Title: "Transgression of the Kamber-Tondeur class"

May 14 (Tue.) 15:00 - 16:00

Abstract

The *Kamber-Tondeur class* is the characteristic class for flat complex vector bundles given by the following $GL(n,\mathbb{C})$-invariant $2k+1$ form on the contractible space $U(n)\backslash GL(n,\mathbb{C})$.

$$Tr((h^{-1}dh)^{2k+1})$$

where $h = 3Dg^*g$. This transgresses to a $2k$-dimensional cohomology class on the Volodin space $V(\mathbb{C})$ by a formula of the form:

$$\int_{u\in[0,1]} Tr((h^{-u}dh^u)^{2k+1}) + \text{correction term}$$

This is the basic formula for the higher Franz-Reidemeister torsion. This talk is about this formula and the meaning of the terms. I will review the Volodin construction (from the first lecture), explain briefly why the correction term is unimportant and why this gives the invariant that we are looking for. [Many of the properties of the higher FR-torsion invariants were known before they were defined.]

Reference:

J. Dupont, *Simplicial deRham cohomology and characteristic classes for flat bundles*, Topology **15** (1976), 233-245.