

Abstract Submitted  
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**Effect of Li in the ITER neutralizer** FRANCK DURÉ, TIBERIU MINEA, GILLES MAYNARD, Laboratoire de Physique des Gaz et des Plasmas - Orsay France, AGUSTIN LIFSCHITZ, Laboratoire d'Optique Appliquée Palaiseau France — Recently, a new design for the neutralizer stage of the ITER neutral beam injector has been proposed. Using Li instead of D2 gas. The gas load could be reduced by the use of a metal vapor easily frozen by surfaces and cryogenic pumping limitations would be exceeded allowing the accumulation of a thicker layer. This characteristic depends on the vaporization temperature of the lithium at low pressure ( $\sim 0.1$ Pa). Calculations showed the efficiency of the beam neutralization and the beam focusing. PIC simulations with the code OBI-2 (Orsay Beam Injector-2D) have shown the formation of a plasma between the neutralizer plates. It was also found that the positive ions of the plasma screen efficiently the beam space charge so that the beam divergence is reduced. The injection of Li has been investigated and compared to D2 one. Parametric study of the Li based neutralizer has been performed since the length and/or density of Li injected can be modified. The Li density profile has been estimated through Monte-Carlo 3D code developed in the LPGP. The resulted profile has been implemented as an input of the PIC-MCC code and results are presented.

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