Hypergeometric Motives from Toric Hypersurfaces

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I will present a natural generalisation of the results of Beukers, Cohen, and Mellit on counting $\mathbb{F}_q$-points of algebraic varieties using finite field hypergeometric functions. I will present an extension of their results to hypergeometric functions not defined over $\mathbb{Q}$. The varieties I consider are certain affine hypersurfaces in algebraic tori, which naturally include those considered by Beukers, Cohen and Mellit, as well as classical examples like the Dwork family.

References

[1] F. Beukers, H. Cohen, A. Mellit, *Finite hypergeometric functions*, Pure Appl. Math. Q. 11 (2015), no. 4, 559–589.

[2] A. Abdelraouf, *Hypergeometric motives from toric hypersurfaces*. (Work in progress.)