

Abstract Submitted  
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**Obstructed DC glow discharge in nitrogen** VALERIY LISOVSKIY, Kharkov National University, 4 Svobody sq., Kharkov, 61077, Ukraine, EKATERINA KRAVCHENKO, EKATERINA SKUBENKO, NADIYA KHARCHENKO, VLADIMIR YEGORENKOV — We studied in experiment the obstructed and abnormal modes of dc glow discharge in nitrogen as well as the transition between them. The measurements were made in a tube of 55 mm in radius with the inter-electrode gap of 10 mm. It is shown that the obstructed discharge may exist only in the gas pressure range  $p < 0.2$  Torr under conditions corresponding to the left-hand branch of Paschen curve (the breakdown curve minimum was at pressure of  $p = 0.55$  Torr). The dc glow discharge in the nitrogen pressure range  $p < 0.2$  Torr was shown to possess an S-shaped current-voltage characteristics (obstructed and abnormal burning modes possess growing CVCs but the transition between them was accompanied by the negative CVC). The transition from the obstructed mode to the abnormal is shown to be accompanied by LF relaxation oscillations of the discharge current in a kilohertz range. These oscillations are probably due to the negative glow forming and decaying near the anode. They are observed in a limited nitrogen pressure and current ranges.

Valeriy Lisovskiy  
Kharkov National University, 4 Svobody sq., Kharkov, 61077, Ukraine

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