

**Performance of the High Precision Schottky Mass Spectrometry at the ESR, B. FRANZKE, K. BECKERT, H. EICKHOFF, F. NOLDEN, H. REICH, B. SCHLITT, A. SCHWINN, M. STECK, TH. WINKLER** - High precision Schottky mass spectrometry [1] of unstable nuclei was one of the major objectives for the design of the Experimental Storage Ring ESR. Meanwhile, the potential of the method has been demonstrated impressively in a first series of experiments with electron cooled fragments from primary bismuth, gold and uranium nuclei. Nearly 100 poorly-known mass values could be determined experimentally with relative errors in the low 0.1 ppm range and further reduction of errors towards the 0.01 ppm range seems to be still in reach. The development of this novel experimental method in nuclear physics is based purely on recent achievements in accelerator techniques, beam cooling physics and modern low-noise rf-instrumentation.

[1] B. Franzke et al., *Physica Scripta* T59, 176 (1995)