

# PLPAC meeting 2024-1

Contribution ID : 13

## Exploring new isotopes of Bk

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**Motivation :**

We found that there is a scope to identify the new isotopes for Bk which has half-lives greater than 10-6s. Our theoretical calculation (see Appendix IV) predicts that the next heavy nuclei with  $Z=97$ ,  $N=139$  ( $A=236$ ,  $T_{1/2}=0.933s$  ( $\beta$ -decay)) can be synthesized with a good residual cross-section of 87pb by the target of  $^{209}\text{Bi}$  and projectile of  $^{30}\text{Si}$  at about 147.53 MeV.

**Beam time requirement in shifts :**

20

**Beam :**

$^{30}\text{Si}$

**Beam Energy :**

120-150

**Beam Current :**

2-5

**Beam Port :**

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**Buncher Required :**

yes

**Target / Sample Details :**

$^{209}\text{Bi}$

**Whether the experiment is part of PhD work ? :**

yes

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

no

**information on the past beamtime at PLF :**

nil

**Publication information related to prior work at the PLF :**

1 H.C. Manjunatha, K.N. Sridhar, N. Sowmya, Investigations on synthesis super heavy element Z=122. Physical Review C 98, 024308 (2018)

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10 H.C.Manjunatha, Bremsstrahlung dose induced by high energy beta particles (>1 MeV) in bone, Annals of Nuclear Energy (ISSN: 0306-4549), 59 (2013) 53–62

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14 H.C.Manjunatha, B.Rudraswamy: "External Bremsstrahlung of  $^{147}\text{Pm}$  in  $\text{PbCl}_2$  and  $\text{CdO}$ " *Nuclear Instruments and Methods in Physics Research A* 619 (2010) 326-329. ISSN: 0168-9002

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20 Rumana, Sankarshan, Sangamesha, Manjunatha, Sayyid, H.C.Manjunatha, .  
Sucrose assisted chemical-free synthesis of rGO for triboelectric nanogenerator: Green energy source for smart-water dispenser, *Nano Energy* 106 (2023) 108085

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**Session classification** : --not yet classified--

**Track classification** : --not yet classified--

**Type** : --not specified--