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(54) **MOCVD METHOD FOR GROWING  
INAlGAN/GaN HETEROSTRUCTURE**

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(57) **ABSTRACT**

A MOCVD method for growing an InAlGa<sub>N</sub>/Ga<sub>N</sub> hetero-structure comprises steps: sequentially growing a nitride nucleation layer, a Ga<sub>N</sub> buffer layer, an InAlGa<sub>N</sub> barrier layer on a substrate; using a precursor gas containing silane to in-situ grow a Si<sub>N</sub><sub>x</sub> protective layer on the InAlGa<sub>N</sub> barrier layer at a temperature of 950-1000° C. in the same reaction chamber. Thereby is achieved a Si<sub>N</sub><sub>x</sub>/InAlGa<sub>N</sub>/Ga<sub>N</sub> heterostructure having an ultrathin barrier layer, which is suitable to fabricate HEMT elements. The present invention needn't take sample out of the reaction chamber and thus can prevent the heterostructure from oxidation and damage.

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