

# NFDI4Ing Conference 2022

Unifying the Understanding of RDM in Engineering Science

Fringe Programme



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WZL | RWTH Aachen University

Organizational Development | Industrial Capabilities</a>

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NATIONAL RESEARCH
DATA INFRASTRUCTURE FOR
ENGINEERING SCIENCES \_



# Welcome to the NFDI4Ing Conference



#### 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.



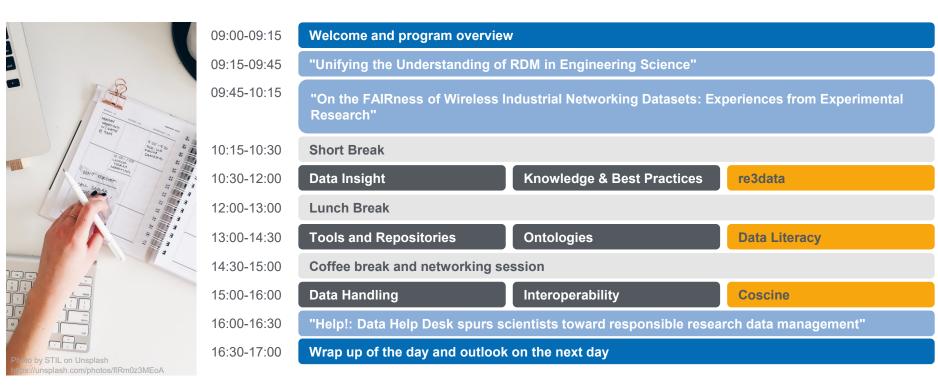
25.11.2022 — Page 6 NFDI4Ing Conference 2022



#### Agenda



### Today's agenda structure







#### Oriantation



# Organizational orientation of the conference



# Internationality

Photo by Artem Beliaikin on Unsplash https://unsplash.com/photos/42OiN2WhCPs

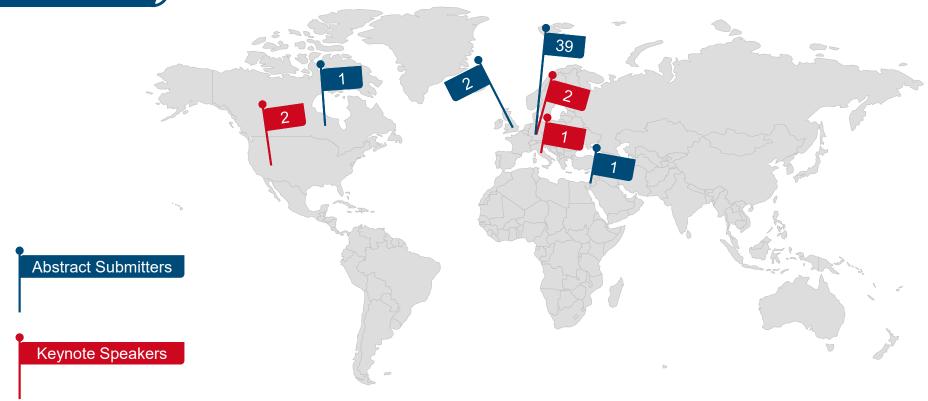






Internationality

# Origin of the Keynote Speakers and Abstract Submitters

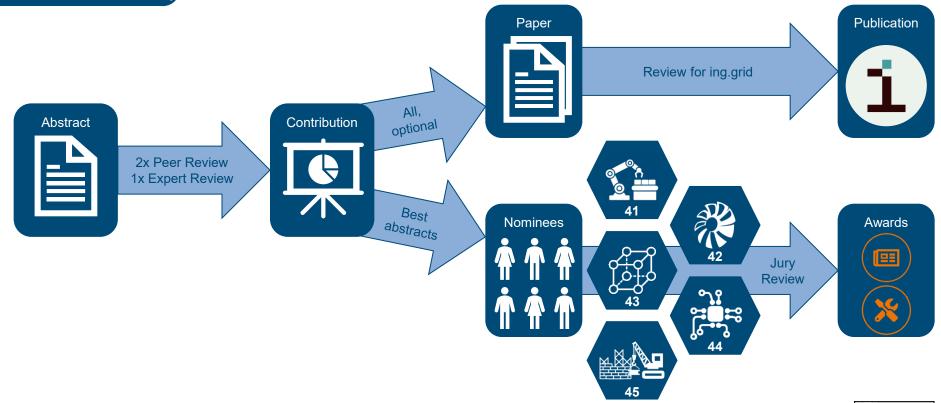




Origin of the registered participants Internationality



Scientificity Q Review process





#### 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



#### Awards





# NFDI4Ing Award 2022 for the best Conference Contribution

Contribution in this year's conference

Endowment: 500€

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



# NFDI4Ing Award 2022 for the best RDM Solution

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

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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: 831

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 15:30 - 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



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





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







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



## 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, editing, and analysing information on research data repositories
10:30 – 11:00	PIA – A concept for a Personal Information Assistant for Data Analysis	Competency Questions in Practice: Metadata Schema for Terahertz Research	
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





••• 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



#### 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 –
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	What Media Literacy has to offer for Critical Data Literacy
13:30 – 14:00		Some important aspects of the NFDI4Cat ontology and metadata design	to our agenda
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	



Click this icon in your zoom menu to go to one of the Breakout Rooms





••• 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

- sin			
	Presentations A	Presentations B	Workshops
15:00 – 16:00	Data Handling	Interoperability	FAIR play integrated right from the start - Coscine
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	
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











16:00 - 16:30

Keynote: "Help!: Data Help Desk spurs scientists toward responsible research data management"

Bradley Wade Bishop Ph.D. University of Tennessee





### 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 overview			
09:15-09:45	"Data Management: Global challenges, Global Collaborations"			
09:45-10:15	ing.grid – FAIR Publishing with Open Review			
10:15-10:30	Short Break			
10:30-12:00	Research Software	FAIR Research	Wikidata	
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"			
16:30-16:45	Awards			
16:45-17:00	Outlook and farewell			
NFDI4Ing Conference 2022				



# Today's nominees

11:00 - 11:30

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

ID: 826

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

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(Research Space, Edinburgh, Scotland, United Kingdom)

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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)

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### How to stay in touch

#### **Archetypes**

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



#### **Organizator E-Mail**

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

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













# Virtual Afterparty



Q

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





NATIONAL RESEARCH
DATA INFRASTRUCTURE FOR
ENGINEERING SCIENCES \_



# Welcome back to the NFDI4Ing Conference



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25.11.2022 — Page 38 NFDI4Ing Conference 2022



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09:00-09:15	Welcome and programme overview			
09:15-09:45	"Data Management: Global challenges, Global Collaborations"			
09:45-10:15	ing.grid – FAIR Publishing with Open Review			
10:15-10:30	Short Break			
10:30-12:00	Research Software	FAIR Research	Wikidata	
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"			
16:30-16:45	Awards			
16:45-17:00	Outlook and farewell			
NFDI4Ing Conference 2022				



#### Oriantation



### Organizational orientation of the conference



## Internationality

Photo by Artem Beliaikin on Unsplash https://unsplash.com/photos/420iN2WhCPs

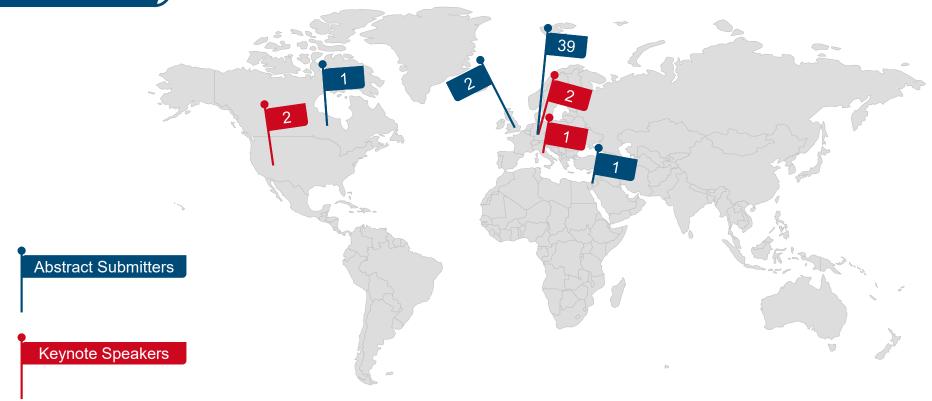






Internationality

# Origin of the Keynote Speakers and Abstract Submitters









Review process Scientificity Paper **Publication** Review for ing.grid All, **Abstract** Contribution optional 2x Peer Review 1x Expert Review Best **Nominees** Awards abstracts Jury Review



### 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





NFDI4Ing Conference 2022



#### Scientificity



### **Awards**





# NFDI4Ing Award 2022 for the best Conference Contribution

Contribution in this year's conference

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# NFDI4Ing Award 2022 for the best RDM Solution

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

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## 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

ID: 826

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

Rory Macneil

(Research Space, Edinburgh, Scotland, United Kingdom)

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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:



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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







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



### Currently the contributions take place in the breakout rooms

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	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	

to our agenda



Click this icon in your zoom menu to go to one of the Breakout Rooms











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 designed to enhance FAIR workflows and FAIRification of research data
13:30 – 14:00	Collaborative Metadata Definition using Controlled Vocabularies, and Ontologies - FAIR Data Showcase in Experimental Tribology	How GitOps solves Experiment Configuration Documentation	
14:00 – 14:30	. 57	Agile RDM with Open Source Software: CaosDB	to our octorido
			to our agenda



Click this icon in your zoom menu to go to one of the Breakout Rooms







Please also refer







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  to our agenda
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	



Click this icon in your zoom menu to go to one of the Breakout Rooms











16:00 - 16:30

# Keynote: "Building LIMS in FAIR Research Data communities"

Gretchen Greene Ph.D.

National Institute of Standards and Technology





### Nominees for the NFDI4Ing Award 2022 for the best RDM Solution

26.10.2022 ID: 809 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 ID: 852 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 ID: 812 11:00 - 11:30 Presentation

Towards Improved Findability of Energy Research Software by Developing a Metadatabased Registry

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

Nominee for:



27.10.2022 ID: 826 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:









ID: 826

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

# d to of

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

Rory Macneil

Research Space





### Nominees for the NFDI4Ing Award 2022 for the best Conference Contribution

26.10.2022 ID: 831 13:00 - 14:30 Workshop

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)

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

Nominee for:







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ID: 852

# Prepare RDM for Decentralized and Blockchain-Based Data Source

Wendy (Pengyin) Shan

Digital Initiatives, University of Alberta Library, Canada







### Link to today's and yesterday's slides



#### As of now:

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Passwort:

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### Interactive feedback session

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### How to stay in touch

### **Archetypes**

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

### **Organizator E-Mail**

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

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













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









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Author: Tobias Hamann

WZL | RWTH Aachen University

Organizational Development | Industrial Capabilities</a>

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