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**Study of Surface Processes During Growth of Epitaxial Boron Nitride**

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**Abstract:** The surface reactions of **diborane** and ammonia with the Ni(100) substrate have been studied. **Diborane** decomposes to boron on the surface and upon annealing forms an Ni<sub>2</sub>B phase on the surface. Under appropriate conditions, BN can be formed when the surface is doped with both **diborane** and ammonia. The boron nitride so formed has been identified as the hexagonal phase of boron nitride. Additional studies on other substrates are planned in order to look for circumstances in which cubic BN can be formed.

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