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Application of nuclear physics in medical physics and nuclear medicine CORNELIA HOEHR, TRIUMF — Nuclear physics has a long history of influencing and advancing medical fields. At TRIUMF we use the applications of nuclear physics to diagnose several diseases via medical isotopes and treat cancer by using proton beams. The Life Science division has a long history of producing Positron Emission Tomography (PET) isotopes but we are also investigating the production of SPECT and PET isotopes with a potential shortage for clinical operation or otherwise limited access to chemists, biologists and medical researchers. New targets are being developed, aided by a simulation platform investigating the processes inside a target under proton irradiation – nuclear, thermodynamic, and chemical. Simulations also aid in the development of new beam-shaping devices for TRIUMF's Proton Therapy facility, Canada's only proton therapy facility, as well as new treatment testing systems. Both promise improved treatment delivery for cancer patients.

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