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**Modeling of recovery mechanism of ozone zero phenomenon by adding small amount of nitrogen in atmospheric pressure oxygen dielectric barrier discharges** HARUAKI AKASHI, TOMOKAZU YOSHINAGA, National Defense Academy — Ozone zero phenomena [1-3] in an atmospheric pressure oxygen dielectric barrier discharges have been one of the major problems during a long time operation of ozone generators. But it is also known that the adding a small amount of nitrogen makes the recover from the ozone zero phenomena. To make clear the mechanism of recovery, authors have been simulated the discharges with using the results of ref.3. As a result, the recovery process can be seen and ozone density increased. It is found that the most important species would be nitrogen atoms. The reaction of nitrogen atoms and oxygen molecules makes oxygen atoms which is main precursor species of ozone. This generation of oxygen atoms is effective to increase ozone. The dependence of oxygen atom density ( $n_O$ ) and nitrogen atom density ( $n_N$ ) ratio was examined in this paper. In the condition of low  $n_N/n_O$  ratio case, generation of nitrogen oxide is low, and the quenching of ozone by the nitrogen oxide would be low. But in the high ratio condition, the quenching of ozone by nitrogen oxide would significant. This work was supported by KAKENHI(23560352).

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