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The separation time and the total efficiency measurements of complete fusion reactions products at MASHA

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The mass-spectrometer MASHA designed for determination of the masses of superheavy elements. The system separates complete fusion reaction products induced by heavy ion beams. The polygraphene foil is used as a hot absorber of the reaction products. The results of a total efficiency and a separation time measurement of short-lived mercury and radon isotopes are presented. The total efficiency measurement as a function of time was carried out at the intense heavy ion beams (up to 0,5 p□A). It means that a decrease of the total separation efficiency is due to sintering (thermal destruction) of the hot absorber structure. A new hot catcher design is proposed based on thin sheet made of carbon nanotubes and graphene. The test experiments showed a good potential of using such materials for the reactions studied.

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