The activity concerned both lines of research over which the scientific scope of the UQ project is articulated:

1) the quantification of the uncertainties of physics components of Monte Carlo transport codes (with focus on Geant4)

2) the development of methods to determine the uncertainties of simulated observables, deriving from uncertainties in the physical components used in particle transport.

Regarding 1), the following research activity were performed:

- complete refactoring, improved physics model and validation of photon elastic scattering
- complete refactoring, new calculation method, experimental validation of Geant4 radioactive decay
- first development cycle for quantitative validation of Compton scattering and photoionization

Regarding 2), the conceptual and mathematical foundation of an analytical method to quantify uncertainties was conceived and developed; verification tests in simple configurations were performed.

Results of these research activities were presented at conferences (CHEP, IEEE NSS, CAARI) and are published, or currently under review, in refereed journals.

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