MATH & STATS COLLOQUIUM

RE-NORMALIZED LINK INVARIANTS

Nathan Geer

Research Committee Chair and Professor in the Mathematics & Statistics Department at USU

In the last few years, C. Blanchet, F. Costantino, M. De Renzi, B. Patureau, N. Reshetikhin, V. Turaev and myself (in various collaborations) have developed a theory of renormalized quantum invariants of links and 3-manifolds which lead to Topological Quantum Field Theories. This talk will start out by giving a quick overview of this work. A principal feature of this work is its interplay between quantum algebra and low-dimensional topology. In the second part of the talk I will discuss the idea of renormalized quantum invariants of links without discussing the technical algebraic tools and instead replace them with usual vector spaces. This talk should be accessible to students who know the basic properties of vector spaces. The only concepts which might not be covered in a basic linear algebra coarse are dual vector spaces and tensor products of finite dimensional vector spaces. If you are not familiar with these concepts it would be helpful to take a quick look at https://mathworld.wolfram.com/DualVectorSpace.html and https://mathworld.wolfram.com/VectorSpaceTensorProduct.html.

THURSDAY, NOVEMBER, 19, 2020 @ 3:30PM ON ZOOM

HTTPS://USU-EDU.ZOOM.US/J/85651254313?PWD=ZWLUUTZTL2ZSAEPXAMG3YZBCWXI2UT09