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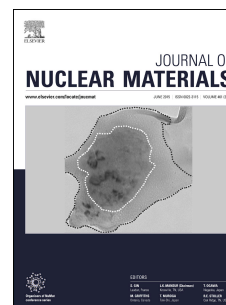
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**Microstructure and phase evolution of  $\text{Li}_4\text{TiO}_4$  ceramics pebbles prepared from a nanostructured precursor powder synthesized by hydrothermal method**

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**Abstract**

$\text{Li}_4\text{TiO}_4$  ceramics pebbles have been proposed to be a promising tritium breeder materials for the fusion reactor blanket of the International Thermonuclear Experimental Reactor (ITER). In the present study, the hydrothermal method was first used to synthesize the nanostructured precursor powders for fabricating the  $\text{Li}_4\text{TiO}_4$  ceramic pebbles. The precursor powders were composed of  $\text{LiOH}$ ,  $\text{Li}_2\text{CO}_3$  and  $\text{Li}_2\text{TiO}_3$  with a grain size of 30-80 nm. Moreover, the microstructure and phase evolution of  $\text{Li}_4\text{TiO}_4$  ceramics pebbles were investigated. The results indicated that the formation temperature of  $\text{Li}_4\text{TiO}_4$  by hydrothermal method was lower than that of

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