

# Mathematics Department Colloquium

Organizer(s): Kenneth Ribet

Thursday, 4:10–5:00pm, 50 Birge Hall—note change!!

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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.