

ABSTRACT

SYNTHESIS OF Bi-2223 SUPERCONDUCTOR WITHOUT DOPING Pb (BSCCO-2223) WITH LEVELS OF Ca = 2,10 AT VARIOUS TEMPERATURE OF SINTERING

By

YUNITA SUBARWANTI

The synthesis of BSCCO-2223 superconductor without doping Pb (BSCCO-2223) at levels of Ca = 2,10 has been carried out with solid method. The synthesis carried out 10 hours at temperature of calcination 800°C and 20 hours at temperature of sintering that varied is 840°C, 845°C, 850°C, and 855°C. Variation was carried out to determine the effect of temperature sintering on phase formation superconducting material that views based on volume fraction, impurities and the degree of orientation. Result of the research shows the increase temperature of sintering could increase the volume fraction and decrease impurity. Volume fraction of BSCCO-2223 that is relatively high is 80,43% at temperature of sintering 855°C. While the lowest volume fraction is 73,22% at temperature of sintering 840°C. The degree of orientation high is 67,80% at temperature of sintering 855°C. While the lowest degree of orientation is 56,69% at temperature 850°C. Based on the results of SEM informed that all samples have shown the layers are arranged in the same direction and the empty spaces between plate (void) is relatively small.

Keywords: Superconductor, BSCCO-2223, temperature of sintering, volume fraction, degree of orientation, impurity.