Model dinamis landau Khalatnikov pada kurva histeresis barium zirkonium titanat dengan dopan lantanum dan indium = The dynamic landau Khalatnikov hysteresis model for barium zirconium titanate doped by lanthanum and indium / Septian Rahmat Adnan

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Abstrak

ABSTRAK
Model dinamis Landau Khalatnikov di gunakan untuk mempelajari energi bebas Gibbs dan kurva histeresis lapisan tipis Barium Zirkonium Titanat (BZT) dengan doping Lantanum dan Indium. Model statis Landau Devonshire juga di pelajari dengan bahan yang sama. Hasil model digambarkan dan dianalisis menggunakan pogram Delphi 6 buatan mandiri yang dijalankan pada Windows. Kedua hasil model dibandingkan dengan kurva hasil eksperimen yang diukur menggunakan rangkaian Sawyer-Tower. Hasil kesesuaian model dan eksperimen di tunjukan oleh R-Weighted Pattern (Rwp), yang merupakan perhitungan satistik untuk menunjukan kesalahan. Beberapa parameter seperti frekuensi, amplitudo medan listrik dan faktor skala divariasikan untuk merubah model secara halus. Hasil menunjukan nilai Rwp kurang dari 10% menunjukan model cukup memuaskan.
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ABSTRACT
Dynamic Landau Khalatnikov model is utilized to study Gibbs free energy and hysteresis curves of Barium Zirconium Titanate (BZT) thin films doped by Lanthanum and Indium. The static Landau-Devonshire was also explored for the same cases. The model is plotted and analysed using home made Delphi 6 program running on Windows platform. Both model is the compared with the experimental hysteresis curves which were measured by using Sawyer-Tower circuit. The matching of the model and experiment is indicated by R-Weighted Pattern (Rwp), which is a statistical number to indicate the discrepancy. By varying the adjustable parameters such as frequency, energy amplitude and scale factor to model was slowly modified. The results showed that Rwp was less than 10% that indicates the model is satisfactory.