

Abstract Submitted
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Electron excitation coefficients in oxygen ŽELJKA NIKITOVIĆ, VLADIMIR ŠAMARA, GORDANA MALOVIĆ, ZORAN PETROVIĆ, Institute of Physics, POB 68, 11080 Zemun, Belgrade, Serbia and Montenegro — We have presented measurements of electron excitation coefficients for the level leading to 777 nm radiation of oxygen. Measurements were performed in a drift tube. The drift tube consists of a pair of plane electrodes, with a diameter of 79 mm at a distance of 14.7 mm, placed inside a close fitting quartz tube. The cathode was made of stainless steel and the anode of graphite so that backscattering of electrons from the anode is minimized. The self-sustained Townsend discharge between 600 Td and 24000 Td was maintained by running low current discharges at pressures between 2.2 Torr and 0.09 Torr, respectively. The absolute electron excitation coefficients were determined from the measurements of the optical signal at the anode. The spatial profiles of emission provide us with information on heavy particle excitation, on non-hydrodynamic behaviour of the discharge and on the reflection of electrons from the anode. The absolutely calibrated spatial profiles of emission may be used to separate the effects of electron and heavy particle excitation at high E/N values and obtain the cross sections for fast neutral excitation.

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