Abstract

A relative Rota-Baxter operator on Lie 2-groups is introduced as a pair of relative Rota-Baxter operators on the underlying Lie groups which is also a Lie groupoid morphism. Such an operator induces a factorization theorem for Lie 2-groups and gives rise to a categorical solution of the Yang-Baxter equation. We further define relative Rota-Baxter operators on Lie group crossed modules. The well-known one-to-one correspondence between Lie 2-groups and crossed modules is then extended to an equivalence between the respective relative Rota-Baxter operators on these two structures. This is joint work with Shining Wang.