

# DRD6 - WP3

## Optical calorimeters

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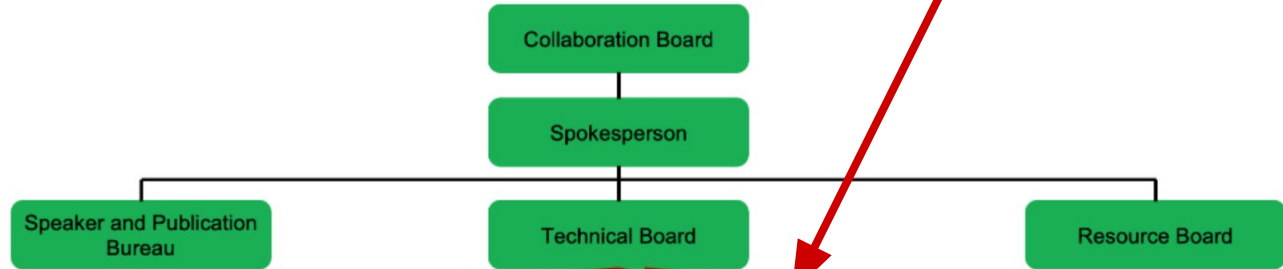
G. Gaudio  
On behalf of the Track 3 conveners



# DRD6 organization

- We, as community, decide on the internal organization.
- WP3 coordinator(s) proposed by the community and endorsed by the CB

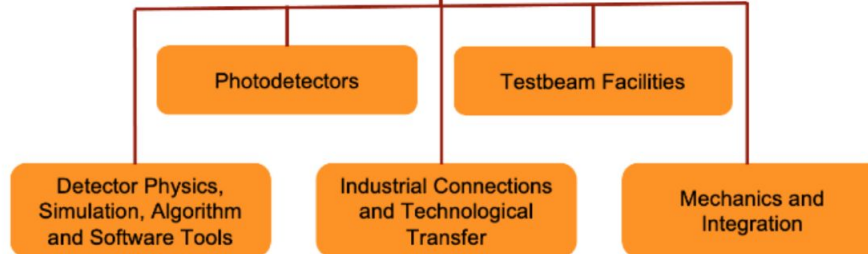
## MANAGEMENT:



## WORK PACKAGES:



## WORKING GROUPS:



# WP3 Organization Proposal

Project	Scintillator/WLS	Photodetector	DRDTs	Target
Task 3.1: Homogeneous and quasi-homogeneous EM calorimeters				
<b>HGCCAL</b>	BGO, LYSO	SiPMs	6.1, 6.2	$e^+e^-$
<b>MAXICC</b>	PWO, BGO, BSO	SiPMs	6.1, 6.2	$e^+e^-$
<b>Crilin</b>	PbF <sub>2</sub> , PWO-UF	SiPMs	6.2, 6.3	$\mu^+\mu^-$
Task 3.2: Innovative Sampling EM calorimeters				
<b>GRAiNITA</b>	ZnWO <sub>4</sub> , BGO	SiPMs	6.1, 6.2	$e^+e^-$
<b>SpaCal</b>	GAGG, organic	MCD-PMTs, SiPMs	6.1, 6.3	$e^+e^-/hh$
<b>RADiCAL</b>	LYSO, LuAG	SiPMs	6.1, 6.2, 6.3	$e^+e^-/hh$
Task 3.3: (EM+)Hadronic sampling calorimeters				
<b>DRCal</b>	PMMA, plastic	SiPMs, MCP	6.2	$e^+e^-$
<b>TileCal</b>	PEN, PET	SiPMs	6.2, 6.3	$e^+e^-/hh$
Task 3.4: Materials				
<b>ScintCal</b>	-	-	6.1, 6.2, 6.3	$e^+e^-/\mu^+\mu^-/hh$
<b>CryoDBD Cal</b>	TeO, ZnSe, LiMoO NaMoO, ZnMoO	n.a.	-	DBD experiments

# WP3 Organization Proposal

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Each project (= sub-task) will be represented by one or two contact person(s).

No Task convener is required

Current list of contact persons, as agreed from speakers in the First WP3 meeting

<https://indico.cern.ch/event/1386879/>

(can be updated anytime)

**3.1.1 (HGCCAL): Yong Liu**

**3.1.2 (MAXICC): Marco Lucchini**

**3.1.3 (Crilin): Ivano Sarra**

**3.2.1 (GRAiNITA): Giulia Hull**

**3.2.2 (SpaCal): Philipp Roloff**

**3.2.3 (RADiCAL): Randy Ruchti**

**3.3.1 (DRCal): Hwi Dong Yoo, Romualdo Santoro**

**3.3.2 (TileCal): Henric Wilkens, Michaela Mlynarikova**

**3.4.1 (ScintCal): Etienne Auffray**

**3.4.2 (CryoDBDCal): Matteo Biassoni**

# WP3 community representation

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- The project contact persons + WP3 coordinators (+deputy/ies) will constitute the governance of the WP3
- The contact persons will represent the project community
  - No Institute Board body will be put in place
    - Counted 69/131 institutes involved in WP3 activities
  - Decisions will be proposed for vote to the project contact persons who vote in consultation with their community

# WP3 coordinator

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## Tasks:

- Representant of the WP3 community in the management group
- Promote synergies within the different projects
- Keep track of milestones and deliverables

# Pro tempore governance

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Before the WP3 coordinator is elected and endorsed by the collaboration board of the DRD, the track 3 conveners(\*) will ensure the governance of the work package

The track 3 conveners will also act as search committee for the WP3 coordinator.

If one of the track 3 conveners becomes a candidate in the WP3 coordinator election, this person will step down from the search committee.

(\*) Etienne Auffray, Gabriella Gaudio, Hwi Dong Yoo, Marco Lucchini, Philipp Roloff, Sarah Eno

# WP3 coordinator election

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- To be done soon after the Collaboration Workshop
- Nominations:
  - The nomination is open to the whole community, as individuals, groups or projects. Self-nominations are also allowed
  - Mail will be sent around with information with detailed procedure
- Short-list
  - The search committee verifies availability of nominees to stand for election
  - A meeting will be organised for candidates presentation and Q&A session
- Election
  - Electronic vote will be put in place
  - 1 project = 1 vote



# WP3 coordinator

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- Elected WP3 coordinator may nominate one or more deputies
- Elected WP3 coordinator (+deputies) will present to the DRD6 CB for endorsement

... the WP3 coordinator (+ deputy/deputies) will propose an internal structure (e.g. committee, meeting ... ) that it will be discussed and approved by the project contact persons.

# WP3 Organization

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DRD6 membership under discussion with DRDC

- WP3 membership will follow

Mailing list for the whole community  
drdcalo-wp3

If you haven't register please do so!

Contact person mailing list  
drdcalo-wp3-contact



# Backup



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# Task 3.1 (Quasi) Homogeneous EM Calorimeters

	Milestone	Deliverable	Description	Due date
HGCCAL	M3.1		Specifications of crystal, SiPM and electronics for highly granular EM crystal calorimeter prototype	2024
		D3.1	Development of 1-2 crystal EM modules to be exposed to beam tests	2024
	M3.2		Beam tests characterisation of a full containment highly granular EM crystal calorimeter prototype	2025
	M3.3		A first mechanical design for a final detector with crystal modules	2025
	M3.4		New reconstruction software for the long-bar design and updated PFA	2026
		D3.2	Large crystal module for hadronic performance, system integration studies and combined testbeam with HCAL	>2026
MAXICC	M3.5		Completion of qualification tests on components and selection of crystal, filter and SiPM candidates for prototype	2025
	M3.6		Report on the characterisation of crystal, SiPM and optical filter candidates and their combined performance for Cherenkov readout	2025
		D3.3	Full containment dual-readout crystal EM calorimeter prototype and testbeam characterisation	2026
	M3.7		Joint testbeam of EM module prototype with dual-readout fibre calorimeter prototype (DRCAL)	>2026
Crilin		D3.4	Acquisition and tests of crystals and SiPMs; design and production of electronics boards; design and production of the mechanical components	2024
		D3.5	Calorimeter fully assembled	2025
	M3.8		Beam test characterisation of a full containment EM calorimeter prototype	2025
	M3.9		Report on testbeam results	2026

# Task 3.2 Innovative Sampling EM calorimeters

	Milestone	Deliverable	Description	Due date
GRAiNITA	M3.10		Characterisation of materials, wavelength shifters and SiPMs and identification of best technological choices	2024
		D3.6	Development of a GRAiNITA demonstrator as EM calorimeter prototype for e+e- collider (full shower containment)	2026
SpaCal	M3.11	D3.7	Tungsten and lead absorbers for module-size prototypes	2024
			Design of optimised light guides	2025
	M3.12	D3.8	Set of crystal samples, SPIDER ASIC prototype	2026
			D3.9	Specification of photon detector and improved simulation framework available Module-size prototypes (significantly larger than EM showers) built and validated in beam tests
RADiCAL		D3.10	Single module with prototype scintillating crystals, SiPMs and front-end electronics cards built and tested.	2024
		D3.11	3x3 array of RADiCAL modules built and tested	2026
	M3.13		Paper on beam-test results for EM shower position, timing and energy	2026
	M3.14		Continue beam testing with alternative scintillation and wavelength shifting materials - for improved cost/performance.	>2026

# Task 3.3 (EM +) Hadronic Sampling Calorimeters

	Milestone	Deliverable	Description	Due date
DRCal		D3.12	Construction of full-scale dual readout module with hadronic shower containment	2025
	M3.15		Testbeam campaign to assess module performance: result paper	2026
	M3.16		Continue beam testing with alternative readout elx	>2026
TileCal	M3.17		Characterisation of PEN- and PET-based scintillating tiles including optimisation of readout with WLS fibres and SiPMs	2025
		D3.13	Construction of up to 3 prototypes of a sampling tile calorimeter module with WLS fibres and SiPM readout (for beam tests after 2026)	2026
	M3.18		Paper on beam test results	>2026
		D3.14	Full hadron-shower containment prototype built and tested	>2026

# Task 3.4 Materials

	Milestone	Deliverable	Description	Due date
ScintCal	M3.19		Dataset of scintillation and radiation hardness properties of various scintillation materials studied	2026
		D3.15	Samples of a set of scintillators produced and characterised	2026
		D3.16	Samples of most promising glasses produced and characterised	>2026
	M3.20		Material selected for future detectors	>2029
CryoDBDCal	M3.21		Report crystals in terms of optimisation of growing/doping procedures	2024
		D3.17	Scintillating polymer for 3D-printing, with optimal mechanical and light-production properties, produced and tested	2025