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## **The Effect of Frequency Tuning in the 10 GHz NANOGAN ECR Ion Source**

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Earlier studies [1] on the frequency tuning effect in the 10 GHz NANOGAN ECR ion source have shown that larger intensities of medium and highly charged ions were extracted as compared to the source operation at 10 GHz and that the beam quality obtained was even better. In the present study we have tried to systematically correlate the x-ray intensities of the warm electrons measured at the injection side, along with the production of the medium and highly charged ions. 3D Simulations of the structure of the emerging beam at the extraction side support the beam digitized measurements and depict a non-hollow beam formation. The detailed experimental measurements together with the simulations will be presented.

### References

[1] G. Rodrigues, Kedar Mal, Narender Kumar, R. Baskaran, P. S. Lakshmy, Y. Mathur, P.Kumar , D. Kanjilal and A. Roy, Rev. Sci. Instrum., 85, 02A944 (2014).

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