

BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

TMF-COHOMOLOGY VIA 2-DIMENSIONAL QFTS

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University of Notre Dame

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Zoom link:

<https://bostonu.zoom.us/j/93731959866?pwd=b2JaWTE1TkRpdEpXRXk0M1pPQkIzd09>

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Abstract: Topological modular form theory is a generalized cohomology theory whose coefficient ring $TMF^*(point)$ is rationally isomorphic to the ring of integral modular forms. Modular forms also show up as partition functions of suitable 2-dimensional QFTs. For example, the Witten genus $W(X)$ of a closed manifold X is an integral modular form, provided X is a spin manifold and the first Pontryagin class of X is trivial. This led to the question whether the corresponding spectrum TMF can be constructed in terms of 2D field theories.

In this talk I will recall a result of Teichner and myself according to which the partition function of a supersymmetric 2D Euclidean field theory is an integral modular form, as well as a Conjecture expressing the spaces which form the spectrum TMF as spaces of supersymmetric 2D field theories.

See <http://math.bu.edu/research/geom/seminar.html> or contact Yu-Shen Lin (yslin@bu.edu) or Siu-Cheong Lau (lau@math.bu.edu) for more information.