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Effect of annealing temperature of ZnO seed layer on growing aligned ZnO nanorods[1] JENN-KAI TSAI, Department of Electronic Engineering, National Formosa University, Yunlin 632, Taiwan, Republic of China., CHU-YU WEI, YI-CHI CHEN, YOU-CHENG JHENG, Institute of Electro-Optical and Materials Science, National Formosa University, Yunlin 632, Taiwan, Republic of China., TEEN-HANG MEEN, Department of Electronic Engineering, National Formosa University, Yunlin 632, Taiwan, Republic of China. — Vertical aligned ZnO nanorod arrays were synthesized by hydrothermal method on the Si substrate with a sputtered thin ZnO seed layer on it. Different annealing temperatures of ZnO seed layer were studied in order to understand the ZnO nanorod growth mechanisms. The results show that ZnO nanorods grow faster if the seed layer annealed at higher temperature. The photoluminescence spectra exhibit ultraviolet emission and a broad green emission. The green emission is attributed to the oxygen vacancies in the ZnO nanorods. Further investigations using the scanning electron microscopy, x-ray diffraction, atomic force microscopy were also demonstrated.

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Jenn-Kai Tsai
Department of Electronic Engineering, National Formosa University,
Yunlin 632, Taiwan, Republic of China.

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