# Nonlinear Evolution Equations and Affine Kac-Moody Algebras

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**Abstract.** We obtain new integrable hierarchies of nonlinear evolution
equations which are connected with affine Kac-Moody algebras. More
concretely, using calculated for the case recursion operators and appro-
priate Coxeter reductions we have derived a family of soliton equations
associated with the untwisted affine Kac-Moody algebras $A_r^{(1)}$ and $D_4^{(1)}$
as well as with the twisted affine algebras $A_r^{(2)}$, $D_4^{(2)}$ and $D_4^{(3)}$. The
Hamiltonian formulation of the equations from the hierarchies is also
derived. Finally, for all the cases we have considered the spectral prop-
erties of the corresponding Lax operators and introduced a minimal set
of scattering data.