

عنوان مقاله:

The effect of system pressure on microstrain and photoluminescence properties TiO<sub>2</sub> nanowires

محل انتشار:

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نویسنده:

سعیده رضائی ثانی - Department of Physics, Islamic Azad University, Ruodehen, Iran

خلاصه مقاله:

TiO<sub>2</sub> nanowires were prepared by a thermal evaporation method at different pressures. The effects of pressure on morphology, microstructure, and photoluminescence properties were investigated by SEM, XRD, and spectrophotometer. XRD Analysis indicated the presence of rutile phases in samples. Williamson-Hall method was used for studying micro strain and crystallite size. The results showed that decreasing pressure leads to increasing micro strain due to increasing tension in the grain boundary with increasing oxygen vacancies as point defects. TiO<sub>2</sub> nanowires prepared in lower pressure indicated weaker intensities in the PL spectrum due to increasing nonradiative centers obtained by oxygen vacancies that as an extinguisher the luminescence may trap photogenerated electron-hole.

کلمات کلیدی:

TiO<sub>2</sub> nanowires, pressure, microstrain, oxygen vacancies, Photoluminescence

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