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**Limits of Gaudin systems: classical and quantum cases.** (English) Zbl 1160.82316  
SIGMA, Symmetry Integrability Geom. Methods Appl. 5, Paper 029, 17 p. (2009).

Summary: We consider the XXX homogeneous Gaudin system with  $N$  sites, both in the classical and the quantum case. In particular we show that a suitable limiting procedure for letting the poles of its Lax matrix collide can be used to define new families of Liouville integrals (in the classical case) and new “Gaudin” algebras (in the quantum case). We will especially treat the case of total collisions, that gives rise to (a generalization of) the so called Bending flows of Kapovich and Millson. Some aspects of multi-Poisson geometry will be addressed (in the classical case). We will make use of properties of “Manin matrices” to provide explicit generators of the Gaudin Algebras in the quantum case.

**MSC:**

**82B23** Exactly solvable models; Bethe ansatz

**81R12** Groups and algebras in quantum theory and relations with integrable systems

**17B80** Applications of Lie algebras and superalgebras to integrable systems

**81R50** Quantum groups and related algebraic methods applied to problems in quantum theory

Cited in 1 Document

**Keywords:**

Gaudin models; Hamiltonian structures; Gaudin algebras

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