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Fixed Point Factorization and Applications

The affine Kac–Moody algebras give rise to rational conformal field theories (RCFTs), which are two-dimensional quantum field theories that are symmetric under conformal transformations, and also satisfy a finiteness condition. A key ingredient of an RCFT is its modular data—two matrices S, T that generate a representation of $SL_2(\mathbb{Z})$. Fixed point factorization is a technical tool that dramatically simplifies the S -matrix at entries involving ‘fixed points’. Fixed points often present complications, and fixed point factorization provides a way to handle these. In this talk, we will discuss fixed point factorization and an interesting application of it in mathematical physics.

This work was part of the speaker’s doctoral thesis under the supervision of Professor Terry Gannon at the University of Alberta.