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Investigation of gamma emission in experimental modelling of hadron therapy

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Experiment Gamma-CCB at Cyclotron Centre Bronowice focuses on investigation of gamma emission in experimental modelling of hadron therapy, searching for manifestation of the Bragg peak in gamma spectra. Experimental program comprises a series of measurements for different energies of the proton beam, as well as for several phantom materials. The talk reports on the results of the measurements performed so far, at 70 MeV proton beam energy and for two target materials: graphite and methacrylate PMMA. Two different experimental techniques were tested, resulting in differential gamma spectra or spectra integrated over whole proton penetration path in a phantom. Strong correlation of the intensity of the carbon and oxygen excitation lines with the Bragg peak position has been observed in both types of measurements, confirming the potential of the method in the future application in hadron therapy.

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