

Organisation - introduction

Peter Krizan and Christian Joram

JSI Ljubljana

CERN

Community Meeting

16 and 17 May 2023

Tentative Programme for Community Meeting

Tue, 16/05, morning, 1h

- Introduction, the Roadmap, purpose of the meeting, timeline, results of survey

Session Photodetection, 2h

- 2 talks 20' + 10'
- 4 talks 10' + 5'

Session Particle ID, 2h

- RICH/DIRC 4 talks
- TOF/TORCH 2 talks

Session Technologies, 1-2h

Social dinner

Wed, 17/05, morning, 1h

Session 'blue sky' etc.

- superconductive

Session Organisation 1

- Introduction
- Presentation of groups and their interests

Session Organisation 2

- Structure of DRD4
- Which WPs? Scopes ?
- Financial
- Common projects

Session Organisation 3

- Proposal, content, timeline, signatories
- Contributors

Scope and Structure of DRD4. For discussion.

- **DRD4 shall bundle and boost R&D activities in the field of photodetectors and particle ID, in order to achieve the performance needed for the next generation of high energy physics experiments.**
- **Common R&D may accelerate progress, avoid duplication, give access to infrastructure, train people, lower the cost...**
- **But all this comes at a cost: we need to set up and maintain an organisational structure, agree on a work program, estimate a budget, submit a proposal, report to the DRDC committee, regularly meet**

Scope of DRD4 (follow Roadmap)

Reminder:

- ❑ Roadmap focuses on technological R&D for the next generation of HEP experiments or major upgrades.
- ❑ We are **NOT** targeting experiment specific R&D, e.g. optimising pixel size, optimise layout of readout PCB, placement of cooling pipes, integration in overall detector.

Proposal: DRD4 shall cover the following PID technologies

- ❑ RICH
- ❑ DIRC
- ❑ TOF, TOP, TORCH
- ❑ Scintillating fiber tracker

DRD4 is interested in other PID technologies and maintains contacts to the corresponding DRDs

- ❑ dE/dx (usually implemented with gaseous detectors, DRDI)
- ❑ Transition Radiation (usually implemented with gaseous detectors, DRDI)

Scope of DRD4 (follow Roadmap)

Proposal: DRD4 shall cover the following photodetector technologies

- **PMT incl. MA-PMT**
- **MCP PMT**
- **SiPM incl. digital**
- **APD**
- **HPD**
- **Any new (quantum) sensor promising to be compatible with size, cost and radiation constraints of a particle physics experiment.**

In most cases the primary application is the detection of single photons in PID detectors.

DRD4 is interested in other applications of these technologies such as

- **Calorimetry (readout of fibres, crystals, organic scintillators), DRD6**
- **Medical imaging and industrial application (automotive)**

Scope of DRD4 (follow Roadmap)

Proposal: DRD4 shall cover the following technologies related to PID and photodetectors

- ❑ **Cherenkov radiators (solid, liquid, gaseous, aerogel, low GWP)**
- ❑ **Optical components (mirrors, windows,..)**
- ❑ **Readout ASICs for PD testing**
- ❑ **Any other auxiliary equipment (operation, testing and characterisation)**

DRD4 shall cover analysis and simulation techniques related to PID detectors

- ❑ **Fast photon tracking incl. GPU**
- ❑ **Pattern recognition incl. Neural Networks**

Draft structure of DRD4: Photodetectors and Particle ID

(For discussion only)

DRD4 shall be subdivided in thematic fields (working groups ?). These could be

- **Photodetectors**
- **Particle ID**
- **Tools/technologies**
- **Future**

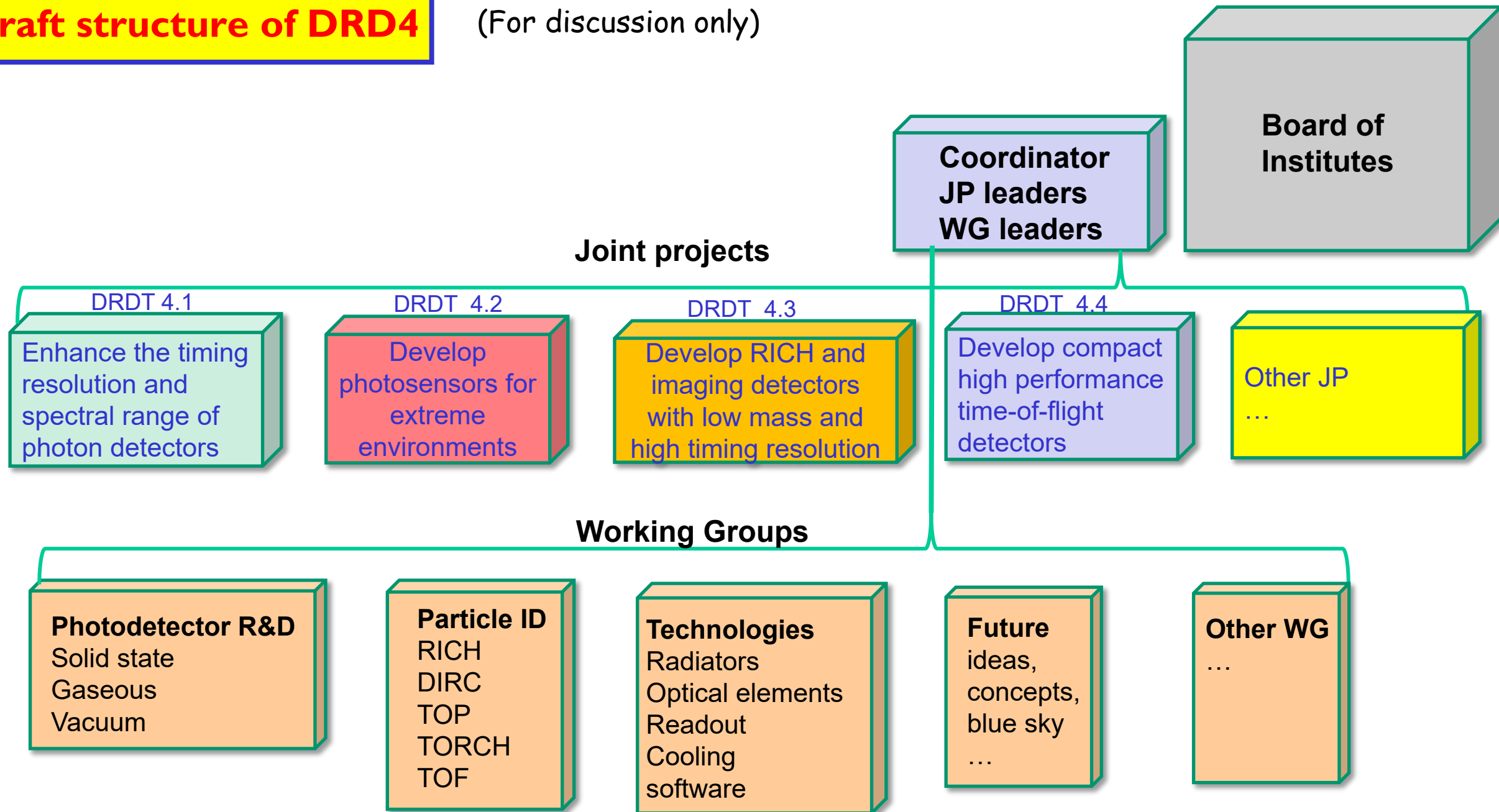
Collaboration members belong to one or several working groups. A WG is led by an expert who organises dedicated meetings during the DRD4 collaboration meetings. In these meetings members exchange information, expose problems, ask for advise, agree on standards... DRD4 works like a forum. The WG leader preferably selects talks addressing the goals of the roadmap.

Members working on related topics, but in different experiments, can decide to form Joint Projects (JP) with agreed goals, milestones, resource sharing. These common projects shall address the main goals of the roadmap or new topics of high relevance.

The collaboration is managed by a Coordinator who is elected (from the team of WG and JP leaders). The Coordinator reports to the Board of Institutes

Draft structure of DRD4

(For discussion only)



Draft structure of DRD4

(For discussion only)

