

Abstract Submitted  
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**Electrostatic simulation of ignition aids for automotive HID lamps**<sup>1</sup> EGMONT SEMMLER, ANDRE BERGNER, JUERGEN MENTEL, PETER AWAKOWICZ, Ruhr University Bochum — High intensity discharge (HID) lamps are used in a broad field of application. A special field of interest is car headlights because of their high lumen output level. Due to the high background gas pressure of 1.5 MPa in xenon, the technological requirements on the igniter are high. The ignition voltage of modern HID lamps for automotive application ranges from 15-20 kV. This work deals with three dimensional electrostatic simulations of the electric field strength and potential distribution for typical ignition voltages. Using a commercial finite element (FEM) solver the influence of different ignition aids (e.g. electrical conductive foils on the backside of the burner, different antenna arrangements) is studied and optimized. The optimization regime focusses on improving the local electric field strength at the electrodes which results in a reduction of the ignition voltage.

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