



Chemical studies of Nh (Z=113) and Mc (Z=115) at TASCA

Alexander Yakushev

*GSI Helmholtzzentrum für Schwerionenforschung & Helmholtz Institute Mainz
for the TASCA collaboration*

Chemical studies of the odd-Z elements nihonium (Nh) and moscovium (Mc) are the hottest current topic in superheavy element (SHE) chemistry research. These elements are predicted to be more reactive compared to their neighbors Cn and Fl, which are stabilized due to relativistic closed-shell effects. The unpaired electron in Nh and Mc renders these more reactive, which leads to several challenges in gas-phase experiments. They are not as easy to transport to a chemistry and detection setup, where their adsorption properties on heterosurfaces are studied.

In the past years, Nh and Mc were in the focus of experiments at TASCA, which was used as a physical preseparator to ensure the unambiguous identification of rare decay chains. We report here on results of the two last SHE chemistry runs at TASCA, carried out in 2020 and 2021. These aimed at studying the adsorption of Nh and Mc on silicon oxide and gold surfaces. During two 3-week irradiations of ^{243}Am targets with a ^{48}Ca ion beam, several decay chains were detected that we attribute to originate from ^{288}Mc and ^{284}Nh . The experimental details and preliminary results of these experiments will be presented.