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ORAL PRESENTATION - The observation of a volatile compound formation with Po and Bi during experiments with superheavy elements

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Sophisticated gas-phase chromatography experiments with superheavy elements Cn, E113, and Fl are performed using noble gas atmospheres as carrier gases with only trace amounts of oxygen and water mainly to ensure the elemental state. Surprisingly, during these experiments the gas phase transport of volatile species of Po and Bi have been observed. Their deposition behaviour on gold surfaces have been measured. The decay characteristics of the observed isotopes showed that the observed transport is not related to any precursors such as Pb or Rn. The dew-point monitoring of the gas and the pretreatment of the carrier gas with hot Ta-getters changed the trace gas composition and was shown to influence the formation of these compounds dramatically. From these observations the formation of volatile hydride compounds was concluded, opening up an interesting chemical system for the investigation of the superheavy elements E115 and Lv.

The work is presented on behalf of the PSI-University of Bern-FLNR-ITE collaboration.

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