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Proportionality and the Arithmetic Volumes of Shimura Varieties and the Moduli of Shtukas

jeudi 11 septembre 2025 14:00 (1 heure)

The volume of a locally symmetric space is essentially a product of special values of zeta functions. More generally, Hirzebruch's proportionality theorem (extended by Mumford) tells us how to integrate any Chern class polynomial on a locally symmetric space. We prove an analog and extension of these results to function fields, where locally symmetric spaces will be replaced by the moduli space of Drinfeld Shtukas with multiple legs, and special values of zeta functions will be replaced by a linear combination of their derivatives of various order. Over number fields, we formulate a conjecture and prove it in a couple of new cases, relating the arithmetic volume, defined by the Arakelov degree of certain Hermitian metrized line bundle, to the special values of derivatives of suitable Artin L-functions.
This is joint work with Tony Feng and Zhiwei Yun

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Classification de Session: Afternoon Chair: Jonathan Pila