

Abstract Submitted
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Modelling Metal-Halide Lamps with Plasimo¹ JAN VAN DIJK, BART HARTGERS, MARK BEKS, WOUTER BROK, JOOST VAN DER MULLEN, Eindhoven University of Technology — After a general introduction of the plasma simulation model Plasimo, being developed at Eindhoven University of Technology, we will discuss its application to the modelling of metal-halide lamps. The underlying model is based on a quite complete description of the plasma. It involves non-equilibrium plasma chemistry, the barycentric flow field, the gas temperature, spectrally and spatially resolved radiation transport and the electro-magnetic field. Special attention will be paid to the elemental diffusion sub-model, a non-equilibrium description of the plasma composition that is able to reproduce the process of elemental de-mixing. This convection-driven phenomenon is responsible for axial inhomogeneities in light output. This effect has been studied under various gravity conditions both on earth and in the International Space Station (ISS). A comparison with these experiments will be made. Plasimo (including the source code) is in principle available for fellow researchers. Interested parties are invited to contact the author or visit the Plasimo website, <http://www.dischargemodelling.org>.

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