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Commissioning of the slow extraction beam instrumentation at PREF

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The Proton Radiation Effects Facility (PREF) aiming for the displacement damage effect research was proposed by XTIPC (Xinjiang Technical Institute of Physics and Chemistry, Chinese Academy of Sciences) in 2018. The facility was designed and constructed by IMP (Institute of Modern Physics, Chinese Academy of Sciences). The beam commissioning of PREF had been started since August to September of 2023. Four types of instruments, scintillation screen, Faraday cup, scintillator and ionization chamber are implemented for the proton beam profile, intensity, position, efficiency, spill structure. With the beam instruments, the machine reached nearly 95% slow extraction efficiency for all energies from 10 to 60 MeV, 5×10^{10} particle per second (ppp), $2 \times 2 \text{ cm}^2$ up to $20 \times 20 \text{ cm}^2$ scanning area.

Footnotes

Funding Agency

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Yes

Primary author: LIU, Tong (Institute of Modern Physics, Chinese Academy of Sciences)

Co-authors: Dr YAO, Liping (Institute of Modern Physics, Chinese Academy of Sciences); Mr JING, Long (Institute of Modern Physics, Chinese Academy of Sciences); Mr LI, Ning (Institute of Modern Physics, Chinese Academy of Sciences); Dr REN, Hang (Institute of Modern Physics, Chinese Academy of Sciences); WU, Junxia (Institute of Modern Physics, Chinese Academy of Sciences); Dr YANG, Yongliang (Institute of Modern Physics, Chinese Academy of Sciences); LI, ZhiXue (Institute of Modern Physics, Chinese Academy of Sciences); Mr WANG, Tian (Institute of Modern Physics, Chinese Academy of Sciences); Dr GU, Kewei (Institute of Modern Physics, Chinese Academy of Sciences); Ms LI, Li (Institute of Modern Physics, Chinese Academy of Sciences); Dr SU, Jianjun (Institute of Modern Physics, Chinese Academy of Sciences); Mr DING, Jiajian (Institute of Modern Physics, Chinese Academy of Sciences); Ms HE, Peilin (Institute of Modern Physics, Chinese Academy of Sciences); XIE, Hong (Institute of Modern Physics, Chinese Academy of Sciences); Dr RUAN, Shuang (Institute of Modern Physics, Chinese Academy of Sciences); YANG, Jiancheng (Institute of Modern Physics, Chinese Academy of Sciences); Prof. YUAN, Youjin (Institute of Modern Physics, Chinese Academy of Sciences); Mr HOU, Lingxiao (Institute of Modern Physics, Chinese Academy of Sciences); Dr WANG, Geng (Institute of Modern Physics, Chinese Academy of Sciences)

Presenter: LIU, Tong (Institute of Modern Physics, Chinese Academy of Sciences)

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