BENDING ZnO NANOWIRES WITH ATOMIC BOMBARDMENT

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During the last decade, it has been shown that a variety of nanostructures could be synthesized with ZnO, and their properties were proven to be useful in many applications, of which the most notable one is the recent development of nanogenerators using ZnO nanowire arrays. Synthesis of new nanostructures may lead to the development of new nanodevices.

With the pulsed laser deposition (PLD) technique, it was observed that the ZnO nanowire structure could further be modified, providing the additional capability of tailoring nanostructures. Energetic atoms from the ablated target bombard and bend the ZnO nanowires, and the degree of bending can be controlled with the energy and time of the deposition. Arrays of bent nanowires were examined by electron microscopy and x-ray diffraction. Using x-ray diffraction, it was shown that the development of stress and strain along the length of the bent wires could be characterized.

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