the best Conference Contribution





09:15 – 09:45 Keynote: "Data Management: Global challenges, Global Collaborations"

Hilary Hanahoe Secretary General Research Data Alliance







09:45 – 10:15 **ing.grid – FAIR Publishing with Open Review** Kevin Logan Chair of Fluid Systems, TU Darmstadt







NFDi4ing

10:15 – 10:30 Short Break

> Take part in our survey on the topic of research data management (RDM) in engineering.

nfdi4ing.de/survey



Next Presentation: 10:30

Photo by Nathan Dumlao on Unsplash https://unsplash.com/photos/6VhPY27jdps



Currently the contributions take place in the breakout rooms

	Presentations A	Presentations B	Workshops
10:30 – 12:00	Research Software	FAIR Research	Wikidata beginners' workshop
10:30 – 11:00	An approach to improve the reuse of research software	Documentation for FAIR Modelling	
11:00 – 11:30	Towards Improved Findability of Energy Research Software by Developing a Metadata-based Registry	Maturity Models for RDM Processes – Data Access	to our agenda
11:30 – 12:00	"Continuous" Integration of Scientific Software (in Computational Science and Engineering)	FAIR-IMPACT: Expanding FAIR Solutions across the European Open Science Cloud	also refe
Click	this icon in your zoom menu to go to one of the Breakout Rooms	Breakout Session Reaktionen Mehr	





12:00 – 13:00 Lunch Break

Take part in our survey on the topic of research data management (RDM) in engineering.

nfdi4ing.de/survey



Next Presentation: 13:00



13:00 – 13:30 Keynote: "Data literacy - prerequisite for FAIR data supply and usage" Prof. Dr.-Ing. Peter F. Pelz Chair of Fluid Systems, TU Darmstadt







Currently the contributions take place in the breakout rooms

	Presentations A	Presentations B	Workshops
13:30 – 14:30	Tools and Repositories	Ontologies	RSpace: An Electronic Lab Noteook
13:30 – 14:00	Collaborative Metadata Definition using Controlled Vocabularies, and Ontologies - FAIR Data Showcase in Experimental Tribology	How GitOps solves Experiment Configuration Documentation	designed to enhance FAIR workflows and FAIRification of research data
14:00 - 14:30		Agile RDM with Open Source Software: CaosDB	to our ocondo
			to our agenda
Click	this icon in your zoom menu to go to one of the Breakout Rooms	Breakout Session Reaktionen Mehr	





14:30 – 15:00 Coffee Break and Networking Session

Breakout Session

Grab a coffee and join one of our Breakout Sessions to get in touch with others!

Next Presentation: 15:00



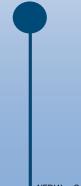
Currently the contributions take place in the breakout rooms

	Presentations A	Presentations B	Workshops
15:00 – 16:00	Interoperable Metadata	How to be FAIR	A No-Nonsense Guide to Higher Code Quality for Researchers - feat. Unit Testing
15:00 – 15:30	Automatic Extraction of Descriptive Metadata to Promote the Usage of RDM Tools	Making Research Data Findable - B2FIND	
15:30 – 16:00	A-Match: Facilitating Data Exchange Between Different Applications via API Matching	SaxFDM – towards a comprehensive research data management support net-work for Saxony	to our agenda
Click	this icon in your zoom menu to go to one of the Breakout Rooms	Breakout Session Reaktionen Meh	
5.05.2023 — Seite 55	NFDI4Ing Conference 2022 / Meeting		



16:00 – 16:30 Keynote: "Building LIMS in FAIR Research Data communities"

Gretchen Greene Ph.D. National Institute of Standards and Technology





NFDI4Ing Conference 2022

Unifying the Understanding of RDM in Engineering Science

Awards

16:30 - 16:45





Nominees for the NFDI4Ing Award 2022 for the best RDM Solution

26.10.2022 11:00 - 11:30

Presentation

Effective Research Data Sharing during the Plant Evolution in the automated **Production Domain**

Fan Ji

(Institute of Automation and Information Systems, TUM School of Engineering and Design, Technical University of Munich, Munich, Germany)

Nominee for:

26.10.2022 15:30 - 16:00 Presentation

Prepare RDM for **Decentralized and Blockchain-Based Data** Source

Wendy (Pengyin) Shan (Digital Initiatives, University of Alberta Library, Canada)

Nominee for:



27.10.2022 11:00 - 11:30

based Registry

Stephan Ferenz

Germany)

Nominee for:

Towards Improved

Findability of Energy

Research Software by

Developing a Metadata-

(University of Oldenburg -

Department of Computer

Science, Oldenburg,

Presentation

27.10.2022 13:30 - 14:30 Workshop

RSpace: An Electronic Lab Noteook designed to enhance FAIR workflows and FAIRification of research data

Rory Macneil (Research Space, Edinburgh, Scotland, United Kingdom)

Nominee for:



(cc) BY



Winner of the NFDI4Ing Award 2022 for the **best RDM Solution**

RSpace: An Electronic Lab Noteook designed to enhance FAIR workflows and FAIRification of research data



ID: 826

Rory Macneil

Research Space

#ElectronicLabNotebook #Software #ELN #SampleManagement #Reproducibility





Nominees for the NFDI4Ing Award 2022 for the best Conference Contribution

26.10.2022 13:00 - 14:30

Beyond Data Literacy in Engineering – What Media Literacy has to offer for **Critical Data Literacy**

Samira Khodaei (Information Management in Mechanical Engineering (IMA), RWTH Aachen University, Aachen, Germany)

Nominee for:

Workshop

26.10.2022 15:30 - 16:00 Presentation

Prepare RDM for **Decentralized and Blockchain-Based Data** Source

Wendy (Pengyin) Shan (Digital Initiatives, University of Alberta Library, Canada)

Nominee for:



RSpace: An Electronic Lab

Noteook designed to

and FAIRification of

research data

Nominee for:

27.10.2022 15:30 - 16:00 Presentation

A-Match: Facilitating Data Exchange Between **Different Applications via API Matching**

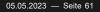
Sarah Böning (German Aerospace Center (DLR) Institute of Data Science, Germany)

Nominee for:



05.05.2023 — Page 60

(CC) BY



NFDI4Ing Conference 2022/ Meeting

NATIONAL RESEARCH DATA INFRASTRUCTURE FOR ENGINEERING SCIENCES _____

Winner of the NFDI4Ing Award 2022 for the **best Conference Contribution**

Prepare RDM for Decentralized and Blockchain-Based Data Source

Wendy (Pengyin) Shan Digital Initiatives, University of Alberta Library, Canada

#Blockchain #Dezentralization #DataScources #DataSharing #AccessManagement





ID: 852

NFDI4Ing Conference 2022

Unifying the Understanding of RDM in Engineering Science

Outlook and farewell

16:45 - 17:00

NFDi4ing



Link to today's and yesterday's slides



As of now:

Today's and yesterday's slides are available as filedrop on Sciebo.

Via the "**✓**"-symbol and then "**★**" all files can be downloaded together.

URL:

<u>https://rwth-</u> aachen.sciebo.de/s/tCKt7Az2oipvek4

Passwort:

FetchMelfYouCan

At a later date:



All presentation slides will be made available as conference proceedings on zenodo.org with DOI https://zenodo.org/communities/nfdi4ing/ (Will be announced via conference page)





Interactive feedback session

We would like to receive your feedback directly: What did you like? What can be improved?



The feedback will be collected via Zoom

All responses are presented to all participants and are anonymous.



How to stay in touch

Arc	hetv	pes
	liety	PUU

Solving problems of special engineering archetypes



Base Services

Generation of tools and engineeringrelated RDM solutions



Special interest groups and sections

Overarching issues and solutions



NFDI4Ing Newsletter

Regular information from across NFDI4Ing

https://nfdi4ing.de/news/



NFDI4Ing Office

Reach our office via

geschaeftsstelle@nfdi4ing.de

ce via



Organizator E-Mail

Tobias Hamann: t.hamann@wzl-mq.rwthaachen.de

Mario Moser: m.moser@wzl-mq.rwthaachen.de



05.05.2023 — Page 65

(cc) BY

Save the Date

NFDI4Ing conference

September 27th & 28th 2023 hosted by TU Dresden and SLUB Dresden

Pictures of the auditorium center: "© TUD/Liebert" Image of the SLUB: "©SLUB Dresden/Henrik Ahlers".

We look forward to seeing you!



NFDI4Ing Survey 2022 https://nfdi4ing.de/survey

NFDi4ing





Virtual Afterparty



Did you already take part in our survey on the topic of research data management (RDM) in engineering?

SAVE THE DATE: The NFDI4Ing conference 2023 will take place September 27th and 28th



License notice and acknowledgements



Unless otherwise noted for individual content, this work is licensed under a Creative Commons Attribution 4.0 International License. <u>https://creativecommons.org/licenses/by/4.0/</u> Author: Tobias Hamann WZL | RWTH Aachen University Organizational Development | Industrial Capabilities

> Campus Boulevard 30 52074 Aachen | GERMANY Phone: +49 151 72921981 t.hamann@wzl.rwth-aachen.de www.wzl.rwth-aachen.de ORCiD 0000-0002-8021-5524

The authors would like to thank the Federal Government and the Heads of Government of the Länder, as well as the Joint Science Conference (GWK), for their funding and support within the framework of the NFDI4Ing consortium. Funded by the German Research Foundation (DFG) - project number 442146713.

