

Abstract Submitted
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Biologically Optimized Treatments for Hadron Radiotherapy¹ VAHAGN NAZARYAN, CYNTHIA KEPPEL, Hampton University, RICHARD BRITTEN, Eastern Virginia Medical School, JERRY GEORGE, XILIANG NIE, Hampton University — Near future advances in proton radiotherapy technology will increasingly require complex, conformal treatment planning. However, the current state of knowledge of the biological efficiency of proton beams may be inadequate to facilitate precision, and reduced margins. A new project at the Hampton University Proton Therapy Institute and the Eastern Virginia Medical School aims to facilitate the expected benefits of increasingly conformal treatment capabilities. Specifically, we seek to establish with measurements the biological depth dose profile of protons with incident energies in the range 62-210 MeV, and to utilize these also to provide vastly improved model algorithms for patient treatment planning based on biological, rather than simply physical, depth dose profiles. A progress report on a model for proton biological efficiency calculations as an input algorithm for treatment planning with protons will be presented. The planned measurements will be discussed.

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