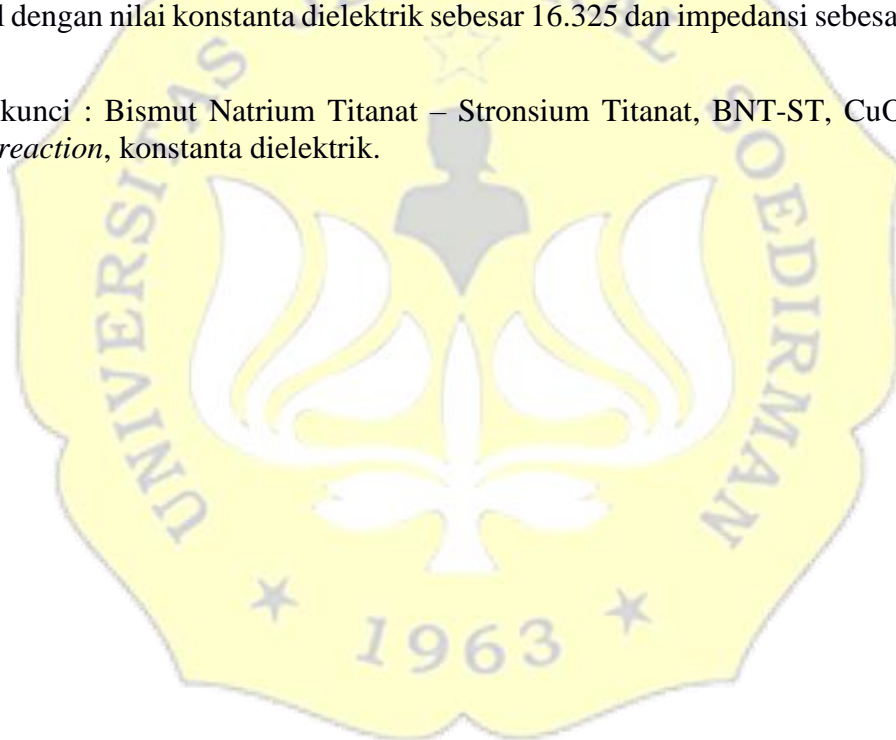


## ABSTRAK

Penelitian material piezoelektik Bismut Natrium Titanat – Stronsium Titanat telah dilakukan dengan penambahan *doping* CuO. Pembuatan sampel dilakukan menggunakan metode *solid state reaction* dengan variasi doping sebesar 1, 2, 3, dan 4 dalam %mol. Pengujian dilakukan menggunakan 3 alat uji, yaitu *X-Ray Diffraction* (XRD), *Scanning Electron Microscope – Energy Dispersive Spectroscopy* (SEM-EDS), dan *Electrochemical Impedance Spectroscopy* (EIS). Material Bismut Natrium Titanat – Stronsium Titanat menghasilkan senyawa baru, yaitu  $\text{Bi}_{0,6}\text{Cu}_3\text{Ti}_4\text{O}_{12}$  dan  $\text{Na}_2\text{TiO}_3$  dengan struktur kristal berupa kubik dan monoklinik serta ukuran rata-rata kristal tiap variasi mengalami peningkatan dan mengalami penurunan pada CuBS3. Komposisi optimal dari material dari Bismut Natrium Titanat – Stronsium Titanat *doping* CuO terdapat pada penambahan 3 % mol dengan nilai konstanta dielektrik sebesar 16.325 dan impedansi sebesar 0,086  $\Omega$ .

Kata kunci : Bismut Natrium Titanat – Stronsium Titanat, BNT-ST, CuO, *solid state reaction*, konstanta dielektrik.



## **ABSTRACT**

*The study of Bismuth Sodium Titanate – Strontium Titanate piezoelectric material has been carried out with the addition of CuO doping. Sampling was carried out using the solid state reaction method with doping variations of 1, 2, 3, and 4 in %mol. The test was carried out using 3 test equipment, namely X-Ray Diffraction (XRD), Scanning Electron Microscope – Energy Dispersive Spectroscopy (SEM-EDS), and Electrochemical Impedance Spectroscopy (EIS). Bismuth Sodium Titanate – Strontium Titanate material produced new compounds, namely  $\text{Bi}_{0.6}\text{Cu}_3\text{Ti}_4\text{O}_{12}$  and  $\text{Na}_2\text{TiO}_3$  with cubic and monoclinic crystal structures and the average crystal size of each variation increased and decreased in CuBS3. The optimal composition of the material from Bismuth Sodium Titanate – Strontium Titanate doped CuO is in the addition of 3% mol with a dielectric constant of 16,325 and an impedance of  $0.086 \Omega$ .*

*Keywords : Bismuth Sodium Titanate – Stronsium Titanate, BNT-ST, CuO, solid state reaction, dielectric constant, impedance.*

