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Study on the H- stripping injection for the CSNS-II

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For the high intensity spallation neutron sources, the foil stripping injection is an effective method to accumulate proton beam. For different injection beam parameters and stripping foil parameters, the foil temperature rising due to the energy deposition have been simulated in detail by using the codes COMSOL and ANSYS. With the increasing of the beam power, there are many difficulties by using the foil stripping, such as short foil lifetime, extremely high peak temperature, large radiation dose, etc. Laser-assisted H⁻ stripping can be an alternative to the foil stripping to overcome the above difficulties. Based on the phase II of China Spallation Neutron Source (CSNS-II), the physical principle of laser-stripping injection has been explored theoretically. The laser-stripping injection process have been simulated by the code Py-ORBIT.

Footnotes

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