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Test of the large-diameter CNT wire for the high-intensity beam diagnostics

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In particle accelerator complex, measurement of the beam profile monitor is important to mitigate the beam loss in a high-intensity beam linac. However, traditional metallic wires in wire scanner monitor (WSM) face thermal challenges with high energy deposition leads to rapid break. Since the CNT wire has a high-temperature tolerance and a small energy deposit due to the low density compared with the tungsten wire, it is selected as strong wire to measure high intensity beam. With the development of carbon nano technology, a new production process for wire scanner is introduced. Besides, this paper examines the thermal durability of carbon nanotubes (CNT), carbon fiber. And the details of the study of CNT wire scanner monitor at CSNS are also presented.

Footnotes

Paper preparation format

LaTeX

Region represented

Asia

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