Graphene-BN Heterostructures: An In-Plane Transistor

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Moore's Law: In-Plane Moore's Law: In-Plane Moore's Law: In-Plane



Graphene

Atomic and Electronic Structure



Material Properties

Excellent electronic properties

High structural stability





Boron Nitride

Atomic Structure



Material Properties Large bandgap dielectric [insulator] Structurally and chemically compatible to Graphene





Graphene-BN Heterostructure Atmospheric Pressure Chapital Variation Growth Mech Daposition





The Third Ring

Importance **Conducting Channel** Hydrogen Etching BN etches away at high temperatures Low Temperature **Graphene Growth** Change the carbon source in order to limit the breakdown of the BN ribbon



The Result

Benzoic Acid ($C_7H_6O_2$)



Best Result to Date



Grown at 875°C





Acknowledgements





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