Announcement

Seminar on Deformation Quantization

18. 2. 2022 at 2pm CET

Hybrid Seminar in SE 30 and

`https://uni-wuerzburg.zoom.us/j/92529190594?pwd=WkJvR1o1QUdldUNSSjFJbHB4c0Z0dz09`

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An introduction to the cobordism hypothesis

Topological quantum field theories were first introduced by Atiyah to give an algebraic framework to physical quantum field theories. In his definition a TFT is a functor $Z\colon \mathsf{Bord}_n \to \mathsf{Vect}$, where Bord_n is the category of $n-1$ dimensional manifolds and bordisms between them. In physical context we would like our field theories to be local in the sense that we are allowed to cut the bordisms into even lower dimensional pieces to compute values of a TFT. This is accounted for by introducing extended TFTs which are now defined on a higher category of $\mathsf{Bord}_n^{\mathrm{fr}}$ of tangentially framed bordisms in which we have a good way to handle embedded submanifolds of codimension 1 to $n-1$. For such a functor to preserve the locality we require, our target category naturally becomes a (∞, n)-category. We will roughly explain these concepts and present the cobordism hypothesis as stated first by Baez and Dolan, which classifies fully extended framed TFTs, stating that manifolds are "freely generated by points". Lastly some specialities in dimension 3 will be discussed which relate to finding a suitable 3 category as target for a TQFT.

Invited by Stefan Waldmann