ZURICH GRADUATE COLLOQUIUM

Tuesdays, 5:15 pm
Hermann Weyl Zimmer, ETH Zentrum
in alternation with the
Zurich Colloquium in Mathematics

Speaker: **Bai-Ling Wang** (University of Zurich)

Title: **Bundle gerbe viewpoint of Physicists' A-, B-, C-fields**

Date: Tuesday, November 30

Derivatives and differentials of functions have been vital tools not only in mathematics, but also in other branches of science describing laws of nature. The classical Maxwell equations of electricity and magnetism in 4-dimensional space-time is one example.

Unified field theory attempts to describe all fundamental forces and the relationships between elementary particles in terms of a single theoretical framework. Over the last two decades, abelian gauge fields of higher degree have played an important role. In degree 1,2, and 3, the so-called A, B, and C-fields are locally defined differential 1, 2 and 3-forms whose differentials are globally well-defined differential forms. The integral conditions for these fields give rise to some interesting geometric objetcs. This introductory talk aims to provide a glimpse of these new mathematical objects emerging from the unified quantum field theories.

http://www.math.ethz.ch/graduate/colloquium

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