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Dynamic vacuum - Collimator technology for suppression and control of desorption gases

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During operation with low charge state heavy ions (e.g. U²⁸⁺) in the GSI synchrotron SIS18, fast beam losses have been observed in experiments. At the same time, a dynamic behaviour of the residual gas pressure was observed. To overcome these problems, a collimator system has been developed and is now in the final preparation for installation into two of the twelve sectors of SIS18 in the shutdown this year. It incorporates the use of the CERN developed NEG coating as well as low desorption rate materials found out by systematic studies using the ERDA (Elastic Recoil Detection Analysis) technology at GSI. The collimator system will both reduce the desorption rate as well as control the not avoidable produced desorption gases. Simulation studies using the code STRAHLSIM as well as construction details are presented.

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