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Development of 4H-SiC Low Gain Avalanche Diode

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Inspired by the Low Gain Avalanche Diode (LGAD) of Silicon, we investigate the possibilities to produce similar device using 4H-SiC, benefiting from the intrinsic characteristics of the wide band gap properties of Silicon Carbide, such as higher saturated carrier velocity, higher atom displacement energy as well as the recent technological improvement of high-quality epitaxy with high resistance from industry. Two prototypes of 4H-SiC LGAD devices with different design by Nanjing University (NJU) are introduced. The leakage current, capacitance, doping level and electric field of 4H-SiC LGAD are discussed by measurement and simulation.

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