

Abstract Submitted
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Surface-enhanced Raman scattering study using metal oxide nanowires grown by chemical vapor deposition¹ HAE-YOUNG SHIN, Department of Physics, Ewha Womans University, Seoul, 120-750, Korea, HAYOUNG JUNG, MYUNG HWA KIM, Department of Chemistry and Nano Sciences, Ewha Womans University, Seoul, 120-750, Korea, SEOKHYUN YOON, Department of Physics and Department of Chemistry and Nano Sciences, Ewha Womans University, Seoul, 120-750, Korea — We present surface-enhanced Raman scattering (SERS) results using templates made of metal oxide nanowires such as IrO_2 and RuO_2 that were grown by chemical vapor deposition. SERS has been attracting great attention due to its interesting optical behavior and great potential for applications such as chemical sensor, optoelectronic devices, etc. For promising applications utilizing SERS effect, however, there are crucial issues to be resolved. One is to find a way to systematically control ‘hot spots’ of enhancement and the other is to fully understand the enhancement mechanism. In addition to the well-known two dominant mechanisms, i.e., electromagnetic enhancement mechanism and charge transfer mechanism, we observed that the enhancement greatly depends on the geometry of the nanowires that could suggest another mechanism for SERS. Our results were compared to the FDTD simulations. Our finding may lead us to a way to systematically create, or control hot spots for enhancement of light field using one dimensional nanostructures.

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