

One parameter family of MKdV equations related to $so(8)$

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We have derived a one-parameter family of MKdV equations related to the simple Lie algebra $so(8)$ using a Coxeter \mathbb{Z}_6 reduction. They admit a Lax pair whose fundamental analytic solutions can be related to a Riemann-Hilbert problem. Next we analyze the grading of $so(8)$ introduced by the Coxeter automorphism. The corresponding one-parameter family of MKdV equations are derived and their properties are briefly discussed.