# Séminaire de théorie des nombres

## Le 27 février 2012 à 14h (Jussieu)

# Arithmetic volumes and arithmetic Okounkov bodies


## Exposé de Hideaki Ikoma (Kyoto University)



**Abstract :** In the context of Arakelov geometry, the arithmetic volume of a hermitian line bundle is defined analogously as the usual volume of a line bundle and is closely related to the notion of the sectional capacity that is intensively studied by Chinburg-Rumely-Varley-Lau in the ample case. The arithmetic volume and the sectional capacity measure the asymptotic growth of the numbers of the small sections and the volumes of the closed unit balls respectively. These invariants are related in total by the arithmetic Riemann-Roch formula of Gillet and Soulé. In this talk, I'd like to explain the proof of the arithmetic Riemann-Roch formula due to Gillet and Soulé and derive some properties of the arithmetic volumes via the techniques of the arithmetic Okounkov bodies due to Boucksom and Chen. I'll also explain some problems concerning the arithmetic volumes.