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**Sequentially emission line addressing by microwave driven mercury free low pressure lamps** C.M. ÖGÜN, CH. KAISER, R. KLING, Light Technology Institute of the Karlsruhe Institute of Technology, LIGHT AND PLASMA TECHNOLOGIES TEAM — As the use of mercury vapor lamps for lighting purposes will be banned in the European Union after 2015, finding a replacement for mercury in fluorescent lamps has become a challenge. Several low pressure gas discharge systems containing metal halides have been reported in the last decade. Examples are halides of indium and thallium with argon as auxiliary gas, which generate ultraviolet and visible emission lines. The peak emission intensities are adjustable by variation of plasma parameters, which allows addressing the color temperature of the lamp. In this contribution, we report on the effects of auxiliary gas pressure, cold spot temperatures and power densities for low pressure metal halide lamps filled with indium and thallium with regard to its spectral output. Since the guided surface wave discharge is the only method to increase the lamps power without changing the amplitude of the maintenance electrical field; the lamp discharges are sustained by microwave excited guided surface waves. A surfatron is used as coupling device of microwave energy.

Celal Mohan Ögün  
Light Technology Institute of the Karlsruhe Institute of Technology

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