Bernstein’s second adjointness and Higher Hall algebras

Abstract:

When one considers the functor of parabolic induction in various contexts there arises immediately the question of the existence of left or right adjoints. For example in the p-adic setting there is a natural left adjoint, but it was shown by Bernstein that in fact there is also a right adjoint, and they turn out to be isomorphic - this phenomenon is called “second adjointness”. We explain how second adjointness is directly related to a natural braiding on a categorified version of the Hall algebra and describe the interplay between the two settings and lay out a strategy of how this connection can help understand both sides better.