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Investigations of HID Lamp Electrodes under HF Operation JENS REINELT, OLIVER LANGENSCHEIDT, MICHAEL WESTERMEIER, JUERGEN MENTEL, PETER AWAKOWICZ, Ruhr-University Bochum — Low pressure lamps are operated many years at high frequencies to improve the efficiency of these lamps and drivers. For high pressure discharge lamps this operation mode has not been installed yet. Generally it can be assumed that there are changes in the electrode physics which may lead to an undesired lamp behavior if HID lamps are operated at a high frequency. To gain insights into these fundamental changes the so called Bochum Model Lamp is used. It is an easy system which allows a fundamental research on HID electrode behavior and the near electrode region without the occurrence of acoustic resonances. For the investigation phase resolved photography, pyrometry and spectrometry is used. The presented results describe changes in the electrode temperature and changes in the kind of arc attachment on the electrodes (diffuse and spot mode) depending on frequency. Also measurements of the Electrode-Sheath-Voltage (ESV), depending on frequency, are presented.

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