ABSTRAK

DANIEL BOI TAMADO. Sintesis Awal Lapisan Tipis Barium Heksaferit Diatas Substrat Silikon [400] Menggunakan Metode *Ultrasonic Spray Pyrolysis*. Jakarta : Jurusan Fisika. Fakultas Matematika dan Ilmu Pengetahuan Alam. Universitas Negeri Jakarta.2014.

Sintesis awal Lapisan Tipis Barium Heksaferit Diatas Susbtrat Silikon [400] Menggunakan Metode Ultrasonic Spray Pyrolysis. Telah dilakukan penelitian Sintesis lapisan tipis Barium Heksaferit menggunakan metode *Ultrasonic Spray Pyrolysis*. Larutan prekursor Fe dan Ba yang telah mencapai keadaan stoikiometrik dideposisikan ke atas substrat Silikon yang telah dipanaskan pada suhu 400°C, hal ini dilakukan dua kali. Setelah berhasil dideposisi kemudian masing-masing sampel diannealing pada variasi suhu antara lain 850°C, dan 1050°C. Setelah diannealing tiap-tiap lapisan dikarakterisasi menggunakan *X-Ray Diffractometer* (XRD) untuk mengamati fasa yang terbentuk dan sifat magnetik lapisan dikarakterisasi menggunakan *Vibrating Sample Magnetometer* (VSM). Perbedaan suhu annealing ini menghasilkan kristalinitas dan sifat magnetik yang juga berbeda, fasa Barium Heksaferit mulai termati terbentuk ketika suhu annealing 1050°C selama 2 jam.

***Kata kunci* :** *Ultrasonic Spray Pyrolysis, Barium Heksaferit, Proses Annealing*.

ABSTRACT

DANIEL BOI TAMADO. Early Synthesis of Barium Hexaferrite Thin Film on Silicon Substrate [400] Using Ultrasonic Spray Pyrolysis Method. Jakarta : Physics majors. Faculty of Mathematics and Natural Sciences. State University of Jakarta.2014.

Early Synthesis of Barium Hexaferrite Thin Film on Silicon Substrate [400] Using Ultrasonic Spray Pyrolysis Method. It has been synthesized Barium Hexaferrite thin film using Ultrasonic Spray Pyrolysis method. Precursor solutions of Fe and Ba which had reached Stoichiometric conditions was deposited on to silicon substrate which heated to 400°C, it has done twice. After deposition process then each sample annealed in various temperature i.e. 850°C and 1050°C. After annealing process was done then these samples was characterized using X-Ray Diffractometer (XRD) to observe the phase that formed and Magnetic properties was observed using Vibrating Sample Magnetometer (VSM). The Annealing temperature differences results a varies in crystallinity and Magnetic properties. Barium Hexaferrite phase has been formed when annealing temperature is 1050°C for 2 hours

***Keywords* :** *Ultrasonic Spray Pyrolysis, Barium Hexaferrite, Annealing Process*