

PLASMACHEMICAL PROCESS IN THE NONSELF-DISCHARGE
STIMULATED BY THE RELATIVISTIC ELECTRON BEAM
IN THE HIGH PRESSURE N_2 - O_2 MIXTURE.

E.V.Grabovsky, V.P.Denisenko, Ju.B.Kasakov,
G.P.Maksimov, V.D.Rusanov.

I.V.Kurchatov Institute of Atomic Energy, Moscow, USSR

The possibility of carrying out the synthesis reactions in a gaseous discharge stimulated by relativistic electron beam is considered. The electron beam has following parameters: current density $j=500$ A/cm², electron's energy $W=500$ kev, time duration $\tau=40$ nsec. The gaseous discharge takes place in the mixture of N_2 and O_2 when the full pressure is about several atmospheres and the electric field has the magnitude below the breakdown one. It is shown that in these conditions when $T_e \gg T_o$ the reactions flow much more effectively than in the case of a full thermal equilibrium.