

PUNCH4NFDI — TA 7

Education, Training, Outreach, and Citizen Science

PUNCH4NFDI General Meeting

07.07.2025



TA7 People

WP1 Training Scientists



Arnulf Quadt



Baida Achkar

WP3 Outreach & Schools Uni Bonn



Sonja Felder



David Ohse



Frank Bertoldi

WP2 Educating Students TU Dortmund



Carsten Burgard



Kevin Kröninger

WP4 Citizen Science MPIfR/Uni Bonn, KIT



Michael Kramer

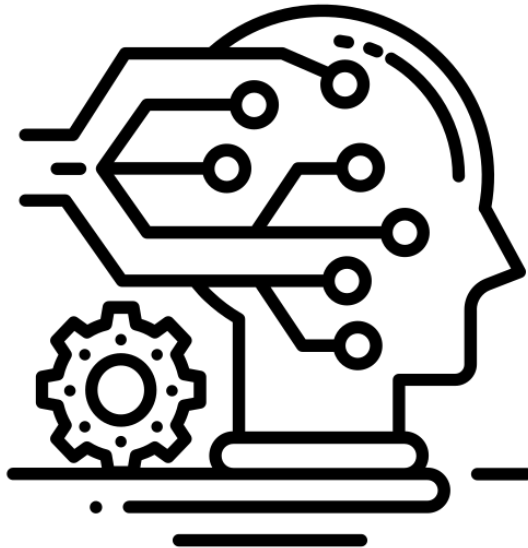


Ramesh Karuppusamy








Victoria Tokareva

TA7-WP1: TRAINING SCIENTISTS



Status of key deliverables

Deliverable ID	Due Date	Description	Status	Achieved
D-TA7-WP1-1	30 Sep 2026	Preparation of online and in-person courses and workshops including hands-on sessions with broad or topical scope workshops.	Ongoing	
D-TA7-WP1-2	30 Sep 2024	D-TA7-WP1-2 Report : "Establishment of the PUNCH4NFDI Young Academy."	Delivered	
D-TA7-WP1-3	30 Sep 2025	Development of a special programme and specific courses geared towards female scientists.	On track	
D-TA7-WP1-4	30 Sep 2024	D-TA7-WP1-4 Report : "Critical Review of the measures developed and Development of a Feedback System to Guide Education and Training."	Delivered	
D-TA7-WP1-5	30 Sep 2026	Documentation and long-term archiving of training material, service documentation, and tool descriptions in coordination with TIB Hannover.	In planning	

Empowering Women in STEM: First Panel



Breaking Barriers in Physics, Engineering & Data Science

Date: June 10, 2025 | Online (Zoom)

Attended: 21 of 33 Registered

Audience: STEM researchers, students, gender equity advocates

Panelists

- Prof. Dr. Sonja Schimmler (Fraunhofer FOKUS / TU Berlin)
- Prof. Dr. Lisa Beinborn (University of Göttingen)
- Prof. Dr. Hannah Elfner (Goethe University Frankfurt & GSI)
- Dr. Jolanta Zjupa (Jülich Supercomputing Centre)
- **Moderator:** Dr. Victoria Tokareva (KIT)

Key Themes

- Balancing career & caregiving
- Leadership pathways for women in STEM
- Mentorship & institutional support

Impact & Insights

- High engagement on leadership, work-life balance, mentorship
- **Top Tips** (shared post-event with panelists approval)

Urgent Academic Needs

- Flexible roles (part-time, reduced commitment)
- Affordable, flexible childcare
- Tenure clock reform, inclusion at all levels
- Support for non-linear & mid-level careers

Future Interests

- Leadership training
- Mentorship programs
- Institutional change workshops

Note: An [Event Review](#) available on PUNCH website.

What's Next for PUNCH-1.0: Goals Within Reach and How We'll Get There

Key Area	Deliverable(s)	Remaining / Ongoing Activities (to Sep 2026)
Documentation & Internal Collaboration	D-TA7-WP1-1 D-TA7-WP1-5	Ongoing migration of WP1 records and coordination with TA7-WPs Continuous documentation of PYA training events on intra.punch4nfdi Member of the support team @PUNCH Helpdesk system for Training. - Archive training materials & documentation (w/ TIB)
Mentoring & Community Support	D-TA7-WP1-3	- 4th round of 1:1 PYA mentoring (2026) <u>- 2nd Panel session on challenging topics for female scientists in STEM</u>
Training Programs	D-TA7-WP1-1 D-TA7-WP1-3	- Deliver technical trainings (git, clean code, containers in PUNCH4NFDI, workflows, DRPs, etc.) - Develop new formats for target groups
Archiving & Sustainability	D-TA7-WP1-5	- Curate and prepare training content for long-term archiving <u>- Coordinate standards with TIB?</u>

TA7-WP2: EDUCATING STUDENTS



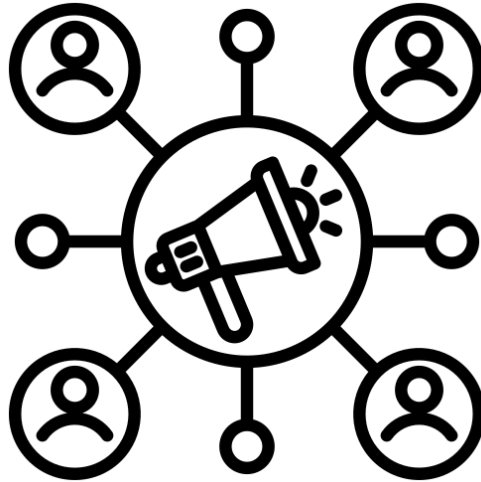
Key Activities and Responsibilities

Key Areas	Details
Surveying educational resources	<ul style="list-style-type: none">• Created online survey to collect results• In touch with educational resource hubs such as DALIA and other NFDI consortia such as FAIRmat for resource pooling and organization
Providing educational resources	<ul style="list-style-type: none">• Preparing and testing new teaching concepts at TU Dortmund• Modifications to lab courses to highlight FAIR data handling topics through data exchange exercises• Inception of new courses for fundamentals of data analysis for undergraduate (B.Sc.) levels using novel teaching techniques
Overseeing integration of NFDI topics into university curricula	<ul style="list-style-type: none">• Compilation of recommendation document• Inspired by educational resource survey• Review process by PUNCH and other NFDI consortia already started

Status of key deliverables

Deliverable ID	Due Date	Description	Status & Notes	Achieved
D-TA7-WP2-1	Sep 2022	Market survey of available teaching concepts and material	Survey completed; participation ongoing. Results evaluated. Coordination with FAIRmat ongoing.	✓ Yes (report pending)
D-TA7-WP2-2	Sep 2022	Development of standardized curriculum	Draft completed in Dec. Awaiting wider input from NFDI consortia.	✓ Yes (report pending)
D-TA7-WP2-3	Sep 2026	Development of teaching material for courses and independent learning	Course developed by Carsten, under second review. Pushing for integration into TU Dortmund mandatory curriculum as best practice. Material availability discussion ongoing.	In progress
D-TA7-WP2-4	Sep 2026	Aggregation of data resources and access to computing infrastructure	Resource allocation can not be done centrally, managed locally by lecturers. Included as best practice in curriculum.	In progress
D-TA7-WP2-5	Sep 2026	Coordination and initiation of educational events	Deliverable outdated due to existing universities RDM offerings. No duplication planned. Budget cut -> No resources.	Not applicable

TA7-WP3: OUTREACH & SCHOOLS



Status of key deliverables

D-1 (30 Sep 2026): Networking, outreach training, study on effectiveness of outreach, development of evaluation criteria.

D-2 (30 Sep 2026): Access to data and software for education and entertainment.

D-3 (30 Sep 2026): Tutorials and resources for teachers and students, material for masterclasses.

D-4 (30 Sep 2026): Study and test pedagogical approaches to promote data science to children.

D-5 (30 Sep 2024): Pilot extracurricular activities in schools, promote changes in school curricula. ✓

D-6 (30 Sep 2026): Support hackathons, rent a scientist, masterclasses, VO days.

- [Deliverable 7.3 - 5 “Pilot extracurricular activities in schools, promote changes in school curricula” report delivered](#)
- Other deliverables due in September 2026

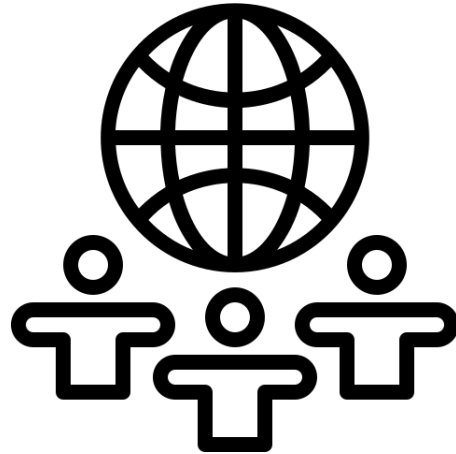
Educational Development and Training Initiatives

Topic / Achievement	Description / Realization	Resources / Deliverables	Team Member(s)	Contract End / Availability
School Internships	Develop and publish sustainable internship concept and catalogue (CC-License, e.g. Zenodo)	D-7.3-4, D-7.3-5; volunteers needed in Jan/Feb & Jun/Jul 2026	Sonja Felder	Sonja Felder (50% FTE): 09/2026
Teacher Training	New teacher training concept at intersection of astronomy, physics, data literacy; evaluated and handed over	D-7.3-3, D-7.3-5; funds needed for 2026 event	Sonja Felder, Netzwerk Teilchenwelt	Sonja Felder: 09/2026
Masterclasses	Astronomy masterclass for schools; test phase ongoing	D-7.3-2, D-7.3-4, D-7.3-5, D-7.3-6; student assistant needed end of 2025/26	Sonja Felder, AlFA members	Sonja Felder: 09/2026

Science Communication

Topic / Achievement	Description / Realization	Resources / Deliverables	Team Member(s)	Contract End / Availability
Escape Room: Run MVP	Modular, hands-on escape room on “Energy of the Future” for young adults; public installation planned	D-7.3-1, D-7.3-2, D-7.3-3; possible student assistant 2026	David Ohse, Nele Lassalle	DO: 09/2026 (60 % FTE): NL: 10/2025
Bytes4Science: Dice Telescope Game	Finalize and distribute game as an OER; reach out to educators	D-7.3-3, D-7.3-4; ~1,000 € for prototypes	David Ohse, Niklas Kramer	DO: 09/2026 NK: 09/2025
Phyusical: Munich 2026 Performance	Public shows at Deutsches Museum München (23–26 March 2026)	D-7.3-1, D-7.3-4, D-7.3-6	David Ohse, Physikshow	DO: 09/2026
Intro2SciComm: Workshop Material	Publish “3D-Storytelling” & “From Big Bang to Board Game” slides	D-7.3-1, D-7.3-3	David Ohse	DO: 09/2026



TA7-WP4: CITIZEN SCIENCE



Key Activities and Responsibilities

Key Areas	Details
Support citizen science in PUNCH Sciences	<ul style="list-style-type: none">• Citizen Science Landscape overview• Mapping out potential research applications in citizen science• Support PUNCH Communities in design and promotion of citizen science projects
Infrastructural support of Citizen Science	<ul style="list-style-type: none">• Providing soft- and hardware infrastructure for citizen science projects• Publication of open datasets to support interdisciplinary open research
Public engagement	<ul style="list-style-type: none">• Collaboration with citizen scientists• Engagement with schools, universities and general audience for citizen science promotion• Promoting values of open science and open data in PUNCH Communities and NFDI

Status of key deliverables

Deliverable ID	Due Date	Description	Update	Achieved
D-TA7-WP4-1	Dec 2024	Map out potential research applications in citizen science.	<ul style="list-style-type: none"> Publication of materials for PUNCH DPG 2025 booth on Zenodo. Deliverable Report Draft Available 	 Yes (report pending)
D-TA7-WP4-2	Dec 2024	Prepare data sets and provide soft- and hardware infrastructure.	<ul style="list-style-type: none"> Einstein@Home involvement: CS Project search for pulsars in MeerKAT Globular cluster data Data processing underway 	 Yes (report pending)
D-TA7-WP4-3	Sep 2026	Pilot 6–12 month projects, engage schools and universities, evaluate results.	<ul style="list-style-type: none"> Workforce insufficient; timeline shifted and scope to be reduced. Proposal to integrate with “MoonBounce” project. 	In planning
D-TA7-WP4-4	Sep 2026	Launch further projects jointly with the physics community.	<ul style="list-style-type: none"> Update unavailable 	Not Yet

Thanks a lot for your attention!

Engage with TA7:

- Mailing list: punch4nfdi-ta7@desy.de
- Mattermost:
<https://mattermost-p4n.aip.de/task-area-7-internal-communications/channels/town-square>



TA7 Goals

WP1

- Provide a broad and a high-quality training for Ph.D. students, postdocs & senior scientists
- Establish the PUNCH4NFDI Young Academy (regular events & courses)
- Provide a documentation and archive services/Material for the training (cooperation with the TIB)

WP2

- Provide educational resources for university-level teaching with a focus on NFDI issues
- Develop proposals for the integration of topics related to research data management into university curricula

WP3

- Clarify the relevance of data for discoveries in modern physics and make it accessible to the general public
- Offers for different interaction groups: pupils, teacher, hobby scientists, ...

WP4

- Actively engage the public in citizen science projects such as Einstein@Home
- Provide incentives and access to data infrastructure and methods to involve the public in ongoing research

WP4 Deliverables (from PUNCH Proposal)

Deliverables:

- D-TA7-WP4-1 (30 Sep 2022): Map out potential research applications in citizen science.
- D-TA7-WP4-2 (30 Sep 2023): Prepare data sets and providing soft- and hardware infrastructure.
- D-TA7-WP4-3 (30 Sep 2024): Pilot 6–12 month projects, engage schools and universities, evaluate results.
- D-TA7-WP4-4 (30 Sep 2026): Launch further projects jointly with the physics community.