

Analisis rietveld lapisan tipis PIZT dengan substrat Pt

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Abstrak

Analisis Rietveld dengan program EXPGUI-GSAS dapat digunakan untuk meneliti kekristalan material. Pada penelitian dilakukan penghalusan parameter-parameter struktur liga sampel film tipis PIZT diatas substrat Pt (200)/Si(VSi(tOO) dengan variasi doping indium, didapat indikator keberhasilan R-pola (R_p) pada selang (5,77-10,36)%, R-pola dengan pemberat (wR_p) pada selang antara (8,59-15,35)% dan Goodness of fit (GoF) pada selang antara 1,036-5,462. Indikator yang didapat secara fisik dapat ditandai dengan miripnya kurva kalkulasi dengan kurva eksperimen. Semua sampel PIZT substrat Pt menunjukkan sistem kristal kubik dengan grup ruang $Fm\bar{3}m$. Selain itu didapat nilai parameter kisi hasil penghalusan yang mendekati nilai pada international Centre for Diffraction Data (ICDD).

We have use Rietveld analysis on EXPGUI-GSAS platform to examine the crystallinity of PIZT on Pt Substrate. In this experiment, we have used 3 samples of PIZT thin film in the platinum substrate with variation on the percentage of indium doping. The value of efficacy indicator for 3 specimens included R-Pattern (R_p) between (5,77-10,36)%, weighted of R-Pattern (wR_p) between (8,59-15.35)% and Goodness of Fit (GoF) between 1,036-5,462. The value of efficacy indicator marked physically as alike between the calculated curve and experiment curve. Most of the sample of PIZT thin films in platinum substrate show that the crystal structure are cubic with space group $Fm\bar{3}m$ and lattice parameter near the value on the Powder Diffraction Data-International Center for Diffraction Data.