Multiple- polylogarithms at non-positive integers and Rota-Baxter operators

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Abstract

In this talking, we study about the multiple- polylogarithms at non-positive integers by operators $\theta_0 = zdz$ and $\iota_1 = \int_0^z \frac{*dx}{1-x}$. We will give the combinatorial formulas of multiple- polylogarithms at non-positive integers in some special cases. We also consider the Rota-Baxter operators in the relations with multiple- polylogarithms at non-positive integers. After that, we talk about q- shuffle producted of D. Manchon (Joint work with K. Ebrahimi - Fard and J. Castillo- Medina) and explain the reasons to define this product.