Fabrication of self supporting $^{206,208}$Pb targets using evaporation technique

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Abstract

Self Supporting $^{206,208}$Pb enriched isotopic targets of thicknesses varying from 500 to 800 $\mu g/cm^2$ have been prepared in high vacuum environment by a resistive heating method at Inter University Accelerator Centre (IUAC), New Delhi.

The Energy Dispersive X-ray Analysis (EDAX) was performed to check the elemental purity of the foils. These targets have been successfully used for nuclear physics experiments using National Array of Neutron Detectors (NAND) at IUAC, New Delhi.
Outline of Talk

- Introduction
- Set-up and preparation
- Characterization
- Conclusions

References

Fig. 1: Inside view of High-Vacuum Chamber at IUAC, New Delhi.
Fig. 2: Picture of pin-hole and tube boat used for deposition
Fig. 3.1: EDAX spectrum of $^{208}$Pb foils.
Fig. 3.2: EDAX spectrum of $^{206}\text{Pb}$ foils
Conclusion

Self-supporting $^{206,208}$Pb targets have been prepared in high vacuum chamber by the resistive heating technique. KCl deposited on glass substrates was used as a releasing agent and a solution of ammonia: deionized water was used for floating off the target films from the glass substrate. The film thicknesses of the deposited targets were measured using alpha energy loss method. The EDAX spectrum of the target films clearly indicates the absence of impurities in the target foils.
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