

A novel HV silicon JFET for ATLAS and other silicon R&D activities at BNL

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We present a High-Voltage vertical JFET, conceived as a candidate for the High-Voltage Multiplexing switch in the ATLAS upgrade of the silicon microstrip Inner Tracker (ITk). Both n-type and p-type HV-JFETs have been successfully fabricated in the silicon processing facility of Brookhaven National Lab. Probe station measurements of un-irradiated devices show low leakage currents and high breakdown voltages (up to 600V) in the OFF state, and high currents in the ON state. We also present other on-going silicon R&D activities, such as LGAD testing and fabrication, and our efforts towards the commissioning of BLIP (Brookhaven Linear Isotope Producer) as an in-house neutron and proton irradiation facility.

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