

Abstract Submitted
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Wire-like characteristics induced by vertically electronic coupling in stacked InAs/GaAs quantum dots superlattices TZUNG-TE CHEN , YANG-FANG CHEN, JYH SHYANG WANG, YING-SHENG HUANG , RU SHANG HSIAO, JENN FANG CHEN, CHIH MING LAI, JIM YOUNG CHI — The wire-like characteristics of stacked InAs/GaAs quantum dots induced by vertically electronic coupling were demonstrated by surface photovoltaic and photoluminescence measurements. It is found that the surface photovoltaic signal can be enhanced by up to one hundred times due to the wire-like behavior along the growth direction. The emission from the cleaved edge surface is strongly anisotropic, which can be turned from the in-plane to normal to the plane polarization by changing the spacer thickness. Additionally, the electroluminescence of stacked quantum dots near 1.3 μm based on the wire-like characteristics has a much better performance than that of uncoupled quantum dots.

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