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Plasma cleaning of Cu surfaces before and after conditioning with DC pulses

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Oxidation and other kinds of surface contaminants are one of the biggest unknowns in understanding the breakdown resistance and conditioning behaviour of Cu electrodes under frequent DC voltage pulsing.

Argon can be used to clean the electrode surfaces in situ under vacuum. In the process, Ar gas is inserted into the chamber and a constant DC voltage is used to ionize the gas in order to form plasma arcs that clean the surface.

The plasma cleaning process has been experimented with the Larger Electrode Pulsed DC System in Helsinki. Latest findings show the effect of the cleaning for pristine electrodes both before and after the conditioning process, as well as during flat mode runs. The released contaminants are additionally studied with a mass spectrometer.

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