

The SNS Injection System*, J.D. GALAMBOS, J.A. HOLMES, ORNL; Y.Y. LEE, A. LUCCIO, BNL; D.K. OLSEN, ORNL; J.J. BEEBE-WANG, BNL - The 1-GeV 1-MW Spallation Neutron Source requires 1160-turn H⁻ foil injection into a FODO-lattice accumulator ring with uncontrolled beam losses < 0.02%. Various injection schemes have been studied. The requirements will be met with a three-dipole chicane positioned around the central quad of a dispersionless straight section. A ~300 ug/cm² stripping foil will be located in the falling fringe-field region of the chicane center dipole and the following quad will increase beam separation. We locate the foil such that the foil-excited H⁰ recoil into a continuously decreasing magnetic field which reduces the uncontrolled beam losses from Stark stripping of excited H⁰ to about 10⁻⁹. Three painting options with bumping magnets have been optimized: 1) horizontal bumping only, 2) horizontal and vertical bumping away from the foil together, and 3) horizontal and vertical bumping in opposite directions in order to attain a K-V like distribution at the end of injection. Other aspects of the injection scheme will also be discussed.

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