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Direct Current Cathode Boundary Layer Xenon Discharge WEI-DONG ZHU, LUAN TO, JOSE LOPEZ, Department of Applied Science and Technology, Saint Peter's College, KURT BECKER, Polytechnic Institute of NYU — Cathode boundary layer (CBL) discharges are high-pressure glow discharges generated between a planar cathode and a ring-shaped anode, separated by a dielectric layer with a thickness of several hundred micrometers. Self-organized patterns formation, excimer emission, and electrical properties of CBL discharges in a direct current operation have been thoroughly studied by Schoenbach and co-workers at various pressures in xenon with mainly molybdenum as the electrode material. However, no detailed assessment of the effect of the cathode material on the cell-organized pattern formation and cathode material modification by the CBL discharge has been reported. This study focuses on the electrical characteristics, excimer emission of xenon around 172 nm, and self-organized pattern formation in CBL discharge with various cathode material at pressures of 100 Torr and 250 Torr. Cathode material modification by CBL discharge will also be briefly assessed.

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