Resources for a one or a group of research goals

Dear Institution Leader

Please take a few minutes of your time to complete

the following questionnaire.

As a reminder, we list here the research goals

The questionnaire is on the second page

RG 1.1: Spatial resolution: towards 3 µm position resolution

RG 1.2: Timing resolution: towards 20 ps timing precision

RG 1.3: Readout architectures: towards 100 MHz/cm2

RG 1.4: Radiation tolerance: towards 1016 neq /cm2 NIEL and 500 MRad

RG 2.1: Reduction of pixel cell size for 3D sensors

RG 2.2: 3D sensors for timing (50 × 50 um, < 50 ps)

RG 2.3: LGAD for 4D tracking < 10 um, < 30 ps, wafer 6" and 8"

RG 2.4: RSD for ToF (Large area, < 30 um, < 30 ps)

RG 3.1: Build up data sets on radiation-induced defect formation in WBG materials

RG 3.2: Develop silicon radiation damage models based on measured point and cluster defects

RG 3.3: Provide measurements and detector radiation damage models for radiation levels faced in HL- LHC operation

RG 3.4: Measure and model the properties of silicon and WBG sensors in the fluence range 1016 to 1018 neq cm−2

RG 4.1 Flexible CMOS simulation of 65 nm to test design variations

RG 4.2: Implementation of newly measured semiconductor properties into TCAD and MC simulations tools

RG 4.3: Definition of benchmark for validating the radiation damage models with measurements and different benchmark models.

RG 4.1: Developing of bulk and surface model for 10^{16}cm^{-2} < Φeq < 10^{17} cm^{-2}

RG 4.5: Collate solutions from different MC tools and develop an algorithm to include adaptive electric and weighting fields

RG 5.1: TPA-TCT

RG 5.2: Common infrastructure

RG 5.3: Networking and training on methods

RG 6.1: 3D diamond detectors, cages / interconnects, base length 25 µm, impact ionization

RG 6.2: Fabrication of large area SiC and GaN detectors, improve material quality and reduce defect levels.

RG 6.3: Improve tracking capabilities of WBG materials 100

RG 6.4: Apply graphene and/or other 2D materials in radiation detectors to understand signal formation.

RG 7.1: Yield consolidation for fast interconnections

RG 7.2: Demonstration of an in-house process for single dies and a range of pitch (down to < 30µm) pixel interconnections

RG 7.3: Development of maskless post-processing for commonly-used interconnection technologies

RG 7.4: Develop device-to-wafer interconnection technologies

RG 7.5: Develop VIAS in multi-tier sensor/front-end assemblies

RG 8.1: Design and set-up of the DRD3 website

RG 8.2: Collection of the outreach material

RG 8.3 Set-up and organize schools and exchange programs

RG 8.4: Set-up of the DRD3 conference committee

The questionnaire can be filled FOR ONE OR MORE research goals (RG).

If it is filled for more than one RG, we will assume the resources are split equally among RGs

Please note:

- The minimum time investment to participate in a research goal is 0.1 FTE/year.

- We ask for two types of budget allocation:

[1] Questions 3-5: Resource allocation expected on existing funding lines for 2024-27 for this/these specific research goal(s)

[2] Questions 6-8: Resource allocation for this/these specific research goal(s) coming from the funding requests for strategic R&D you intend to file

- The sum of the individual allocations for each research corresponds to the budget you intend/expect to allocate for your institute's DRD3 activities.

1 Email of the CB representative:

Question instructions: *The email is used to link together the questionnaires from a given institution*

2 Select the RG(s)

Question instructions: *If you select multiple RG, we will assume equal resource splitting. RGx.y x = column y = row*

	RG 1	RG 2	RG 3	RG 4	RG 5	RG 6	RG 7	RG 8
.1	☐	☐	☐	☐	☐	☐	☐	☐
.2	☐	☐	☐	☐	☐	☐	☐	☐
.3	☐	☐	☐	☐	☐	☐	☐	☐
.4	☐	☐	☐	☐	☐	☐	☐	☐
.5	☐	☐	☐	☐	☐	☐	☐	☐

Questions 3-5: Resource allocation expected on existing funding lines for 2024-27 for this/these specific research goal(s)

3 Permanent FTE/y

☐

4 Non-permanent FTE/y

☐

5 Budget [kCHF/y]

☐

Questions 6-8: Resource allocation for this/these specific research goal(s) coming from the funding requests for strategic R&D you intend to file

6 Permanent FTE/y

☐

7 Non-permanent FTE/y

☐

8 Budget [kCHF/y]

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