

九大代数学セミナー

[通常と曜日・会場が異なります](#)

日時 2017年8月2日(水) 16:00-17:00

場所 九州大学伊都キャンパス ウエスト1号館4階 D-413

(IMI オーディトリウム)

* * *

講演者: Don Zagier 氏 (Max Planck Institute for Mathematics)

- “From topology to number theory, from Betti numbers to Bernoulli numbers”
- Among the most basic invariants of a topological space are its Betti numbers, defined as the dimensions of its homology groups, e.g. $(1, 2g, 1)$ for a surface of genus g and $(1, 0, \dots, 0, 1)$ for an n -dimensional sphere. Surprisingly, the very simple question “What are the Betti numbers of a manifold?”, i.e., the question of what Betti numbers can occur, is not at all easy and is not solved completely even for the simplest non-trivial case: for which integers n is there an oriented n -manifold with total Betti number 3, i.e. with i -th Betti number equal to 1 for $i = n/2$ and 0 for all other $0 < i < n$, and even this very simple case leads to amusing questions in elementary number theory connected with the prime factorizations of the numerators of Bernoulli numbers. The talk, which is based on joint work with Matthias Kreck and on earlier work of Zhixu Su and her colleagues, will describe the story. No knowledge of either topology or Bernoulli numbers is required.

* * *

世話人: 小林 真一, 横山 俊一 (九大数理)