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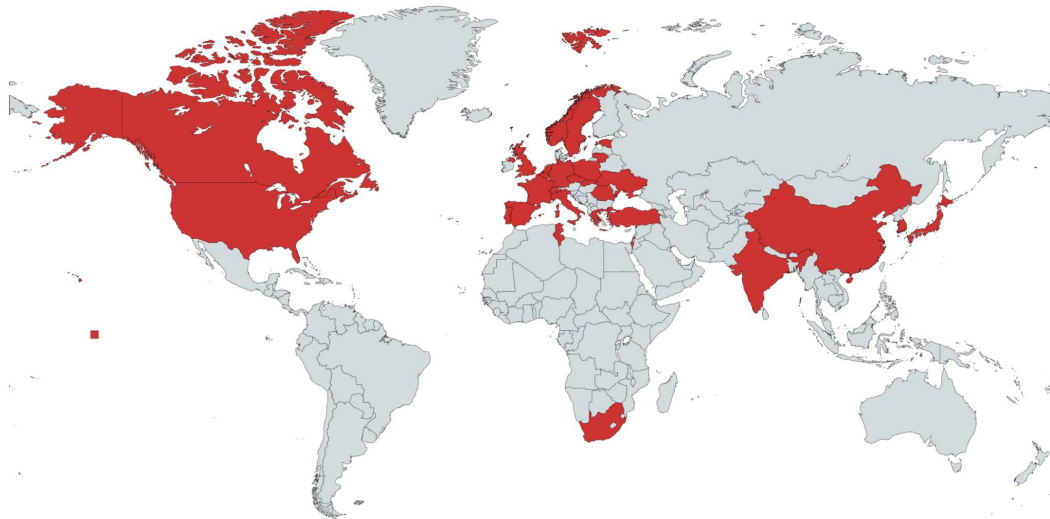
# DRD6 - Introduction

— G. Gaudio —

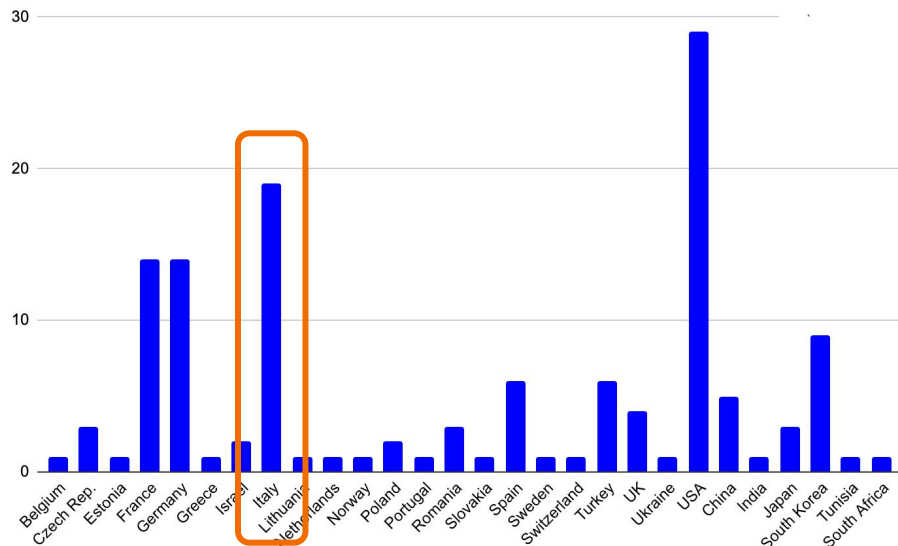
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# DRD6 Collaboration



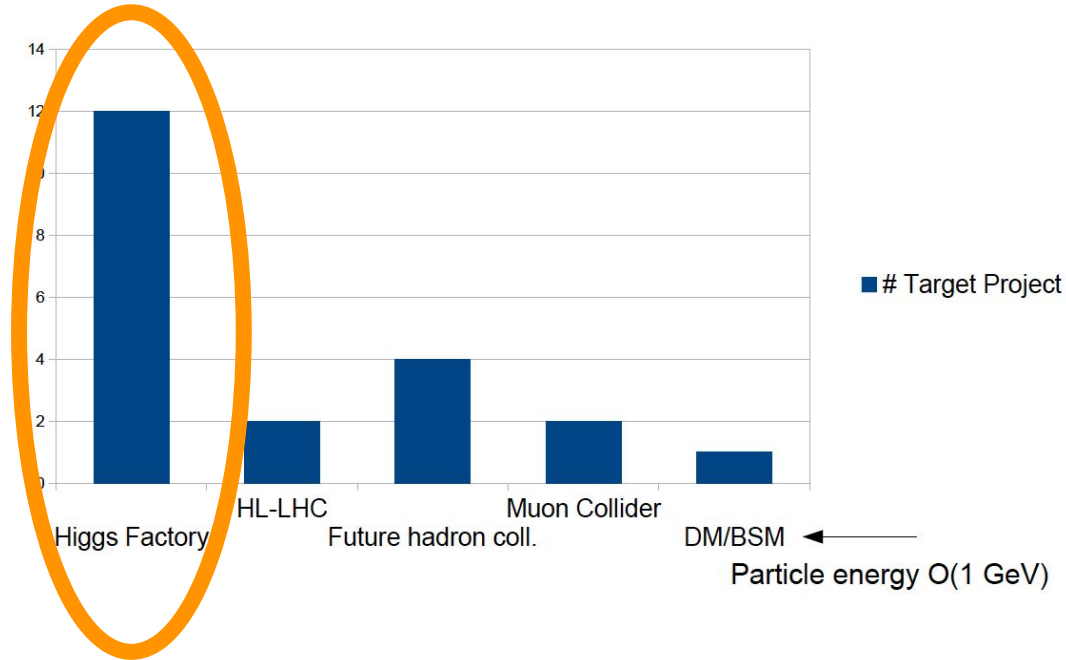
Institutes per Countries



128 institutes ( at present)  
19 INFN units (15%)  
(composition in FTE not  
yet clear)

# Scientific targets in DRD6 calorimetry development

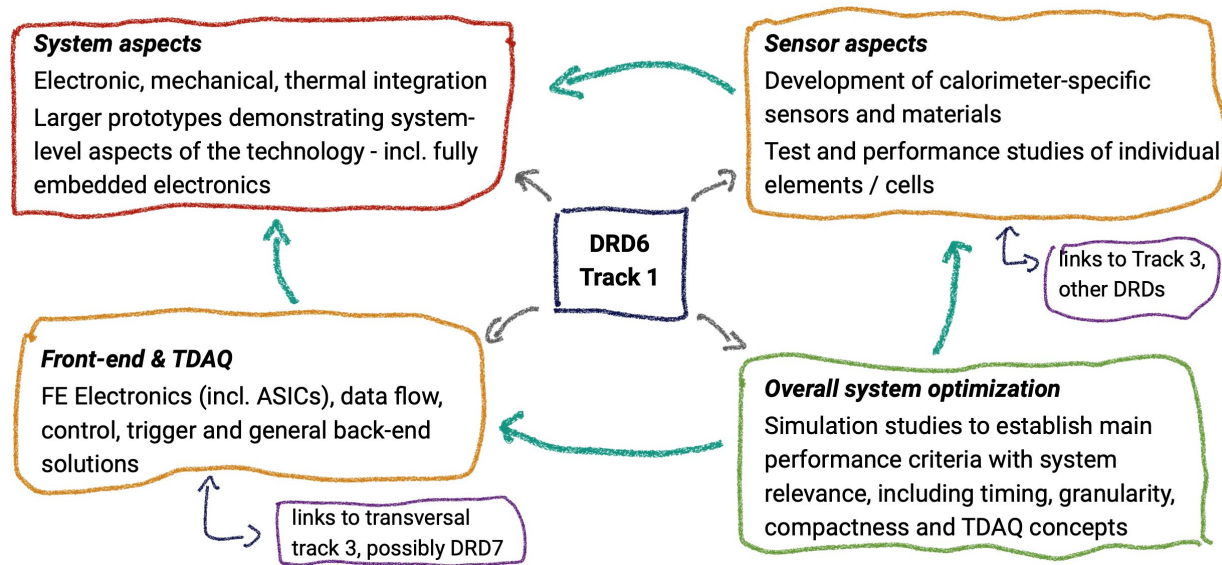
Technologies relevant for FCC will be covered by DRD 6



- Higgs factories dominate
  - HF includes heavy flavor that target superb elm. energy resolutions
- (Already now) orientation towards future hadron collider and muon collider

# Scientific programs

4 Work Packages addressing different types of calorimeters + electronics

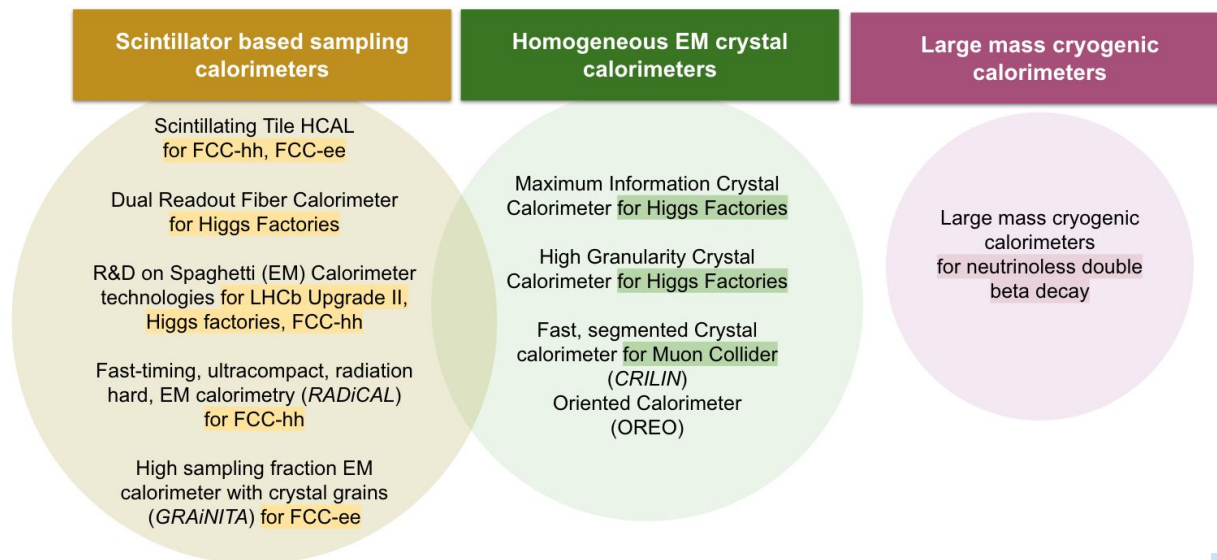


**Sandwich calo  
with fully  
embedded elx**

9/21 tasks

# Scientific programs

4 Work Packages addressing different types of calorimeters + electronics

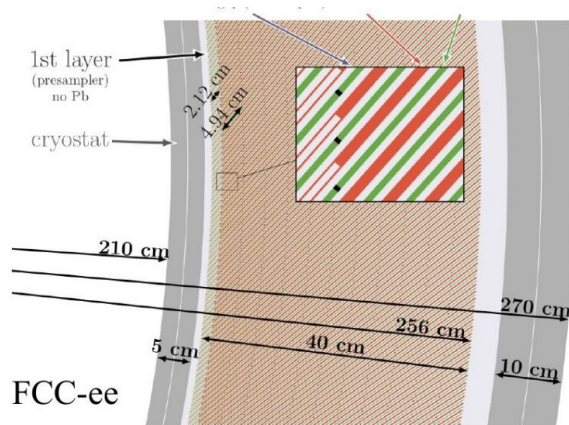


ScintCal: **Scintillator** material for future calorimeters

It was organized as working group => WP to be funds loaded

# Scientific programs

4 Work Packages addressing different types of calorimeters + **electronics**



Work Package dedicated to

- Development of ASIC (common for different prototypes)
- Readout and DAQ

It was organized as working group => WP to be funds loaded

## Liquified Noble Gas calorimeters

1/21 tasks

# Working Groups

Activities common to many (all) Work Packages: exploit synergies, proceed faster and save resource (both personpower and money)

5 WGs foreseen:

- WG1 - Software: start working
- WG2 - Photodetectors: organization started
- WG3 - Testbeam: organization started
- WG4 - Industrial connection and technological transfer (STAND-BY)
- WG5 - Mechanics and Integration (discussion started)

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# Backup

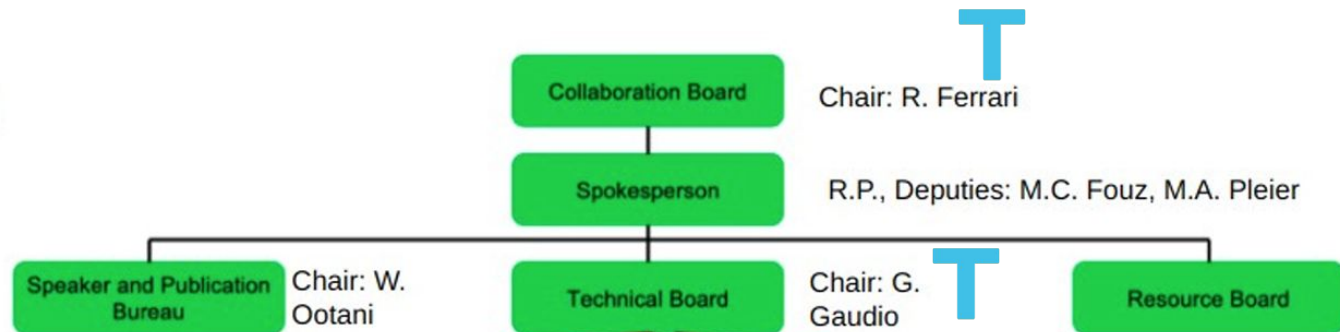
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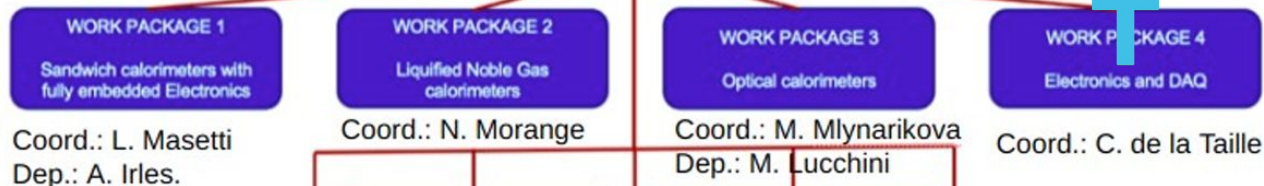


# Organigramma

## MANAGEMENT:

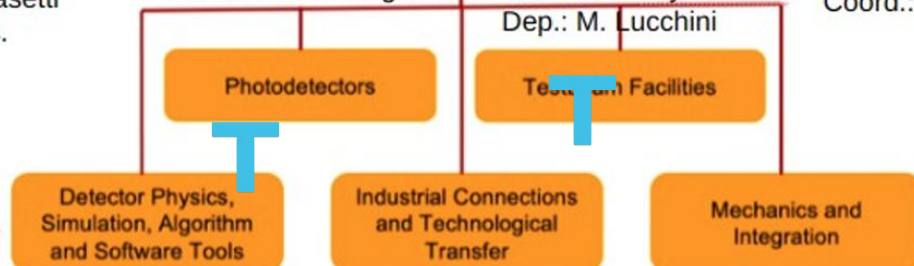


## WORK PACKAGES:



## WORKING GROUPS:

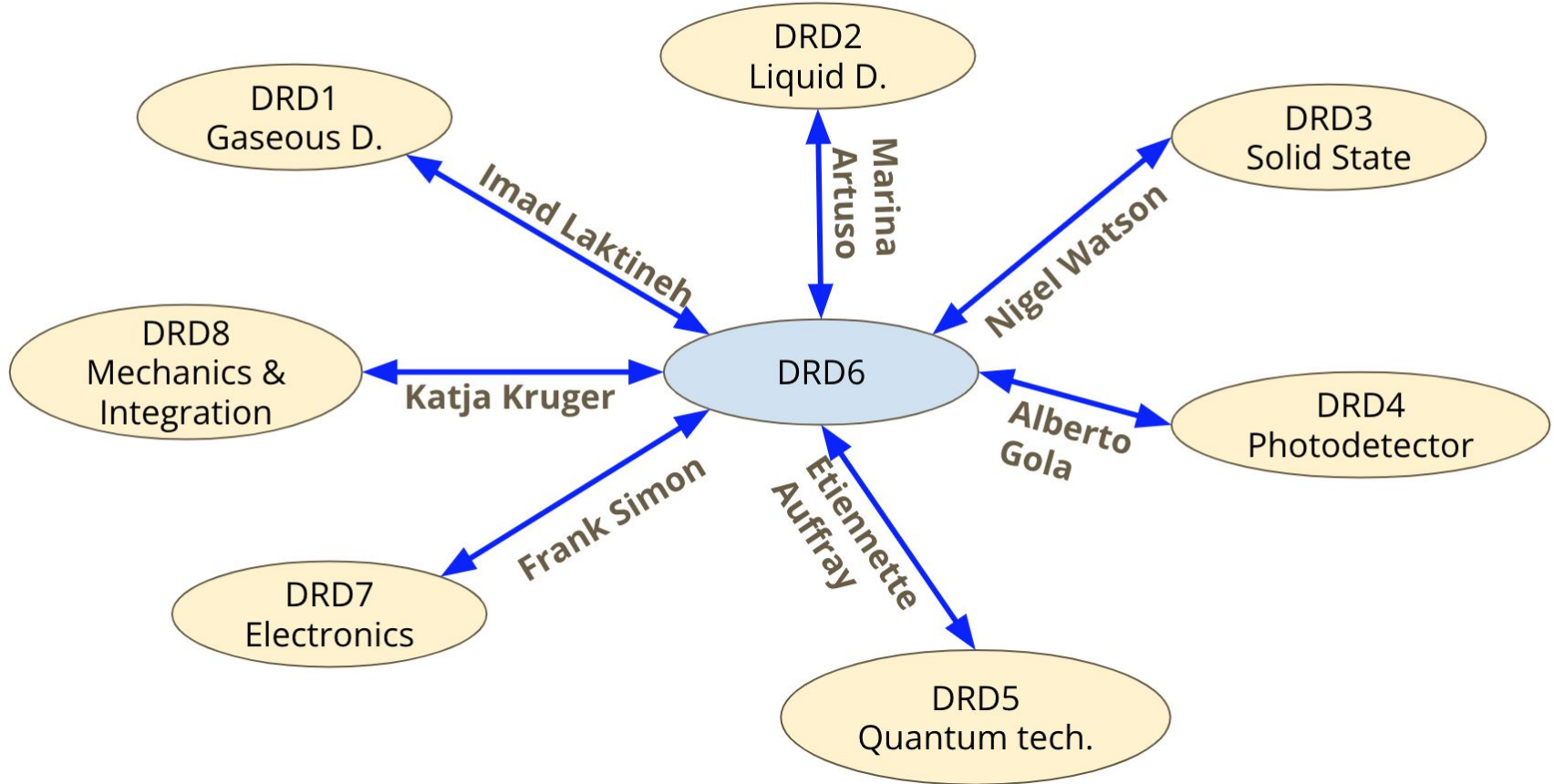
New  
Coord.: B. François,  
L. Pezzotti



# TB 2025 approved at CERN

WP.Task	Task	Beam	Beam line	weeks	Dates
1.3.2	MPGDAL	pion	PS - T10	2	15-29.10
3.1.1	HGCCAL	e, pions, muons	PS - T9	2	26.6 - 8.7
3.1.2	MAXICC	high purity e	SPS-H6	2	17.30.9
3.1.3	CRILIN	high purity e	SPS-H2	1	17-23.9
3.1.4	OREO	high purity e, mixed particles	SPS-H2	1	6-19.8
3.2.3	RADICAL	high purity e	SPS-H6	1	10-16.9
3.3.1	DRCAL	e, pions, muons	SPS-H8	4	6-19.8 + 24.9-7.10

# DRD6 and the other DRDs



Project	Sensitive Material/ Absorber	DRDT	Target Application	Current Status
Task 1.1: Highly pixelised electromagnetic section				
Project 1.1.1: SiW-ECAL	Silicon/ Tungsten	6.2	$e^+e^-$ collider central detector	Prototype for finalising R&D for LC, Specification for CC and of Timing for PFA needed Prototypes with non-optimised sensors, Sensor optimisation and data transfer studies ongoing
Project 1.1.2: Highly compact calo	Solid state (Si or GaAs)/ Tungsten	6.2	$e^+e^-$ collider forward part	Prototypes with non-optimised sensors, Sensor optimisation and data transfer studies ongoing
Project 1.1.3: DECAL	CMOS MAPS/ Tungsten	6.2, 6.3	$e^+e^-$ collider central detector. Future hadron collider	Prototypes with non-optimised sensors, Sensor optimisation ongoing
Project 1.1.4: Sc-Ecal	Scintillating plastic strips/ Tungsten	6.2	$e^+e^-$ collider central detector	Prototype for finalising R&D for LC, Specification for CC and of Timing for PFA needed
Task 1.2: Hadronic section with optical tiles				
Project 1.2.1: AHCAL	Scintillating plastic tiles/ Steel	6.2	$e^+e^-$ collider central detector	Prototype for finalising R&D for LC, Specification for CC and of Timing for PFA needed
Project 1.2.2: ScintGlassHCAL	Heavy glass tiles/ Steel	6.2	$e^+e^-$ collider central detector	Material studies and specifications for prototypes
Task 1.3: Hadronic section with gaseous readout				
Project 1.3.1: T-SDHCAL	Resistive Plate Chambers/ Steel	6.2	$e^+e^-$ collider central detector	Prototype for finalising R&D for LC, Specification for CC and of Timing for PFA needed
Project 1.3.2: MPGD-HCAL	Multipattern Gas Detectors/ Steel	6.2, 6.3	$\mu^+\mu^-$ collider central detector	Small prototype for proof-of-principle, Lateral and longitudinal extension envisaged
Project 1.3.3: ADRIANO3	Resistive Plate Chambers +Scintillating plastic tiles/ Heavy Glass	6.1, 6.2, 6.3	$e^+e^-$ collider central detector BSM searches in MeV-GeV range	RPC, Scintillating Tiles advanced status, R&D on heavy glass needed

# WP2

	Milestone	Deliverable	Description	Due date
Noble-Liquid Calorimeter	M2.1		Design Review of Test Module - Sign-Off	2025
		D2.1	Test Module Assembled	¿ 2026
	M2.2		Test Module Ready for Cool-Down	¿ 2026
		D2.2	Ready for Data Taking (dep. on CERN SPS Schedule)	¿ 2026

# WP3

Name	Calorimeter type	Scintillator/WLS	Photodetector	Application
HGCCAL	EM / Homogeneous	BGO, LYSO	SiPMs	$e^+e^-$ collider
MAXICC	EM / Homogeneous	PWO, BGO, BSO	SiPMs	$e^+e^-$ collider
CRILIN	EM / Quasi-Homog.	PbF <sub>2</sub> , PWO-UF	SiPMs	$\mu^+\mu^-$ collider
GRAINITA	EM / Quasi-Homog.	ZnWO <sub>4</sub> , BGO	SiPMs	$e^+e^-$ collider
SPACAL	EM / Sampling	GAGG, organic	MCD-PMTs, SiPMs	$e^+e^-$ /hh collider
RADICAL	EM / Sampling	LYSO, LuAG	SiPMs	hh collider
DRCAL	EM+HAD / Sampling	PMMA, plastic	SiPMs, MCP	$e^+e^-$ collider
TILECAL	HAD / Sampling	PEN, PET	SiPMs	$e^+e^-$ /hh collider

Oreo EM/Homogeneous

CryoDB

ScintCAL