Abstract Submitted
for the GEC18 Meeting of
The American Physical Society

Movement Track of Cathode Spot Affected by Applying Alternating Magnetic Field MASASHI SHIMAZAKI, MAEDA YOSHIFUMI, REGGIE GUSTILO, TORU IWAO, KENJI SUZUKI, Tokyo city University — The surface treatment is expected for the promotion of circulation production. The oxide layer removal of the metal using the vacuum arc is proposed in the technology for surface treatment. It has the advantage that the high speed removal is possible and the secondary waste does not occur. However, it is the problem that the cathode spot of vacuum arc moves randomly. The movement of cathode spot is controlled by applying a external magnetic field in order to prevent this phenomenon. It has been reported that the retrograde movement is changed by applying a transverse magnetic field. It is considered that the movement in the diagonal direction becomes possible with a synthetic magnetic field derived from the alternating magnetic field and transverse magnetic field. The frequency and current of alternating magnetic field are controlled by using an inverter. In this paper, the movement track of cathode spot affected by applying the alternating magnetic field was elucidated. The movement track of the cathode spot was improved by changing the alternating magnetic field. As a result, when the frequency of alternating magnetic field increases, the length of diagonal direction decreases.

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Date submitted: 19 Jun 2018 Electronic form version 1.4