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Continuous Synthesis of Freestanding ZnO Nanorods in a Flame Reactor

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ABSTRACT

ZnO can be made into many nanostructures that have unique properties for advanced applications. This Letter reports a process to synthesize ZnO nanorods in a counterflow diffusion flame reactor. Unlike the previous work on flame syntheses, our work shows that pure ZnO nanorods can be made in a freestanding form. It was demonstrated that ZnO nanorods with different aspect ratios can be obtained by adjusting the synthetic conditions of the reactor. Further, we showed that the nanorods have a unique crystalline orientation.