

SYNTHESIS OF INTERMETALLIC ACTINIDES TARGETS FOR INTENSE HEAVY ION BEAM IRRADIATIONS

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The construction of Superheavy element factory at Flerov laboratory of nuclear reactions was recently completed. A crucial parameter of new accelerator DC-280 is its one order of magnitude higher maximum beam intensity of $10 \mu\text{A}^1$. Actinide targets used for production of new elements must meet several requirements and able to withstand long term high intense irradiations, high temperatures, radiation enhanced diffusion and chemical reactions².

Here, we present an approach for the preparation of intermetallic actinide targets, which revealed first promising results³. Based on a combination of physical vapor deposition and molecular electroplating, followed by coupled reduction, our development allows to produce more stable and homogeneous intermetallic actinide targets. Following the approach described in⁴, our advancement aims at confining the target material in a thin layer on top of the backing foil. We used the Eichler-Miedema model⁵ in order to find a suitable combination of these materials. The general features of this technique, as well as the further developments will be presented at the conference.

References

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