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Towards Better Modelling of Surface Emission in Caesiated Materials

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Models for surface interactions and emission in ion sources may be based on surface measurements taken with quite different nearby field strengths, particle spectra, charge densities, and connected to power supplies with different VI characteristics, or even different material composition to those in the device being simulated. Particularly, standard models available in many codes do not take into account the presence of Caesium, which is widely used to boost current in H^- sources. We may only expect any description of a plasma to be as good as the models of the most important sources and sinks in the plasma. This paper describes some approaches towards improving models of the surface interaction in the hybrid PIC/fluid code VSim[1] for the case of caesiated penning sources.

References

[1] C. Nieter and J.R. Cary, "VORPAL : A versatile plasma simulation code" *Journal of Computational Physics* 196 (2004) 448–473

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