



PROPOSITION DE STAGE 2013

Licence 2

Licence 3

Master 1

Groupe du laboratoire : Département accélérateur

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Titre du stage : Conventional positron source at the future e+e- collider . Comparison of compact and granular target

Précisions sur le sujet proposé :

The next generation of electron-positron collider requires a high intensity beam at the interaction point. While the production of electrons seems to be under control, the positrons production is more complicated and requires important R&D.

Basically the positron generation needs a high electron beam energy impinging on a target with a high Z value (typically tungsten material). The positrons are then created via the e+e- pair creation occurring in the target, due to bremsstrahlung photons.

Due to the high energy and intensity of the incident electron beam thermal problems will occurs in the target. In the extremely case, the energy density is so high that it could break the target. To avoid such problem the LAL Orsay has proposed different solutions. One of them is to use instead of compact targets a granular ones made of a large number of small spheres. Since the ratio of surface/volume of the spheres is high the heat dissipation will be easier than in the compact target. The goal of this training is to study the energy density behavior inside the compact and the granular target.

For this training the commons hep softwares Geant4 and root will be used.

Durée minimale du stage : 2 Months

Nombre d'étudiants souhaité : 1