



Contribution ID: 137

Type: **Poster Presentation**

Physical design of an online beam monitor for heavy-ion single event effects tests

Wednesday, 11 September 2024 14:20 (1h 30m)

Accurate measurement of flux rate is essential in heavy-ion single event effects tests, but it presents significant challenges for monitoring low energy ($5\sim 10\text{MeV/u}$) and low intensity (less than $1\text{E}6/\text{s}$) heavy-ion beams. In this paper, we propose a novel detector that enables real-time monitoring of flux rate by simultaneously measuring the beam intensity and profile using secondary electrons on both the front and back surfaces of thin films. The confinement of secondary electrons through electric and magnetic fields is achieved, with CST simulation conducted to validate the method. This approach offers several advantages over conventional methods, including high spatial and temporal resolution, reduced mass thickness, and multi-parameter measurement capability. Our research expands the application potential of such detectors while providing technical support for radiation measurement in single event effects tests.

Footnotes

Funding Agency

I have read and accept the Privacy Policy Statement

Yes

Primary author: WANG, Di (Northwest Institute of Nuclear Technology)

Co-authors: Mr WANG, Baichuan (Northwest Institute of Nuclear Technology); Mr WANG, Minwen (Northwest Institute of Nuclear Technology); Mr CHEN, Wei (Northwest Institute of Nuclear Technology); Ms YAN, Yihua (Northwest Institute of Nuclear Technology); Mr WANG, Zhongming (Northwest Institute of Nuclear Technology)

Presenter: WANG, Di (Northwest Institute of Nuclear Technology)

Session Classification: WEP: Wednesday Poster Session

Track Classification: MC4: Transverse Profile and Emittance Monitors