

Kick-off meeting DRD8 Collaboration

January 31, 2025

Burkhard Schmidt and Georg Viehhauser

Kick-off meeting after the DRD8 approval

Friday 31 Jan 2025, 14:30 → 17:30 Europe/Zurich

20/1-004 (CERN)

zoom

Community Meeting for the DRD8 Proposal Preparation

Join



- | | | | |
|---|---------|---|-------|
| 14:30 | → 14:50 | Introduction | 🕒 20m |
| Speakers: Burkhard Schmidt (CERN), Georg Viehhauser (University of Oxford (GB)) | | | |
| 14:50 | → 15:10 | Plans for WP1: System Design and Integration | 🕒 20m |
| Speakers: Corrado Gargiulo (CERN), Fabrizio Palla (Universita & INFN Pisa (IT)) | | | |
| 15:20 | → 15:40 | Plans for WP2: Low mass mechanics and thermal management | 🕒 20m |
| Speakers: Adam Dominic Lowe (University of Oxford (GB)), Sushrut Rajendra Karmarkar (Purdue University (US)) | | | |
| 15:50 | → 16:10 | Plans for WP3: Detector Cooling | 🕒 20m |
| Speakers: Bart Verlaat (CERN), Oscar Augusto De Aguiar Francisco (The University of Manchester (GB)) | | | |
| 16:20 | → 16:40 | Coffee / Tea break | 🕒 20m |
| 16:40 | → 17:00 | Plans for WP4: Design and qualification tools | 🕒 20m |
| Speakers: Diego Alvarez Feito (CERN), Joao Batista Lopes (CERN) | | | |
| 17:10 | → 17:30 | Final discussion | 🕒 20m |

Introduction - DRD8 Collaboration

- The DRD8 Proposal on **Mechanics & Cooling for Future Vertex and Tracking Systems** has been approved by the CERN Research Board on December 4.
- Following the approval, DRD8 is now appearing in the Greybook for the CERN Experimental Programme, which simplifies affiliation of collaborators to CERN: <https://greybook.cern.ch/researchProgram/detail?id=R%26D>.
- An Indico category has been created: <https://indico.cern.ch/category/19408/>, in which we will have sub-categories for the different Work Packages of DRD8 etc., so that all the information is centrally available.
- The web-page for DRD8 has as well been created: <https://drd8.web.cern.ch/>. Feedback is welcome! Write access will be given to the WP conveners to add information for their Work Package as desired.
- The next major task is the preparation of the Memorandum of Understanding for DRD8.

DRD8 Work Packages

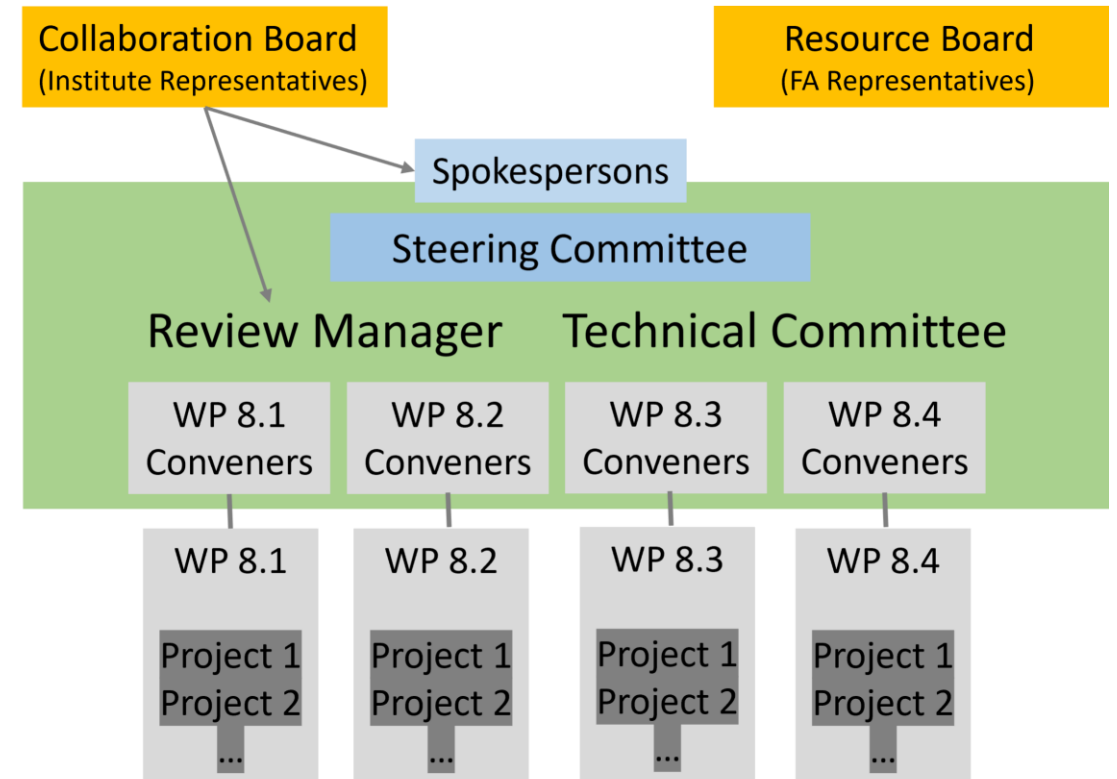
Proposed Work Packages:

- **WP1: Global system design and integration**
 - Project 1.1: The Vertex Region of Future Particle Physics Experiments
 - Project 1.2: Robots in the HEP Experimental Caverns
- **WP2: Low-mass mechanics and thermal management**
 - Project 2.1: Advanced Mechanical Tracker Structures
 - Project 2.2: Characterisation of Material Properties and Database Development
- **WP3: Detector cooling**
 - Project 3.1: New Evaporative Cooling Fluids and Systems
 - Project 3.2: Microchannel Cooling Substrates
- **WP4: Design and qualification tools**
 - Project 4.1: Extended Reality (XR) Development
 - Project 4.2: Connection of Engineering Design Tools with Physics Simulation Software

DRD8 Technical Committee

Endorsed Work Package Conveners:

- **WP1: Global system design and integration**
 - Corrado Gargiulo (CERN)
 - Fabrizio Palla (Universita & INFN Pisa (IT))
- **WP2: Low-mass mechanics and thermal management**
 - Adam Dominic Lowe (University of Oxford (GB))
 - Sushrut Karmarkar (Purdue University (US))
- **WP3: Detector cooling**
 - Bart Verlaat (CERN)
 - Oscar Augusto De Aguiar Francisco (Manchester (GB))
- **WP4: Design and qualification tools**
 - Diego Alvarez Feito (CERN)
 - Joao Batista Lopes (CERN)



➤ **We will soon start to meet as Technical Committee, also in view of the Collaboration week in June**

DRD8 Collaboration Week 2025

16-20 June 2025, University of Bristol

<https://indico.cern.ch/event/1482847/>



Forum on Tracking Detector Mechanics 2025

DRD8 Collaboration Week 2025

16-20 June 2025, University of Bristol <https://indico.cern.ch/event/1482847/>

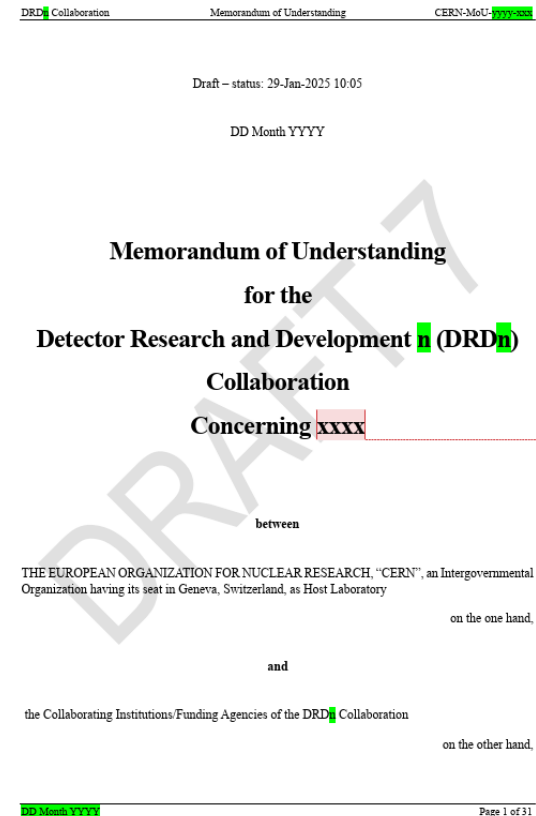
- The week will start with the Forum on Tracking Detector Mechanics (Monday to Wednesday), including (composite) lab visits on Wednesday afternoon, followed by the DRD collaboration meeting (on Thursday and Friday).
- We consider to have both Plenary and Parallel Sessions for the DRD8 meetings to give more time for discussion among the people active in each Work Package.
- We plan to have a few invited speakers.

Memorandum of Understanding (MoU) for the DRD collaborations

- **MoU Core Part → Common to all DRDs**
 - This part is (still) being finalized by Helge Meinhard from CERN, taking into account the feedback received from some of the large national Funding Agencies. It underwent several iterations since June 2024.
- **MoU Annexes → Specific of each DRD**
 - This part should be prepared by us in the coming weeks, so that the approval process can be launched in the coming months.

List of Articles (Core part)

- Article 1 Purpose of the MoU
- Article 2 Parties to the MoU
- Article 3 Obligations of CERN as Host Laboratory
- Article 4 Obligations of the Collaborating Institutions
- Article 5 Equipment
- Article 6 Structure of the Collaboration
- Article 7 Collaboration Accounts
- Article 8 Work Packages, Working Groups and other Work Entities
- Article 9 Theses, Publications and Conference Contributions
- Article 10 Intellectual Property
- Article 11 Compliance with Export Control and Sanctions
- Article 12 Conflicts of Interest
- Article 13 Industrial Partners
- Article 14 Observance of the MoU and the General Conditions
- Article 15 Duration of Validity of the MoU and its Extension
- Article 16 Withdrawal and Termination of Participation of Funding Agencies or Collaborating Institutions
- Article 17 Participation of Additional Institutions
- Article 18 Amendments and Annexes



Draft 7 was released yesterday with very minor changes in the Core part

List of Annexes

- **Annex 1 Collaborating Institutions and their Contact Persons**
- **Annex 2 Funding Agencies and their Representatives**
- **Annex 3 Sub-Detector Structure and Technical Participation of the Collaborating Institutions**
- **Annex 4 The Organisational Structure of the Collaboration**
- **Annex 5 Overview of the Financial Participation of the Funding Agencies**
- **Annex 6 Specific Obligations and Responsibilities of CERN as the Host Laboratory of the DRDn Collaboration**
- **Annex 7 Work Packages**
- **Annex 8 Working Groups**
- **Annex 9 Other Work Entities**
- **Annex 10 Included Background IP**
- **Annex 11 Conflict of Interest Disclosure Form**
- **Annex 12 CERN General Conditions Applicable to Experiments**

Annex 2: Funding Agencies and their Representatives

- Funding Agencies signing the MoU are not necessarily the same as the Funding Agencies listed in the Work Packages.
 - The list of those FAs signing the MoU needs to be established.
- **It would be important to start contacting the FAs and ask for the required financial support!**

Funding Agencies

- Some comments show an inaccurate understanding of the term – big national agencies only
- MoU (Article 2): “A Funding Agency may be a Collaborating Institution or a body acting on behalf of one or more Collaborating Institutions in the conclusion of the MoU.”
- I assume that with this definition the comments on the term “funding agencies” are sufficiently addressed.



July 2024

Helge Meinhard (at) CERN.ch – MoUs for DRD collaborations

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Annex 5: Overview of the Financial Participation of the FAs

- **This Annex does not concern Work Package resources – only Common Fund**

5.1 Common Fund

All Participating Institutions shall contribute a fixed yearly amount to the Common Fund (cf. Article 7).

- **At this stage, DRD8 doesn't foresee to have a Common Fund.**

However, we are open for discussion on this point.

- **Examples for the use of Common Funds:**

- Support for Collaboration Meetings
- Common Projects
- Investment in common activities
- Support for Common Facilities (Laboratories)
- ...

Annex 6: Specific Obligations and Responsibilities of CERN as the Host Laboratory of the DRDn Collaboration

6.1 Irradiation Facilities

Access for members of the DRD8 Collaboration to CERN irradiation facilities.

6.2 Laboratories

Access for members of the DRD8 Collaboration to laboratories at CERN such as Metrology, Composite Lab is possible. However, most of the CERN services are subject to a fee and access to the facilities is limited.

6.3 Computing Resources

Access for members of the DRD8 Collaboration to CERN Computing resources in terms of processing, storage and software.

Annex 7 : Work Packages

Annex 7 with the description of the DRD specific WPs and related Deliverables is the most important Annex of the MoU.

7.1 Structure of the Work Packages

- (1) Work Package 1: (title)
 - (a) Deliverable 1.1: (title)
 - (b) Deliverable 1.2: (title)
 - (c) ...
- (2) Work Package 2
 - (a) Deliverable 1.1: (title)
 - (b) Deliverable 1.2: (title)
 - (c) ...

...

7.2 Work Package 1: (title)

7.2.1 Description

The purpose of this Work Package is to build and test a prototype of XYZ. The Work Package carries the number WPi.

7.2.2 Participating Institutions

Country	Collaborating Institution	Town	Institution Code	Contact

7.2.3 Funding Agencies

Country	Funding Agency	Funding Agency Code	Representative	Institution(s) represented ^k

Annex 8: Working Groups

- DRD8 has a present no Working Groups
- However, should the resources to realize the Work Packages not become available at the required level, we might transform a Work Package into a Working Group.

Summary and timeline

- **Core MoU:**
 - To be released soon...
 - CERN and ECFA Detector Panel are working on it
 - It is not clear whether there will be another DRD Managers Forum (DRDs SPs, ECFA Detector Panel, CERN) before the Core MoU will be released.

- **Annexes:**
 - A version of the DRD8 Annexes, in particular Annex 7, will be prepared in the coming weeks to be discussed in a CB meeting early March.