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# Fabrication and characterization of carbon-backed thin 208Pb targets

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Thin carbon-backed isotopically enriched 208Pb targets were required for our experiment aimed to study the reaction dynamics for 48Ti + 208Pb system, populating the near super-heavy nucleus 256Rf, through mass-energy correlation of the fission fragments. Purity and thickness of the targets are of utmost importance in such studies as these factors have strong influence on the measurement accuracy of mass and energy distribution of fission fragments. 208Pb targets with thickness ranging from 60 μg/cm2 to 250 μg/cm2 have been fabricated using physical vapor deposition method in high vacuum environment at Inter University Accelerator Centre (IUAC), New Delhi. 208Pb was deposited using resistive heating method, whereas carbon (backing foil) deposition was performed using the electron gun bombardment technique. Different characterization techniques such as Particle Induced X-ray Emission (PIXE), Energy Dispersive X-Ray Fluorescence (EDXRF) and Rutherford Backscattering Spectrometry (RBS) were used to assert the purity and thickness of the targets. These targets have successfully been used to accomplish our experimental objectives.

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