

Updates from WG4

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6th WG4 General Meeting

21 October, 2024

WG 4 - Simulation

The simulation working group will be dedicated to the development of common simulation packages, tools, and radiation models. There will be two lines of activities that will be pursued: TCAD tools and so-called Monte Carlo (MC) tools. While the former is commonly used in sensor design, process simulation and radiation damage modeling the latter are extensively tested in sensor performance evaluation benefiting from much faster code and integration of other packages.

Another important activity in WG4 will be the continuation of radiation hardness (bulk and surface) modeling, starting from the defect level using mainly but also MC tools. Radiation hardness models for wide bandgap semiconductors (WBS) will be explored and developed. The WG4 will be an important part of many working groups and work packages: it will contribute to the simulations of sensor development and performance in WG1 and WG2, it will collaborate with WG3 to incorporate in the simulation the latest understanding of radiation damage, it will be used to optimize the developments of common tools (WG4 will facilitate the use of WBS (WG6) by incorporating their properties in the simulation package.

Conveners:

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Documents

DRD3 Scientific Proposal (v3.1): [pdf](#)
WG4 list of involved institutes and contact persons (accessible only to "drd3-community-subscribers" members): [pdf](#)

Next Events

WG4 General Meeting #06 (online), Oct 21, 2024, 15:00 (CEST): [Indico Agenda](#)

Past Events

WG4 General Meeting #05 (online), Oct 7, 2024, 15:00 (CEST): [Indico Agenda](#) | [Meeting Recording](#) (expiring on Oct 22, 2024. Passcode: 3f4bs@%+)
WG4 General Meeting #04 (online), Sep 16, 2024, 15:00 (CEST): [Indico Agenda](#)
WG4 General Meeting #03 (online), Sep 2, 2024, 15:00 (CEST): [Indico Agenda](#)
WG4 General Meeting #02 (online), Aug 5, 2024, 15:00 (CEST): [Indico Agenda](#)
WG4 General Meeting #01 (online), Jul 22, 2024, 15:00 (CEST): [Indico Agenda](#)
1st DRD3 Collaboration Week (in person), Jun 17–21, 2024: [Indico Agenda](#)
1st WG4 Scientific Preparatory Meeting (online), Jun 3, 2024, 10:00 AM (CEST): [Indico Agenda](#)
5th Allpix Squared User Workshop, May 22–24, 2024: [Indico Agenda](#)

Research Results

Literature review on 4H-SiC TCAD parameters (J. Burin *et al.* from HEPHY, Austria): [ch.1](#) (permittivity) - [ch.2](#) (impact ionization)

Open Positions

two-year "Scientist for Device Simulation" postdoc position at DESY (expired on Sep 8, 2024)

Useful Links and Tools

WG4 contact email: drd3-wg4-conveners
WG4 meetings: [Indico Page](#)
WG4 e-group (self subscription with admin approval): [drd3-wg4-simulations](#)
WG4 Mattermost channel: [link](#)

- A new section has been created in our **WG4 webpage**
- “*Research Results*” will host all the relevant documents about the **WG achievements** towards both the **Research Goals** and **Research Activities**
- At present, we are publishing the results of **literature review** about **TCAD parameters** of **4H-SiC**