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Topics in LGAD designs

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In this contribution, I will discuss two possible evolutions of the LGAD design.

- DC-RSD: up to now, resistive read-out in silicon detectors has been used only in AC-coupled detectors, the so-called AC-RSD or AC-LGAD. I will present here the first attempt to apply resistive read-out to a DC-coupled sensor.
- LGAD with bias ring: recent beam tests results showed that LGADs suffer destructive break-down if the field in the bulk is above 11V/um. SiPMs manage to survive similar conditions given the presence of quenching resistors. I will present a possible LGAD design that introduces AC-coupled read-out and quenching resistors in each pad. This design should also provide increased stability with respect to floating pads or pads with high currents.

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