

Abstract Submitted
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**The Search for Effective p-Type Material in GaN-Based Devices:
Past, Present, and Future** REID JUDAY, ALEC FISCHER, FERNANDO
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nology — In the continued drive towards viable, large-scale solid state lighting, GaN
and its alloys with In and Al have risen to the forefront of current research. Re-
gardless of GaN's success in LEDs and laser diodes, certain technological obstacles
have remained. Since the beginning of GaN fabrication, the ability to reliably and
effectively create p-type material has been a major concern. Mg is the most widely
used and successful acceptor in GaN and appears to behave even more favorably
in $\text{In}_x\text{Ga}_{1-x}\text{N}$ with small values of x (< 0.1). It is commonly accepted, however,
that Mg-H complexes form during growth, inhibiting hole formation. This talk will
focus on comparing the techniques most commonly used to activate p-GaN, such as
thermal annealing and low-energy electron beam irradiation in a scanning electron
microscope, as well as the properties of low-indium content p-type InGaN thin films.

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