

## **abstract**

SHIMURA VARIETIES AND TRACE FORMULA SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

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The fundamental lemma of Langlands and Shelstad is a family of combinatorial identities between local orbital integrals. It is necessary to the stabilization of the elliptic part of the Arthur-Selberg trace formula. In order to stabilize the whole trace formula, one also needs the weighted fundamental lemma conjectured by Arthur. It is a combinatorial statement involving the local weighted orbital integrals which are the local components of the hyperbolic terms in the geometric part of the trace formula. It is a generalization of the fundamental lemma. Ng<sup>o</sup> Bao Ch<sup>au</sup> recently proved the fundamental lemma of Langlands and Shelstad by a cohomological study of the elliptic part of the Hitchin fibration. In this talk, based on a joint work with G<sup>erard</sup> Laumon, I shall introduce a truncated version of the Hitchin fibration. The number of rational points in a truncated fiber is a global weighted orbital which appears in the trace formula. I shall explain how to extend the results of Ng<sup>o</sup> to our situation and how to deduce the weighted fundamental lemma of Arthur.