

# A MOTIVIC PAIRING AND MELLIN TRANSFORM IN FUNCTION FIELDS

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ABSTRACT. We describe a new pairing between the  $t$ -motive and the dual  $t$ -motive associated to a  $t$ -module. Specializations of these pairings allow us to give explicit formulas for the exponential and logarithmic functions of the  $t$ -module. We also explain how this pairing gives an infinite family of Mellin transform-style formulas for Carlitz zeta values and for special values of Goss  $L$ -functions connected to higher rank Drinfeld modules.