**Nonlinear Sciences > Exactly Solvable and Integrable Systems**

# On non-Abelian Toda $A_2^{(1)}$ model and related hierarchies

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We study limiting cases of the two known integrable chiral-type models with tree-dimensional configuration space. One of the initial models is the non-Abelian Toda $A_2^{(1)}$ model and the other was found by means of the symmetry approach by A.G. Meshkov and one of the authors. The C-integrability of the reduced models is established by constructing their complete sets of integrals and general solutions. A description of the generalized symmetry algebras of these models is given in terms of operators mapping integrals into symmetries. The integrals of the Liouville-type systems are known to define Miura-type transformations for their generalized symmetries. This fact allowed us to find a few new systems of the Yajima-Oikawa type. We present a recursion operator for one them.

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