Feb. 26  Ngo Bao Chau, Institute for Advanced Study, Princeton  

*Fundamental lemma and Hitchin fibration*

I will report on the recent proof of a conjecture in Langlands’ program called the fundamental lemma. This conjecture of number theoretic flavor is about certain equality of $p$-adic orbital integrals. The proof turns out to be of geometric nature and relies on the geometry of the Hitchin fibration. I will explain the connection between $p$-adic orbital integral and the Hitchin fibration, and more precisely the connection between Langlands’ endoscopy theory and the natural symmetries of the Hitchin fibers.