

INFORMATION ON MASTER'THESIS

1. Full name: Đinh Thị Lan
2. Sex: Female
3. Date of birth: 14th November 1986
4. Place of birth: Ninh Binh
5. Admission decision number: _____ Dated _____
6. Changes in academic process:
7. Official thesis title: *The optical properties of the magnetic ceramic particle containing manganite in organic solvent.*
8. Major: Optics
9. Code: 60 44 11
10. Supervisors: Dr. Phung Quoc Thanh – Hanoi National University.
11. Summary of the finding of the thesis:

Because the solution of nanoparticles are of interest for many different applications in medicine, technology and applications should in this paper we study the question of the optical properties of nano liquid made from the pottery from that particular system is examined on two test systems CaMnO_3 original perovskite ceramics, but is a single iron-doped $\text{Ca}(\text{FeMn})\text{O}_3$ (combination of ferromagnetic - antiferromagnetic) and a dual system is doped ruthenium and praseodym ($\text{CaPr}(\text{MnRu})\text{O}_3$ (mainly ferromagnetic system).

The purpose of this paper is studied in depth the optical properties of Mn containing ceramic beads from, typically CaMnO_3 doped manganite single system in place of Fe and Mn in Ca-doped double-Pr, Ru in Mn. Based on the holistic view that the optical properties, thermal, electrical, material from the two systems above.

In the present study, we have fabricated 14 samples with 4 technique methods, and investigated 32 results. The main results of this thesis include:

Fabricated successfully Fe doped CaMnO_3 and CaMnO_3 , Ru doped CaPrMnO_3 by solid state reaction method with high crystallinity and single phase.

Thermal-magnetization curve measurements show that all prepared samples in solid state have good magnetic.

There were first results of optical characterization of sol-gel containing nano particles Ru doped $\text{Ca}(\text{FeMn})\text{O}_3$ and $(\text{CaPr})\text{MnO}_3$ dispersing in acetone organic solution and span-80. The results of study show that dispersion of the particles in the mentioned above solution increases significantly surface area and gives ability of optical absorption as well as high radiation.

Therefore, the present thesis mentions un-researched problem in all over the world is optical properties (absorption, fluorescence) of the nano solution containing perovskite particles made of Mn. In solid state, the optical properties of the system exhibit unremarkably and in nano solution, at room temperature, these solution is transparency. Normally, they has anti-body properties, fluorescence which changes from weak to strong and very strong. They also exhibit ability of magnetic absorption from weak to 100 %. These are main significant contributions of the thesis.

The solutions of nano research has some significant difficulties as manufacturing technology requires use of surface activation and rational manufacturing processes require a lot of time, from making a solid, solid solution, the solution extracted nano ... We hope the new theme set for the thesis has achieved some significant results, theories and applications.

12. Practical applicability: For spintronics and other components from ultra-sensitive sensors.

13. Further research directions: Studying the fluorescence emission of the ceramic particles from the solution containing Mn as a magnetic field over time to examine the decrease in saturation intensity.

14. Thesis-related publications:

- Vu Thi Phuong Thanh, **Dinh Thi Lan**, Hoang Nam Nhat, *optical property of TiO₂ nanoparticles in solution*, 6th Vietnam national conference on solid state physics and material science (SPMS-2009) – Da Nang 8-10/11/2009.
- Ngo Thu Huong, Vu Thi Phuong Thanh, **Dinh Thi Lan**, Hoang Nam Nhat, Emission of colloidal solution containing ZnO nanoparticles, Vietnam National physics conference in the year 2010.
- **Dinh Thi Lan**, Vu Anh Tuan, Nguyen Duc Tho, Phung Quuoc Thanh and Hoang Nam Nhat, Excitation state in nano solution containing Manganate magnetic ceramic particles, 7th Vietnam national conference on solid state physics and material science (SPMS- 2011) – TP Ho Chi Minh 7-9/11/2011.

Date:

Signature:

Full name:

Dinh Thi Lan