

# Third MODE Workshop on Differentiable Programming for Experiment Design



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## The Geant4 particle transport simulation toolkit: differentiable?

*Wednesday 26 July 2023 12:30 (20 minutes)*

The Geant4 particle transport simulation toolkit, widely used in high energy and nuclear physics, biomedical, space science, etc. applications, will be introduced briefly. The main concepts, design choices and interfaces that enable to simulate the passage of different particles through complex geometrical setups, while modelling their interactions with rather diverse characteristics, will be highlighted. The goal of the presentation is to explore the possible strategies for differentiability as well as to establish a direct connection between the Geant4 developers and the differentiable programming experts engaged with the HEP community.

**Primary author:** NOVAK, Mihaly (CERN)

**Presenter:** NOVAK, Mihaly (CERN)

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