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Silicon Doping of Epitaxial Layers of Gallium Oxide by MOCVD

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Abstract. The article considers homoepitaxy of beta gallium oxide layers doped with silicon grown by metal organic chemical vapor deposition (MOCVD). Epitaxial growth was carried out on substrates of iron doped gallium oxide. Epitaxial layers at different rates of silicon doping from a diluted monosilane and at different temperatures were obtained. The crystal quality of epitaxial layers was analyzed, as well as mobility of electrons and conductivity were measured. The possibility of controlling the electrical properties (such as electron mobility and conductivity) of homoepitaxial gallium oxide layers doped with silicon during growth by the MOCVD method was demonstrated.

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