

Abstract Submitted  
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**Purification of Gaseous Pollutant using Secondary Emission  
Electron Beam generated by Wire Discharge Plasma Source<sup>1</sup>** MASATO

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It is well known that the non-thermal plasma processes using electrical discharge or electron beam are effective for the environmental pollutant removal. Especially, the electron beam can efficiently remove pollutant, because a lot of radicals which are useful to remove pollutant can be easily produced by high-energy electrons. We have developed a compact 100kV secondary emission electron gun to apply several gaseous pollutant removals. The device offers several inherent advantages such as compact in size, wide and uniform electron beam. Besides, the device offers good capability in high repetition rate pulsed operation with easy control compared with glow discharge or field emission control cathode guns. In present study, the NO<sub>x</sub> removal characteristics have been studied under the increased gun voltage, varied pulsed electron beam parameters such as current density and pulse width as well as gas flow rate. The experimental results indicate a better NO<sub>x</sub> removal efficiency comparing to other high-energy electron beam and electrical discharge processing.

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