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## Dark current fluctuations in pre-breakdown conditions

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Cathodic Breakdown (BD) is a main failure mode of systems relying on maintaining high fields under vacuum. It has been suggested that field emission (FE) currents, known to exist in the system prior to breakdown, are linked to the BD process.

We report on observations of non-Gaussian fluctuations in FE currents measured in CERN DC setups and analyzed using a moving average filter. These events have time scales of a few tens of nano-seconds and are characterized by an increase in the FE current. Such behavior is consistent with suggested surface fluctuations leading to pre-BD dynamic surface evolution, which may in turn lead to a temporary increase in observed FE current.

Initial results are reported and future experiments validating these results are proposed.

### **Type of contribution**

Poster

### **session**

Field Emission

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