

Superheavy nuclei: which regions of the nuclear map are accessible in the near future?

During last decade the heaviest elements with $Z=113-118$ were discovered in Dubna in fusion reactions of ^{48}Ca beam with appropriate actinide targets. The ^{48}Ca program of synthesis of new elements is over as no heavier target than Californium is available. However ^{48}Ca -based fusion reactions may be still used, in particular, for exploring new lands on the nuclear map. The perspectives of discovering new elements heavier than $Z=118$ as well as of synthesis of new isotopes of super-heavy (SH) nuclei are discussed in this talk. In particular, we found for the first time a narrow pathway leading to the centre of the island of stability of SH nuclei owing to possible β^+/β^- -decay of SH nuclei. The conclusions are based on the recent calculations of decay properties of heavy and SH nuclei with respect to α -decay, β -decay and spontaneous fission.

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