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Enhanced Emission Properties of Anodized Polar ZnO Crystals

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Abstract

Polar ZnO single crystals were microstructured in a controlled fashion by electrochemical etching. Surfaces with pyramids and inversed pyramids on oxygen and zinc faces, respectively, were received. Photoluminescence spectra of bulk and anodized ZnO samples were investigated at room and low temperatures. Cathodoluminescence images were also recorded from areas with different structures. A significant enhancement of light emission of the prepared microstructures was achieved after anodization. This allows to use such microstructures in light emitting devices and solar cells.

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