

## BRIEF SUMMARY OF PhD THESIS

Title: **On local cohomology modules and catenarity of Noetherian local rings.**

Specialization: Algebra and Number theory.

Code: 62.46.05.01.

PhD student: Tran Nguyen An.

Scientific advisors: Prof. Dr. Sc. Nguyen Tu Cuong and

Assoc. Prof. Dr. Le Thi Thanh Nhan.

Training institute: Institute of Mathematics, Vietnam Academy of Science and Technology.

### **New results presented in the thesis**

1. We characterize the property (\*) of  $H_m^i(M)$  via  $i$ th pseudo-support  $\text{Psupp}^i(M)$ .
2. We give some connections between the property (\*) of  $H_m^i(M)$  and universal catenarity of the ring  $R/\text{Ann}_R M$ , unmixedness of the rings  $R/\mathfrak{p}$  for  $\mathfrak{p}$  in  $\text{Supp}(M)$ .
3. We give a characterization of the property (\*) for quasi-unmixed local cohomology modules by catenarity of the base ring, and the dimension of these modules.
4. We apply the property (\*) to give the associativity formulae for multiplicity of  $H_m^i(M)$ ; to give some property of attached primes of local cohomology modules  $H_m^i(M)$ , the support and pseudo-supports of  $M$  under localization.

**Scientific advisors**

*Hanoi, June 16, 2011*

**PhD student**

**Prof. Dr. Sc. Nguyen Tu Cuong**

**Tran Nguyen An**