Radiation Damage From Mono-energetic Electrons Up to 200 keV On Biological Systems

YURIY PRILEPSKIY, Hampton University, FOR CAMI COLLABORATION — The electron gun of the CEBAF machine at Jefferson lab (Newport News, VA) is capable of delivering electrons with energies up to 200 keV with a resolution of about $10^{-5}$. This 1.5 GHz beam permits to generate cellular radiation damage within minutes. We have performed irradiation of cancer cells with different energies and different currents to investigate their biological responses. This study will permit to address the physical processes involved in the RBE and LET at a level that supersedes current data listed in the literature by orders of magnitude. We will discuss the experimental setup and results of the first stage of data collected with this novel system. This research is part of a global program to provide detailed information for the understanding of radiation based cancer treatments.