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Detection of ion implanted patterns in silicon using STM HYUN-SOO KIM, Univ of Maryland-College Park, A.N. RAMANAYAKA, Joint Quantum Institute, Univ of Maryland-College Park, K.J. DWYER, Univ of Maryland-College Park, M.D. STEWART JR., J.M. POMEROY, National Institute of Standards and Technology — Ion implanted regions in silicon are scanned using STM to detect features which will facilitate in-situ overlay and alignment of STM hydrogen patterned nano-devices. STM hydrogen lithography is used to make atomically precise devices such as single electron transistors and single atom qubits. However, with currently available imaging techniques, we are limited to make devices on a single plane using STM lithography. In-situ detection of high local doping concentrations using STM will allow precise alignment between the multiple layers of buried nano-devices and metal electrodes.

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