

# Workflow for Managing the Simulation Geometry

Joint SCC & TC-office Initiative

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TIC meeting, March 23<sup>rd</sup> 2026

# Relevance of the fidelity of the Geometry used in the Simulation Studies

- The **detector optimization** and the progress in the **detail detector design** require that mechanics and integration progress on one side and simulation studies on the other side progress in parallel hand-in-hand allowing for reciprocal feedback in as much “real time” as practically possible.
- The **fidelity of the geometry description** used in the simulation studies is fundamental to ensure:
  - Meaningful feedback to the Project responsible for the engineering progress;
  - Realistic feedback to the DSC, which optimize the subsystem performance;
  - Realistic reconstructed data from simulation campaigns used in the physics studies.

The above considerations underline the need that the **geometry modifications are promptly applied**.

Another key ingredient is to have the **whole community dedicated to DSCs aware and positive** respect to the modifications → this requires **the involvement of the TIC** and this is why the workflow for the geometry modifications is discussed at this TIC meeting jointly organized by the SSC and the TC-Office

# Motivations to focus on the Workflow for the Management of the Simulation Geometry

1. **No workflow for Managing the Geometrical Simulation Geometry has been defined so far.**
  - Even if several implementations took place thanks to good will and expertise from S&C and DSC contributions.
2. **Often the implementation of modifications of integration and mechanics communicated by the Project Management is not prompt.**
  - This prevents fast feedbacks and delay slowdown the optimization of the mechanics and integration effort as well as up-to-date outcome of the simulation efforts.
3. The community is **not promptly aware of the modifications.**

# The proposed Workflow

- The proposed workflow will emerge from the today agenda.

The screenshot shows a meeting agenda for 'TIC meeting - Workflow for managing simulation geometry' on Monday, 23 Mar 2026, from 09:00 to 11:35 US/Eastern. The host is Silvia Dalla Torre (INFN, Trieste). The agenda includes:

- 09:00 → 09:05 Communications** (5m): Speakers: Matt Posik (Temple University), Oskar Hartbrich (Oak Ridge National Lab), Prakhar Garg (Yale University), Silvia Dalla Torre (INFN, Trieste)
- 09:10 → 09:25 DSC communications** (15m): Speakers: Alexander Jentsch (Brookhaven National Laboratory), Alexander Kiselev (BNL), Brian Page (Brookhaven National Laboratory), Carlos Munoz Camacho (JCLab, CNRS/IN2P3), Ernst Sichtermann (Lawrence Berkeley National Laboratory), Friederike Bock (ORNL), Grzegorz Kalicy (CUA), Hwidong Yoo (Yonsei University), Jaroslav Adam, Kondo Gnanvo (Jefferson Lab), Krzysztof Piotrkowski (AGH UST), Laura Gonella (University of Birmingham), Dr Leszek Kosarzewski (Ohio State University), Marco Contalbrigo (INFN Ferrara), Maria Zurek (Argonne National Laboratory), Megan Connors (Georgia State University), Miguel Arratia (University of California, Riverside), Nicholas Zachariou (University of York), Oleg Tsai, Satoshi Yano (Hiroshima University), Dr Simon Gardner (University of Glasgow), Stefan Bathe (Baruch College, CUNY, & RBRC), Sylvester Joosten (Argonne National Laboratory), Tanja Horn (Cath), Zhangbu Xu (Kent State University)
- 09:30 → 09:45 ePIC Geometry: Introduction** (15m): Speaker: Silvia Dalla Torre (INFN, Trieste)
- 09:50 → 10:05 ePIC Geometry: Status of the Comparison with the Engineering Design** (15m): Speaker: Sakib Rahman (NPPS-BNL)
- 10:10 → 10:25 ePIC Geometry: Improving the Workflow for the Comparison** (15m): Speaker: Dr Markus Diefenthaler (Jefferson Lab)
- 10:30 → 10:45 Discussion** (15m)