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**Investigation on the Pulsed Mode Operation of the Frequency Tuned
CAPRICE ECRIS**

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For the research programs of the currently operational and future accelerator facilities there is an increasing demand for more intense highly charged ion beams. To satisfy such demand, especially for heavy ion beam production, the operational parameters of the Electron Cyclotron Resonance Ion Sources (ECRISs) should be shifted to higher frequencies, higher power and higher magnetic flux densities.

Several techniques have been developed to improve the performance of the existing ECRIS to fulfill this request. Recent experimental results proved that the tuning of the operating frequency of the ECRIS is a promising technique to achieve higher ion currents of higher charge states. On the other hand it is well known that the afterglow mode of the ECRIS operation can provide more intense ion beams in comparison with the continuous wave (cw) operation. These two techniques can be combined by pulsing the variable frequency signal driving the Traveling Wave Tube Amplifier providing the high microwave power to the ECRIS. In order to analyze the effect of these two combined techniques on the ion source performance, several experiments were carried out on the pulsed frequency tuned CAPRICE-type ECRIS. Different waveforms and pulse lengths have been investigated under different settings of the ion source. The results of the pulsed mode have been compared with those for cw operation.