Highly charged ions produced in a warm electron beam ion trap

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A compact electron beam ion trap (WEBIT) working at room temperature without any cryogenic components is described and experimentally investigated. The trap design is based on permanent magnet technology. For the formation of the electron beam a Pierce electron gun equipped with a cathode of high emissivity is used. The ion trap is created by a compressed electron beam passing through a drift tube system consisting of three sections with corresponding electrical trap potentials. X-ray spectra measured with a Si(Li) semiconductor detector indicate the production of Kr^{34+}, Xe^{44+}, Ce^{48+}, Ir^{64+}, and Hg^{66+} ions.
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