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First investigations on the Dresden EBIS-A

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Abstract. We present first experimental investigations on the Dresden EBIS-A, an advanced design of the Dresden EBIT. The Dresden EBIS-A, an EBIT machine working at room-temperature is equipped with a NdFeB ring magnet system producing a magnetic field on axis of about 620 mT. The measurement of integral ion pulses from the ion source yield a number of extracted elementary charges in the order of 10^9 per ion pulse. It is shown that the width of the ion pulse can be changed from microseconds up to several tens of microseconds varying the potential of the third drift tube section. The measurement of separated charge states provides an indication of an increased ion output compared to that of the Dresden EBIT. X-ray spectra account for the production of ions such as Ar^{17+}, Xe^{44+} and Ce^{49+} in the electron beam of the ion source.