Abstract Submitted
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**First principle based calculation of emission properties of positive column of Ar-$SnI_2$ glow discharge** MAXIM DEMINSKY, Kintech Lab, Moscow, Russia, MARIA TUDOROVSKAIA, RRC Kurchatov Inst., Moscow, Russia, IRINA CHERNYSHEVA, BORIS POTAPKIN, Kintech Lab, Moscow, Russia, DARRYL MICHAEL, DAVID SMITH, TIMOTHY SOMMERER, GE Global Reseach, Niskayuna, US — Possibility of replacement of mercury, an environmental hazard, by non-toxic elements in gas discharge lamps is intensively investigated now. Gases of metal halides are regarded as candidates of non-equilibrium source of emitters (metals) in glow discharge plasma. The model of glowing discharge in $Ar/SnI_2$ plasma is built using multilevel approach [1] for calculation of the cross sections and rate constant of electron collision with the metal halides. Sensitivity analysis shows, that dissociative attachment is one of the most important processes in that elecronegative medium and directly influences on steady state parameters of glow discharge plasma. Optimization of the discharge parameters and conclusion about maximal light emission efficiency is performed.

[1] *Adamson S. et al.* J. Phys. D: Appl. Phys. 2007. V.40. P.3857

Maxim Deminsky
Kintech Lab, Moscow, Russia

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