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Growth of Ultra-long Horizontally Grown ZnO NWs, their Photoluminescence and Electrical Properties BABAK NIKOObAKHT, MICHAEL BEVERSLUIS, MARK VAUDIN, STEPHAN STRANICK, National Institute of Standards and Technology — In this presentation a technique for growth of very long horizontal ZnO NWs on $(11\bar{2}0)$ sapphire surface is discussed, which is a modification to our previously published work (*Appl. Phys. Lett.* **2004**, **85**(15), **3244**). This technique provides the in situ alignment, predictable positioning, large scale assembly, diameter control, and production of quantum wires. A crystallographic model explaining the unique growth direction of $[1\bar{1}00]$ is proposed, which is supported by electron-back scattering diffraction results. Two photon photoluminescence microscopy of oriented NWs with diameter about 5 nm as well as electrical characterization of individual NWs are discussed.

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