

Physics Division Seminar

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Reference Cross Sections for Charged-Particle Monitor Reactions

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Evaluated cross sections of beam-monitor reactions are expected to become the *de-facto* standard for cross-section measurements that are performed over a very broad energy range in accelerators in order to produce particular radionuclides for industrial and medical applications. The requirements for such data need to be addressed in a timely manner, and therefore an IAEA coordinated research project was launched in December 2012 to establish or improve the nuclear data required to characterise charged-particle monitor reactions. An international team was assembled to recommend more accurate cross-section data over a wide range of targets and projectiles, undertaken in conjunction with a limited number of measurements and more extensive evaluations of the decay data of specific radionuclides. Least-square evaluations of monitor-reaction cross sections including uncertainty quantification have been undertaken for charged-particle beams of protons, deuterons, ^3He and ^4He particles. Recommended beam monitor reaction data with their uncertainties are available at the IAEA-NDS medical portal https://www-nds.iaea.org/medical/monitor_reactions.html.