## Abstract Submitted for the GEC18 Meeting of The American Physical Society

Remote deflecting plasma source for novel plasma processing<sup>1</sup> NORIHIRO KODAMA, HARUHIKO HIMURA, TAKASHI MORIOKA, DEYAN LIU, SADAO MASAMUNE, AKIO SANPEI, Kyoto Inst of Tech, OKADA SHIGE-FUMI, Osaka University, KINGO AZUMA, University of Hyogo, TAKASHI KANKI, Japan Coast Guard Academy — Currently IoT technologies are progressing rapidly, which demands for downsizing and sophistication of mobile devices. Thus, various devices such as sensors and other circuit elements mounted on those must be more miniaturized and complicated. Generally, those are manufactured by producing a plasma containing ions or radical of atoms to be deposited. However, in such a conventional plasma, it is difficult to operate behaviors of ions, radicals, and electrons. Especially, the energy of ions cannot exactly controlled, which frequently causes crucial damages on the surface. This results in deteriorating the device performance and reliability. Therefore, a novel method by which fine processing on the nanoscale can be performed is required. Recently, we propose a novel plasma processing in which only ions having high chemical activity are used for contributing to the formation of thin films or nanostructures. To verify the proposed method experimentally, we have developed an O<sub>2</sub> plasma source from which only O<sup>-</sup> are extracted and deflected toward a reactor chamber by using an electrostatic lens and a set of magnetic coils. In this meeting, we present the detail of the machine and data obtained from it.

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