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ZnO tetrapods and their interconnected networks: Growth and multifunctional applications

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Due to the three-dimensional morphology, the nano- and microscale tetrapods from ZnO are quite important nano-candidates for various advanced applications ranging from water purification to nanoelectronic sensors. The recently introduced flame transport synthesis approach enable very simple synthesis of ZnO tetrapods and their macroscopically expanded interconnected networks in a single and versatile manner. In present work, ZnO tetrapods with different leg morphologies have been synthesized and utilized for various practical applications. These ZnO tetrapods with different leg morphologies have shown promising photcatalytic activities against methylene blue dye and it will be discussed here in detail. A new prototype of sensing device using ZnO tetrapods network has been fabricated and it has demonstrated very significant sensing characteristics with respect to ultraviolet light and H2 gas. Here the potential of FTS technique as well growth of ZnO tetrapods and their networks will be discussed in detail. The observed photcatalytic degradation activities and sensing performances from synthesized ZnO tetrapods will be microscopically elaborated.

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