

Abstract Submitted
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Preparation of different protected bimetallic nanoelectrodes with 30nm gapwidth and access window STEPHAN KRONHOLZ, SILVIA KARTHÄUSER, RAINER WASER, Center of Nanoelectronic Systems for Information Technology Research Center Jülich GmbH, 52425 Jülich, Germany — Reproducible fabrication of 30 nm metallic nanogaps on silicon chips and their electrochemical characterization are presented. The fabrication of the chip is a combination of an optical lithography step and two electron-beam (e-beam) steps. An optimized adhesion layer/metal layer combination (Ti/Pt/Au) and an adopted two layer e-beam resist are used. Specifically the chip has been covered with different protection layers, except of an access window located on top of the nanogaps, calibration electrodes and contact pads, respectively (Fig.1). After characterising the gaps and of the protection layer by cyclical voltammetry in 0.1 M H₂SO₄ aqueous electrolyte, the deposition of Cu onto the nanogaps will be presented. Fig.1: Different Nanoelectrode Structures with access window on top covered by SiO₂/Si₃N₄/SiO₂ used as protection layer.

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