

# Development of graphene-based devices in 200 mm wafer scale

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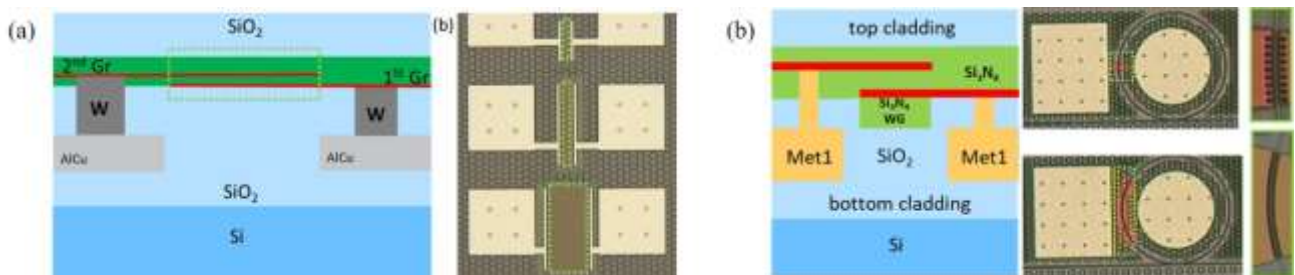
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## Abstract

Graphene processing and integration in standard pilot line of silicon technology, would be a direct way allowing transfer of graphene from the laboratory-scale towards fabrication of graphene-based devices. At this point, various technological challenges, such as growth and transfer, as well as standard integration steps used in CMOS technologies have to be solved.

In this talk the main processing steps of graphene in 200 mm pilot line will be presented. The advantage of graphene growth on epitaxial germanium will be underlined in respect to quality and cross-contamination issues in comparison to graphene grown on Cu. Additionally, the transfer, patterning and contacting approaches will be discussed. Finally, examples of fabricated graphene-based devices will be presented including graphene-based capacitors and electro-optic modulators.

## Figures



**Figure 1:** Schematic representations and micrographs of (a) graphene-based capacitor, (b) dual-layer graphene ring e/o modulator.