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of Thick-Target Neutron Yields above 10 MeV from the NSCL Experiments; 2.12 Total Yields for Systems with Al, C, Cu or Pb Targets; 3. Secondary Neutron Production Cross Sections; 3.1 Overview of Measured Systems; 3.2 Experimental Details; 3.2.1 HIMAC experiments; 3.2.2 RIKEN experiments; 3.2.3 Bevalac experiments; 3.3 Results; 3.3.1 Analysis of HIMAC experiments; 3.3.2 Analysis of RIKEN experiments; 3.3.3 Analysis of Bevalac experiments
3.3.4 Double-differential spectra 3.3.5 Angular distributions; 3.3.6 Total yields; 3.4 Double Differential Neutron Production Cross Sections from HIMAC Experiments; 3.5 Double Differential Neutron Production Cross Sections from RIKEN Experiments; 3.6 Double Differential Neutron Production Cross Sections from Bevalac Experiments.; 3.7 Angular Distributions; 3.8 Total Cross Sections; 4. Measurements of HZE Neutrons Behind Shielding; 4.1 Experimental Details; 4.1.1 Concrete shielding using self-TOF, NE-213, and activation foils; 4.1.2 Iron shielding using self-TOF and NE-213 detectors
4.1.3 Concrete and iron shielding using a TEPC 4.1.4 Bonner sphere measurements behind concrete and iron; 4.2 Results; 4.2.1 400 MeV/nucleon 12C + Cu neutrons behind concrete; 4.2.2 400 MeV/nucleon 12C + Cu neutrons behind iron; 4.2.3 400 MeV/nucleon 12C + Cu neutrons behind iron and concrete, TEPC measurements; 4.2.4 155 MeV/nucleon He, C, and O + Hevimet neutrons behind iron and concrete; 4.3 Spectra from HIMAC Experiments of Sasaki et al.; 4.4 Spectra from HIMAC Experiments of Nunomiya et al.; 4.5 Spectra from NSCL Experiments
5. Production Cross Sections of Spallation Products Created in Heavy-Ion Reactions

Sommario/riassunto

This handbook is a timely resource for the rapidly growing field of heavy-ion transport-model theory and its applications to the fields of accelerator development, heavy-ion radiotherapy, and shielding of accelerators and in space. Data from over 20 years of experiments in the production of secondary neutrons and spallation products are contained in the handbook, and are available on the accompanying CD. Transport modelers and experimentalists will find the detailed descriptions of the experiments and subsequent analyses to be a valuable aid in utilizing the data for their particular applicati