Algebra Seminar

576 Fermions

Theo Johnson-Freyd

Perimeter Institute

Abstract: The Stolz–Teichner conjectures predict that the generalized cohomology theory called Topological Modular Forms has a geometric model in terms of the space of 2-dimensional supersymmetric quantum field theories, and that holomorphic vertex operator superalgebras provide the geometric model for nontrivial degrees of TMF. Since TMF is periodic with period 576, these conjectures in particular predict an equivalence between holomorphic VOSAs of different central charge that had not been discovered by physicists. I will report on progress constructing this "periodicity" equivalence geometrically. Specifically, I will explain the solution to the warm-up problem of constructing geometrically the 8-fold periodicity of real K-theory: my solution realizes this periodicity as an example of super symplectic reduction. I will then explain why I believe the Conway group Co0 will play a role in the 576-fold periodicity problem, and why my recent computation of H^4(Co0) provides evidence for this belief.

Tuesday, October 24, 2017, 4:00 pm

Mathematics and Science Center: W306

Mathematics and Computer Science
Emory University