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TITLE: **Background for plasma chemistry models (PCMs) for intense electron beam driven plasmas***

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ABSTRACT: Various PCMs are developed for intense electron beam driven plasmas in Ar and air (dry and wet). This work is part of an effort to develop plasma response models (PRMs) for a DTRA- and NRL-funded effort to update ICEPIC and MEEC++ to model system generated electromagnetic pulse (SGEMP).

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Table 1: Important spectral lines of Ar

Atom	$\lambda[\mathring{A}]$	Intensity [a.u.]	$E_L[eV]$	$E_H[eV]$	Transition	J	$A[10^8 s^{-1}]$
Ar	7503.8685	700	11.83	13.48	$4s^1P_1^0 - 4p^1S^0$	1-0	$0.472 \pm 1\%$
Ar	7635.1056	500	11.55	13.17	$4s^3P_2^0 - 4p^1D_2$	2-2	$0.274 \pm 25\%$

1 Introduction

electron impact ionization of ground state argon atom with threshold (ionization) energy of 15.76 eV
$e + Ar \rightarrow Ar^+ + 2e, \varepsilon_{thres} = \varepsilon_{ion} = 15.76eV$

References