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## Preliminary Test Results of GDC Electrode with Gap Insulation on SWIP Test Bed

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A DC glow discharge system is in preparation for ITER with primary aim to control impurities and particle recycling. On the current design stage, GDC electrode will be integrated into a Diagnostic Port Plug (DPP) as a part of the assembly. A Gap structure is used as electrical insulation among GDC electrode, DFW and DSM. Whiletime, in order to avoid glow discharge generated by the cooling water pipes with high voltage in ITER vacuum vessel and the low pressure gas around, electrical shielding is necessary. Therefore, they need Faraday shielding to restrict the breakdown.

From prior test results and experiences, electrode with different gap structures ( $\delta_1$ - $\delta_2$ - $\delta_3$ ) for electrical insulation is designed. whilemean, in this test, stainless steel net with area  $60 \times 100 \text{mm}^2$  and a  $1 \times 1 \text{mm}^2$  mesh size is fixed in surface of stainless case. The electrode is installed on SWIP GDC Test Bed. The test results are given in this paper.

The aim is to test on He/H<sub>2</sub> breakdown, discharge characteristics and heat load on electrode and to explore the feasibility and reliability of electrical insulation of the gap. The present work provide basis for design of ITER GDC in the future.

### Country or International Organisation

China

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