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## **Modification of a classical Penning Ion Source operating mode for Sub-Femtoampere Beams at the U-120M Cyclotron**

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Detector R&D projects in particle physics and experiments in radio-biology require often very low intensity, stable beams with well controlled flux. Usual method to decrease beam intensity by collimators is usually not suitable since background radiation has to be kept as low as possible. This paper describes internal cyclotron Penning ion source (PIG) modification which allowed to achieve sub-femtoampere beam intensities. Upgrade of the the PIG source power supply at the U-120M cyclotron allowed to move to new working regime of the ion source and achieve proton fluxes as low as  $25 \text{ p/s.cm}^2$  well on the edge of the common beam monitoring systems.

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