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ROTA-BAXTER OPERATORS AND APPLICATIONS

Li Guo

A Rota-Baxter operator is a generalization of the integral operator and arisen from probability in the 1950s. There were several interesting developments in its theoretical studies and applications in the last few years, most noticeably through the algebraic approach of renormalization of quantum field theory by Connes and Kreimer. We will give a survey of Rota-Baxter algebras and discuss their applications to mathematical physics (renormalization) and number theory (multiple zeta values).