

# Multiple Bernoulli polynomials and multiple $L$ -functions of root systems

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joint work with

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We introduce multi-variable zeta-functions of root systems and study their properties. These functions can be regarded as multi-variable generalizations of Witten zeta-functions defined by Zagier. In particular in the case of the root system of type  $A_1$ , it reduces to the Riemann zeta-function.

We show that several classical formulas for the Riemann zeta-function and  $L$ -functions are naturally generalized to those for the zeta-functions of root systems, which include the well-known evaluation formulas for special zeta-values formulated by Zagier based on Witten's work.