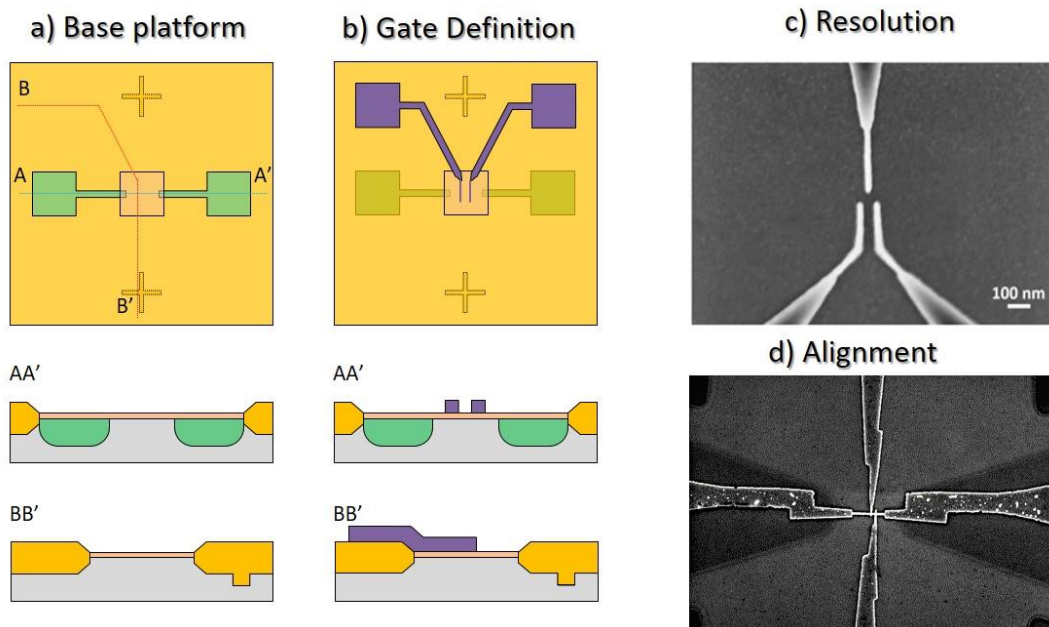


# Litho test structures for quantum manufacturing

## Overview

The lithography demands for the manufacturing of semiconductor quantum devices are quite stringent, sometimes beyond what it is available at the present. We offer the possibility to deliver test structures designed specifically to develop and/or validate new advances in lithography for qubit manufacturing, primarily aimed at process equipment companies. The pilot line for fabrication of semiconductor quantum devices can deliver test structures designed on purpose to characterize specific lithography methods, for example to improve overlay alignment or to characterize repeatability. Characterization facilities at the pilot line can be used to benchmark the results.



**Figure 1.** (a) Example of a base test structure to test lithography processes. b) Example of a metal electrode definition. c) and d) Examples of expected results for resolution and alignment

**Field of Application and applied technology:** Manufacturing of semiconductor spin qubits

## Specifications

- Sample size: from coupons to 150 mm wafer
- Substrate materials: Silicon
- Type of test structures: Structures can be designed on purpose. Typically, the manufacturing will be following the standard process flow for manufacturing quantum semiconductor devices, up to the lithography level before the metal gate definition.