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Bunker Shielding Monte Carlo Simulation for the HUMV Protontherapy Facility

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The Spanish Nuclear Safety Council (CSN) demands the preparation of a Radiation Protection (RP) report by an independent entity for the commissioning of the BEAMPRO250 cyclotron machine at Valdecilla Hospital (HUMV). To meet this legal requirement, the Instituto de Física de Cantabria (IFCA) has developed a Geant4-based simulation tool that, given the machine geometry and annual workload, determines the concrete shielding conditions and the RP occupational areas according to international safety standards. The performance capability of the software package and main preliminary results that include civil engineering implications are presented here.

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