Drinfeld cusp forms are certain function field analogs of classical cusp forms. Contrary to what is expected in the classical situation, spaces of Drinfeld cusp forms (of fixed level and varying weight) admit various interesting maps between them which behave well with respect to the Hecke actions. Prominent examples of this phenomenon are certain hyperderivatives studied by Bosser-Pellarin.

In joint work with G. Böckle and R. Perkins, we study this phenomenon from a representation-theoretic point of view. I will start by explaining the relevant representation-theoretic framework and construct maps therein which become the hyperderivatives of Bosser-Pellarin via an isomorphism due to Teitelbaum. This also provides a natural extension of the maps of Bosser-Pellarin to more general bases and levels. Moreover, I will explain how the Frobenius map on Drinfeld cusp forms can be interpreted naturally on the representation-theoretic side. Finally, I will present computational results on how the Frobenius and the hyperderivatives interact. (Received August 06, 2020)