

PLPAC meeting 2024-1

Contribution ID : 17

Measurement of charged particle emission spectra in $^{12}\text{C} + ^{209}\text{Bi}$ fission reaction

Monday 22 Apr 2024 at 10:50 (00h15')

PI info :

Pawan Singh

local collaborator info :

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Collaborators Name :

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Motivation :

The study of nuclear fission is crucial for understanding fundamental of Nuclear physics. Nuclear fission, induced by heavy-ion fusion reactions, reveals complexities challenging our current understanding. Non-equilibrium fission, with its various observable like particle emissions, offers insights into intricate dynamics. Recent investigations in ^{232}Th show discontinuous behaviors in pre-scission α -particle multiplicities, suggesting non-equilibrium fission. This prompts further exploration, particularly in lower mass regions, to uncover nuclear fission dynamics' nuances. Our proposal to measure charged particle multiplicities in $^{12}\text{C}+^{209}\text{Bi}$ fission aims to significantly contribute to this ongoing quest for knowledge.

Beam time requirement in shifts :

18

Beam :

^{12}C

Beam Energy :

75 MeV and 25 MeV

Beam Current :

12nA-30nA

Beam Port :

30degree GPSC LINAC Hall-1

Buncher Required :

No

Target / Sample Details :

^{209}Bi

Whether the experiment is part of PhD work ? :

Yes

Name of the PhD student and year of registration :

Pawan Singh 2022

Whether the experiment is part of Post-Doc work ? :

No

information on the past beamtime at PLF :

- 1)-Measurements of pre-scission α -particle multiplicity spectra in $^{19}\text{F} + ^{209}\text{Bi}$ reaction.
- 2)-Understanding of near scission emission peak energies of α particles in heavy-ion fission reactions.

Publication information related to prior work at the PLF :

We are currently carrying out data analysis for the ^{19}F on ^{209}Bi reaction. Initial findings indicate promising and interesting results emerging from the data.

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Session classification : --not yet classified--

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Type : --not specified--