

Abstract Submitted
for the GEC20 Meeting of
The American Physical Society

Plasma chemistry data and chemistry set optimisation approach for ALD/ALE modeling ANNA DZARASOVA, Quantemol Limited, MARTIN HANICINEC, University College London Quantemol Ltd, SEBASTIAN MOHR, Quantemol Limited, JONATHAN TENNYSON, University College London — Modern ALD and ALE processes are often enhanced with a plasma-assisted step allowing for gentler conditions on the surface and offering a greater variety in terms of active species in the gas phase than conventional chemical etch and deposition. However, using plasma means adding a large number of process parameters which will impact the outcome. In order to mitigate RD risks and optimise the process conditions with regards to the production of suitable reactive species, plasma modelling can be employed. This, in turn, requires to have a thorough understanding of the plasma chemistry and the choice of species and reactions in the chemistry set used for modelling. In this presentation, we will show results of a sensitivity analysis of plasma chemistry sets for frequently used gas-mixtures such as O₂, SF₆, N₂/H₂ vs NH₃ to identify key species and reactions. Furthermore, we will propose steps of assembling a plasma chemistry set from scratch and checking its self-consistency using www.quantemolDB.com.

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Date submitted: 07 Sep 2020

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