



HEARTS

Follow-up Session

2nd Annual Meeting

19 February 2025

<https://indico.cern.ch/event/1500292/>



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Outline

- Year 2 in a nutshell
- Deliverables and Milestones achieved in Y2 and expected in Y3
- Year 3 overview

Year 2 in a nutshell (1/3)

- Inclusion of COSYLAB in the Consortium (February 2024).
 - GA AMD-101082402-4 and CA amendment n°1: Related to COSYLAB joining the consortium → addition of beneficiary n°6 and WP9 (Tools and instruments for standardized dosimetry and user experimentation).
 - Additional budget: +60k€ for CERN as Coordinator, and +540k€ for COSYLAB as joining beneficiary.
- 1st Annual Meeting & Technical Review, 6 February 2024, CERN.
- P1 reporting to the EU (July – Dec. 2024)
 - Submission of P1 report, 6 September 2024
 - HEARTS P1 Review Meeting, 25 September 2024
 - Approval of P1 report by the EU, 10 December 2024

Year 2 in a nutshell (2/3)

- 2 meetings of the Project Office
 - [Meeting #4](#), 13 March 2024
 - [Meeting #5](#), 8 October 2024
- 1 meeting of the Governing Board
 - [Meeting #1](#), 14 May 2024
- 2 meetings of the WP Leaders
 - [Meeting #5](#), 14 May 2024
 - [Meeting #6](#), 9 December 2024

Year 2 in a nutshell (3/3)

- 2024 Highlights
 - GSI run in April (focus on the GCR simulator for shielding and radiobiology)
 - CERN ion run in Nov-Dec (focus on electronics irradiation)
 - Publications: WP2 is collecting the information and will advertise them
 - DV & MS achieved in due time (MS11, MS12, MS20), with a slight delay (D1.1, D3.1, D3.2, D3.3, D4.2, D6.1, D7.2) and postponed (D5.2).

Deliverables overview in Y2

Deliv. No.	Deliverable name	Due date	Status	Lead Beneficiary
D1.1	Assessment of high-energy heavy ion operation in CHARM during CERN proton physics periods	30-06-2024	<u>Achieved</u>	CERN
D3.1	Numerical characterization of the CHARM beamline and of detector response	31-12-2024	<u>Achieved</u>	CERN
D3.2	Modelling of shielding materials and configurations for test setup standardisation	31-12-2024	<u>Achieved</u>	GSI
D3.3	GCR/SPE simulator optimizer software	31-12-2024	<u>Achieved</u>	GSI
D4.2	Calibrated CERN beam instrumentation documented and installed in the accelerator	31-12-2024	<u>Achieved</u>	CERN
D6.1	GCR/SPE simulator setup	31-12-2024	<u>Achieved</u>	GSI
D7.2	Demonstration of the achievements in terms of beam parameters (energy, LET, range, size)	31-12-2024	<u>Achieved</u>	CERN



The achieved deliverables are available on HEARTS website page: <https://hearts-project.eu/project/deliverables/>

Milestones overview in Y2 and update to Feb. 2025

Milest. No.	Milestone name	Due date	Status	WP, Lead Beneficiary
MS11	Release of G4SEE VHE ion tool	31-12-2024	<u>Achieved</u>	WP3, CERN
MS12	CERN beam instrumentation and dosimetry installed and running	31-12-2024	<u>Achieved</u>	WP4, CERN
MS20	First external users at CHARM	31-12-2024	<u>Achieved</u>	WP7, CERN
MS6	2nd HEARTS annual meeting and interim technical review	28-02-2025	<u>Achieved</u>	WP1, CERN

The achieved milestones are available on HEARTS website page:

<https://hearts-project.eu/project/milestones/>

Upcoming Deliverables in Y3 (1/2)

Deliv. No.	Deliverable name	Due date	Status	Lead Beneficiary
D5.2	Validation of beam parameter quality of CERN and GSI infrastructures for testing of electronics	31-08-2025	Pending	UNIPD
D2.3	Knowledge transfer turnover report	31-12-2025	Pending	CERN
D3.4	Demonstration of LET uncertainty reduction from simulations as a complement to experimental measurements	31-12-2025	Pending	CERN
D3.5	Modelling of medium-complexity devices and response to different ion beams	31-12-2025	Pending	UNIPD
D4.3	Experimental measurements on GSI beam instrumentation and dosimetry	31-12-2025	Pending	GSI
D4.4	Documentation on the target station construction and use	31-12-2025	Pending	GSI

Upcoming Deliverables in Y3 (2/2)

Deliv. No.	Deliverable name	Due date	Status	Lead Beneficiary
D4.5	Report on microdosimetry for GRC simulator calibration	31-12-2025	Pending	GSI
D5.3	Verification of the beam parameter suitability for testing 3D structures	31-12-2025	Pending	UNIPD
D5.4	Verification of the compliance with beam parameter requirements and awarding of TRL 6-7	31-12-2025	Pending	ADS
D6.2	Dosimetry of the GCR/SPE simulator with shielding	31-12-2025	Pending	GSI

Upcoming Milestones in Y3

Milest. No.	Milestone name	Due date	Status	WP, Lead Beneficiary
MS13	GSI beam instrumentation and dosimetry installed and running	31-12-2025	Pending	WP4, GSI
MS18	First experimental demonstration of dose increase behind thick shields in Europe	31-12-2025	Pending	WP6, GSI

Year 3 overview (1/4)

- 2nd HEARTS annual meeting, 20-21 January 2025, GSI, Germany.
- WP Leader changes in the CERN-coordinated work packages:
 - WP3: Luigi Esposito → Andreas Waets
 - WP7: Matthew Fraser → Rubén García Alía

- P1 interim payment performed on 3 February 2025

PAYMENT OF INTERIM 1 - HEARTS		
Nb	Beneficiary	Interim 1 Jan-25
1	CERN	486,475.00
2	GSI	181,844.75
3	ADS (includes Affil. Entity:TESAT)	13,735.40
4	TAS	27,550.00
5	UNIPD	84,257.06
6	Cosylab	31,215.26
Total		825,077.47

Year 3 overview (2/4)

- Design study of a new beamline and facility at CERN
 - A proposal to study the design (or implementation) of a future new beamline and facility for high-energy heavy ion testing has been presented to and accepted by the CERN management. The current main bottleneck to the HEARTS@CERN facility performance is the beamtime availability.
 - At the 2nd annual meeting, suggestion to incorporate the conceptual study in a potentially new work package (WP10).
 - A minimum of 100k€ is needed, by **identifying potential savings** across the project's beneficiaries. Then, topic to be discussed with and approved by the Governing Board → follow-up by the Project Office.

Year 3 overview (3/4)

- Preparation of a Grant Agreement amendment
 - Potential addition of WP10 and related savings' transfer.
 - Replacement of task 8.3 (Test of the GCR/SPE simulator - GSI, M47-48), due to the FAIR development moving beyond the HEARTS timeline (2029 beam in CBM). GSI wants to replace this task with a new one related to the preparation for FAIR beam.
- Prepare for P2 reporting
 - Many deliverables due in Dec. 2025, as showed in the previous slides
 - P2 will end in the end of Y3 (31/12/2025)
 - P2 report is to be submitted by the end of February 2026

Year 3 overview (4/4)

- Preparation of the 3rd annual meeting & technical review
 - P2 report to be submitted by the end of February 2026. Suggestion to **merge the 3rd annual meeting & technical review and the P2 review into one single event** to be ideally scheduled between mid-March and mid-April 2026.
 - Event to be host by either an industrial partner or up to any beneficiary/associate partner (other than CERN and GSI) that volunteers.

**Thank you for
your attention.
Questions?**



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