Development of Suitable Dielectrics for the High Luminosity LHC: Phase 2

Selene Cheung, University of California, Davis

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UCDAVIS

Cornell University

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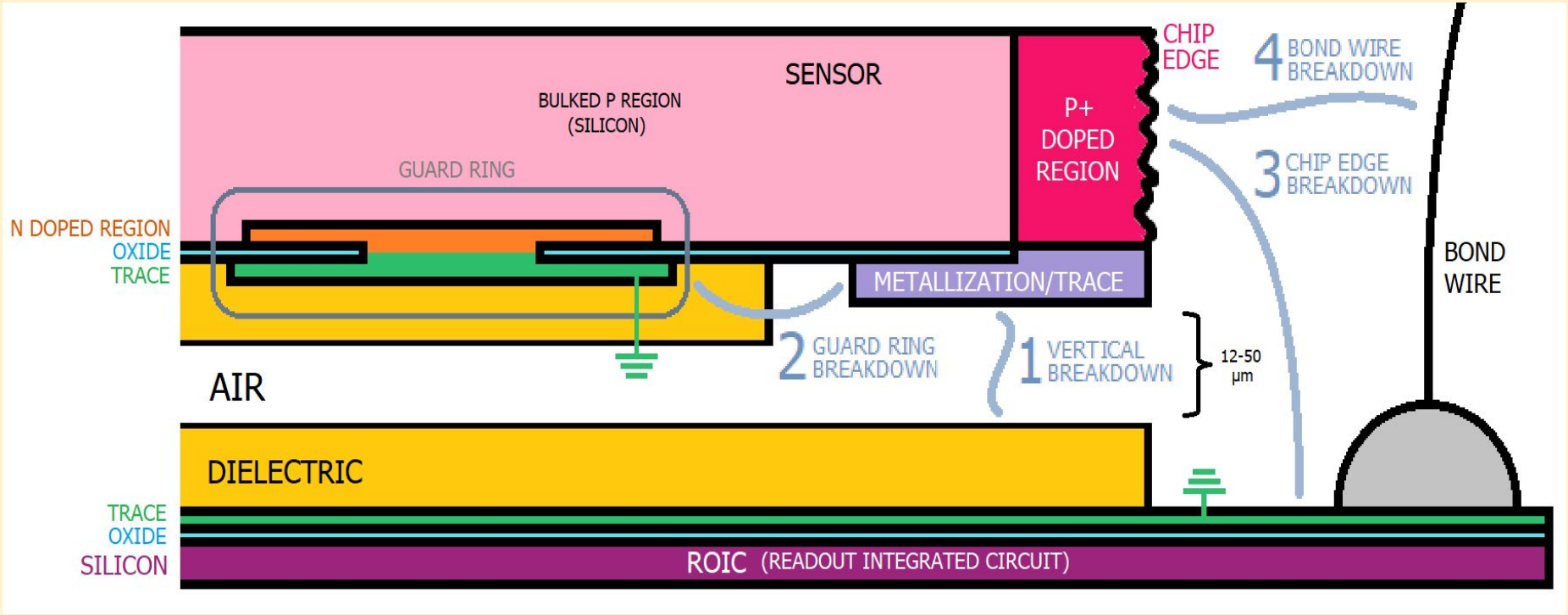
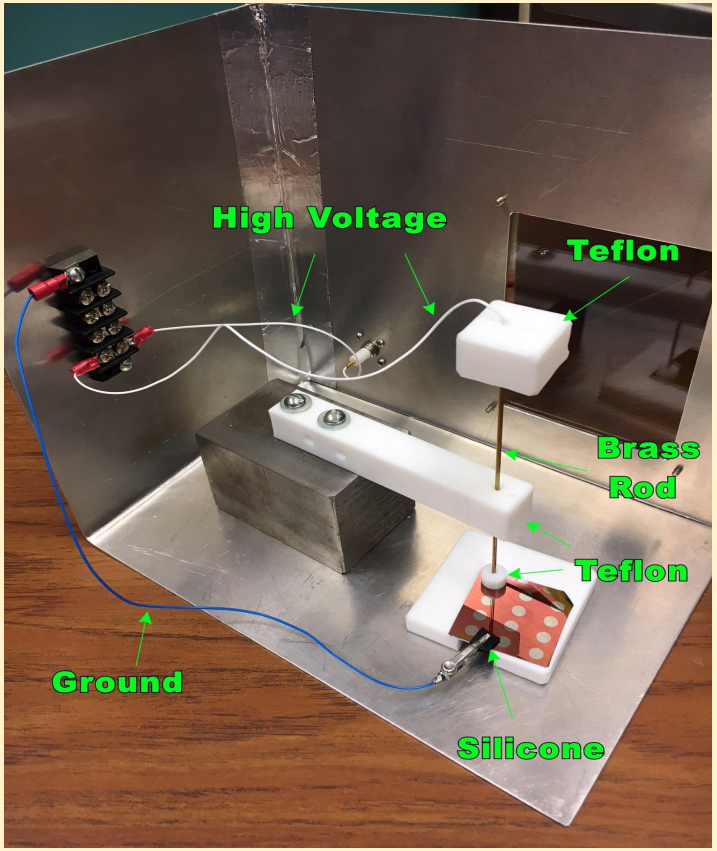
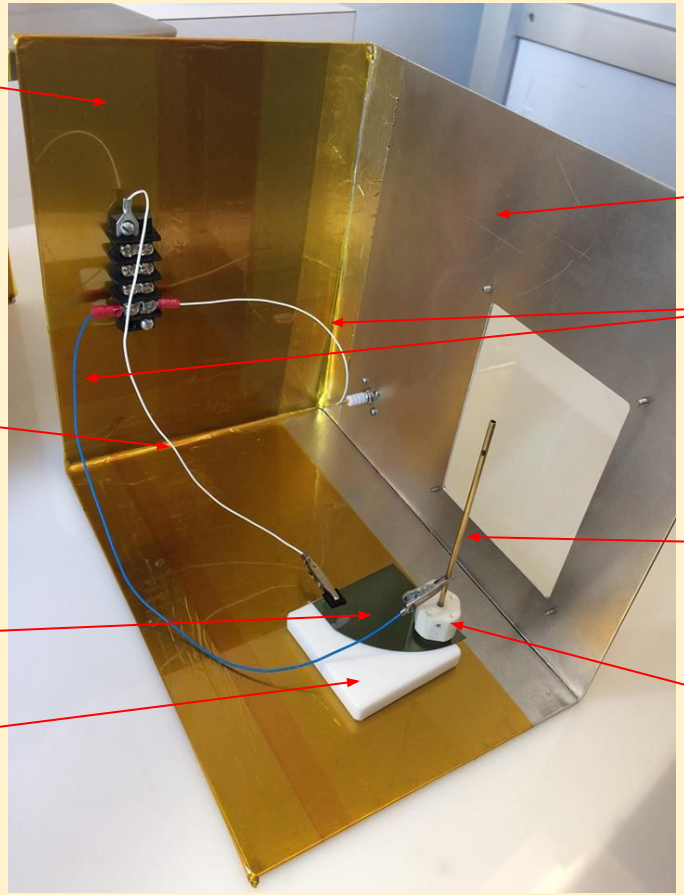
Phase 2: Testing Vertical Breakdown (1)



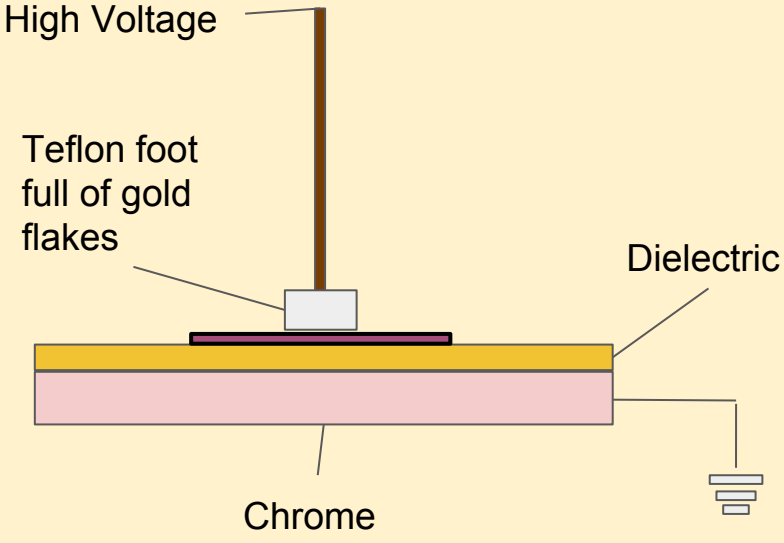
Previous Testing Apparatus for Breakdowns w/o Air Gap



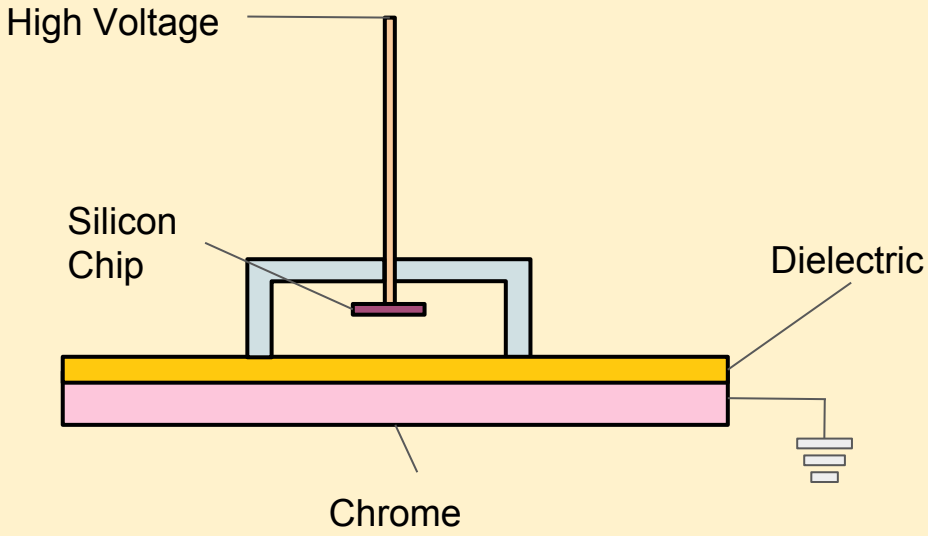
Current Testing Apparatus for Breakdowns with Air Gap

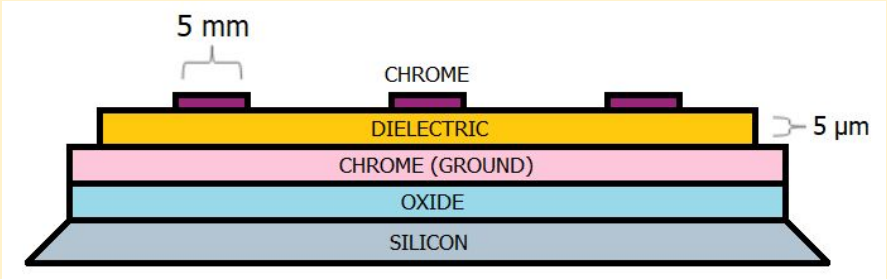


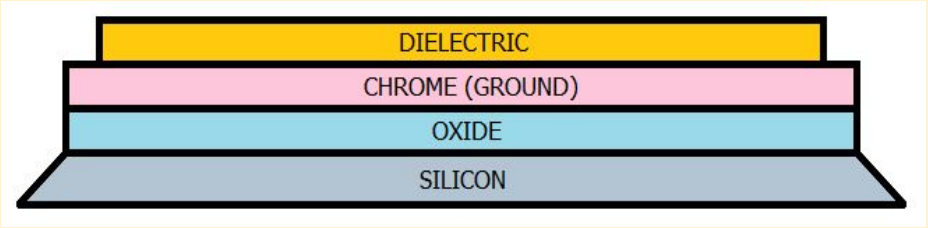
Gold Probe



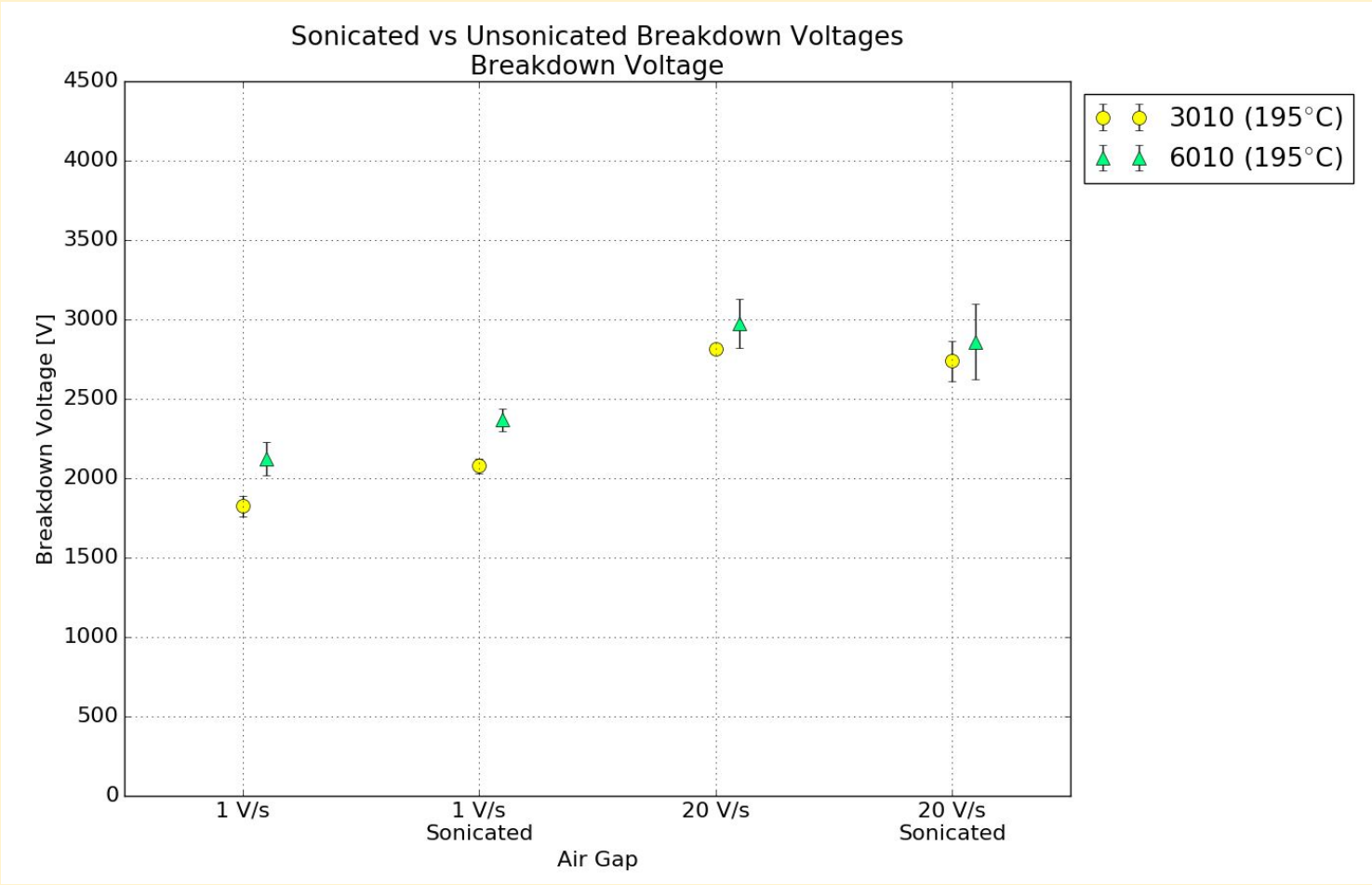
Air Gap Probe



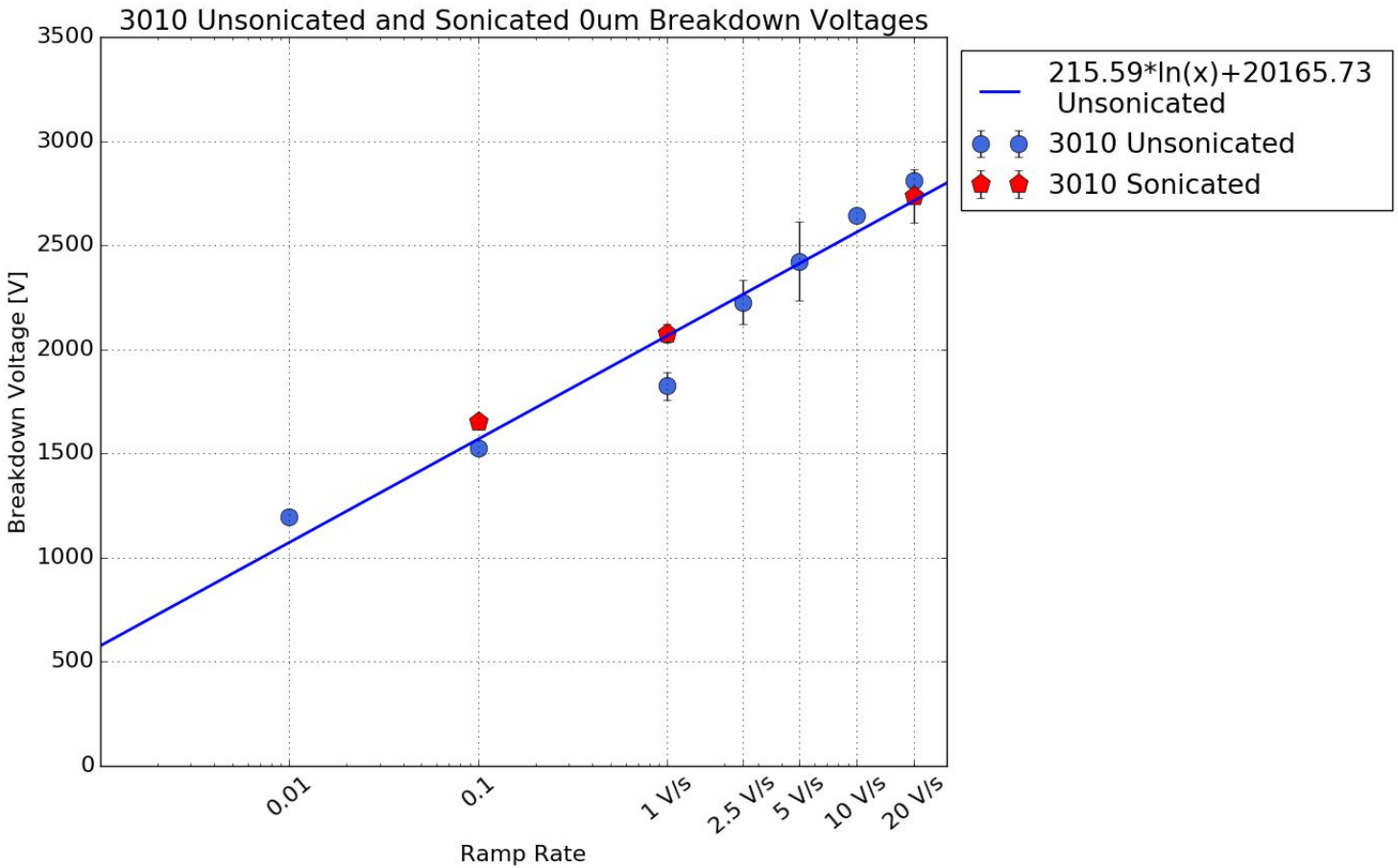




Effect of Sonication on Breakdown

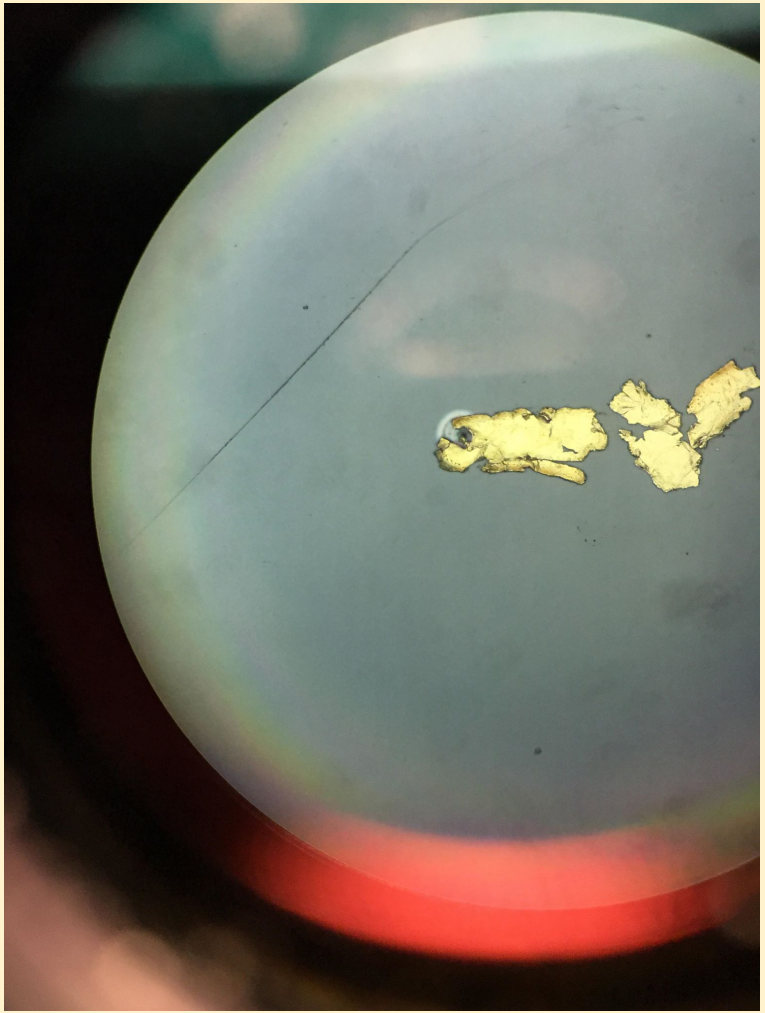


Effects of Ramp Rate on Breakdown



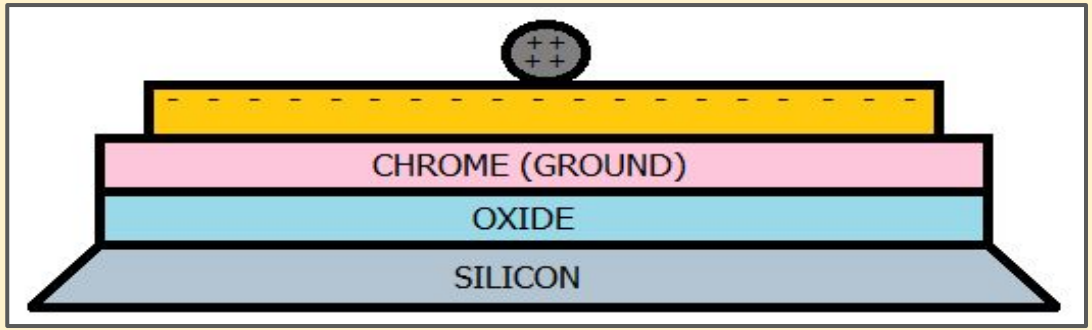
Effects of Heating on Breakdown

- Current leakage and time-dependent breakdown are not properties of our setup, but the material.
- Potential cause: localized heating, resistance to current flow increases the temperature which increases the current flow which increases the temperature... etc.



Effects of Photoresist Defects on Breakdown

1



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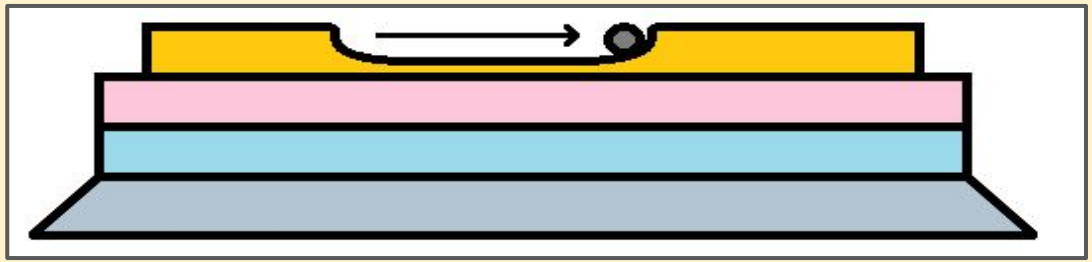

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