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## **Atomic structures of quenched high-index Si(5 5 12); the possible nano-array template**

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In the fabrication of carbon nanotubes, it is one of the emerging problems how to prepare a well-ordered transition metal seed on the substrate. The possibility of fabricating nano-spaced template has been found during STM studies on high-index Si(5 5 12). The well-ordered dot array extended to the wide range has been found from the quenched Si(5 5 12). Since the reconstructed Si(5 5 12) consist of regularly-spaced and one-dimensional structures such as  $\pi$ -chains, tetramers and dimers, the quenching at the last stage of cleaning induces a meta-stable and locally ordered bead-like structures. Some of these images also indicate that these bead-like structures desorb from the upper-terrace edge along the one-dimensional wire. It can be deduced that the quenching only plays a role of breaking the row but cannot induce desorption of broken wires. The detailed dimensions and atomic structure will be presented, and the regularly-spaced Ag array grown on these template will be also presented.