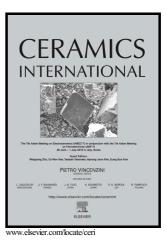
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## Structural properties and sensing performance of CeTiO<sub>3</sub> ceramic films as a solid-state pH sensor

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## Abstract

In this paper, we have studied the impact of postannealing treatment on the structural properties and sensing characteristics of CeTiO<sub>3</sub> ceramic membranes deposited Si sputtering on substrate by for solid-state electrolyte-insulator-semiconductor (EIS) pH sensors. X-ray photoelectron spectroscopy, Auger electron spectroscopy, X-ray diffraction, and atomic force microscopy were used to study the chemical compositions, elemental depth profiles, film structures, and surface morphologies of CeTiO<sub>3</sub> ceramic membranes treated at three rapid thermal annealing (RTA) temperatures of 700, 800 and 900 °C. The sensing performance of the CeTiO<sub>3</sub> ceramic membranes annealed at three different RTA temperatures is strongly correlated to their structural properties. The  $CeTiO_3$  EIS device after RTA at 800 °C exhibited the best sensing characteristics (pH sensitivity, hysteresis voltage and drift rate) among these RTA temperatures. We attribute this Download English Version:

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