

Muon Source Driven by Channeling Radiation

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The search for novel muon sources is of growing interest in regards with present actual problems such as, for instance, muon-antimuon colliders [1] and muon-catalyzed nuclear fusion [2]. As known for the muon production one can use interaction of high energy proton beams with carbon based media or beryllium targets [3], as well as interaction of high energy electron beams with laser beams [4].

Many times discussed solution [5] for the positron production is based on the use of multi-GeV electron beam as a source of channeling radiation in a crystalline target (radiator) with its subsequent conversion into electron-positron pairs in amorphous target (converter).

In this work we propose to apply similar scheme for muon production, i.e. a "hybrid" scheme based on channeling radiation by 1 ÷ 5 GeV electrons in W crystalline radiator and its successful conversion in amorphous converter has been analyzed as a source of muons.

References

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