



CYCLE DE CONFÉRENCES

Séminaire général du département de physique
de l'École polytechnique

EPIGRAPHENE NANO-ELECTRONICS



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More than two decades of work on carbon nanotubes and more recently graphene have largely contributed to the idea of carbon-based electronics. A prerequisite is a scalable platform and the ability to reproducibly and reliably produce high quality graphene nanostructures. Epigraphene (graphene grown epitaxially on silicon carbide) presents the textbook properties of graphene, and can be grown seamlessly at the wafer scale directly on an industrial semiconductor.

Moreover, graphene nanostructures can be grown directly into shape at high temperature with no need for either patterning or transfer. These epigraphene nano-ribbons have exceptional properties. They are room temperature ballistic conductors on distances greater than $15 \mu\text{m}$ and bear striking similarities with carbon nanotubes. Besides their importance for fundamental science, epigraphene nano-ribbons are readily produced by the thousands and their room temperature ballistic transport properties are promising for advanced nano-electronics.