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Simulation of Bremsstrahlung spectra in general targets and its application to a model of a laser-driven irradiation source

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A model for bremsstrahlung production in targets of variable length is being developed by means of FLUKA simulations. Laser-accelerated electron beams, which have recently been proved as an alternative for conventional particle accelerators in tumor irradiation, usually have a broad energy distribution, thus depriving thin and thick targets approximations of sense. Discussing technical aspects include a priori determination of appropriate length scale, the use of USERWEIG to substantially reduce the number of simulations of the naive approach, and a package in development for reading and plotting FLUKA-generated files with Mathematica.

Presenter: HERNANDEZ, Guillermo