

Virtual TEP Seminar

UCLA

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Via Zoom

“WZW model revisited”

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Abstract: A sigma model is a QFT defined by the path-integral over continuous maps $M \rightarrow X$ where M is the spacetime and X is a “target” manifold. Such a model naturally arises in the context of spontaneously symmetry breaking, and X typically is a homogeneous space. It is well known that it admits the topological term called Wess-Zumino-(Novikov)-Witten term in the action, facilitating ’t Hooft anomaly. Here we claim that the general topological term, and also the quantization of WZW term, can be understood in terms of (Anderson dual of) bordism group of X . For a X -sigma model to cancel an anomaly A in the global group G , there should be a fibration $X \rightarrow \Gamma \rightarrow BG$ such that $p^*(A)$ is trivial and the corresponding sigma model should be understood as the transgression of A with respect to the fibration. We consider examples of 3+1d WZW models that are EFTs of 3+1d (massless) QCD.