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Cover letter

This paper describes a procedure for the optimization of a 3C-SiC buffer layer for the deposition of 3C-SiC / (001) Si. Literature is still lacking an in-depth description of the procedures to optimize a buffer layer deposited between the carbonization and the thick film: a lot of papers just report a generic addition of silane and propane during the heating up ramp without specifying the Si/C ratio, ramp heating rates, discussing the buffer quality or its impact on the high temperature film growth. We relate the quality and the crystallinity of the buffer layer and the presence of voids at the SiC/Si interface to the gas flow and in particular to the heating ramp rate.

On the optimized buffer no voids were detected and a high-quality 1.5 μm 3C-SiC was grown to demonstrate the effectiveness of the described buffer.

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