

# SCMS Seminar



## OVERCONVERGENCE OF ETALE (PHI, TAU)-MODULES

### LECTURE 2

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**Time:** 16:00-18:00, Monday, May 8, 2017

**Venue:** Room 2201, East Main Guanghai Tower, Handan Campus

**Abstract:** The category of etale (phi, tau)-modules, similar as the category of etale (phi, Gamma)-modules, is equivalent to the category of p-adic Galois representations. A classical theorem of Cherbonnier-Colmez says that all etale (phi, Gamma)-modules are overconvergent. In this talk, we show that all etale (phi, tau)-modules are also overconvergent. Our method is completely different from that of Cherbonnier-Colmez. The key idea is a certain crystalline approximation technique. This is joint work with Tong Liu.

#### Lecture 2.

I start by explaining a "loose crystalline lifting" theorem.

Then I explain how to use them, via a certain crystalline approximation technique, to study overconvergence property of etale (phi, tau)-modules.