

**Friday, March 3rd** (at 4.00pm, UK time)

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*Title: Classical non-skew-symmetric r-matrices and integrable spin models.*

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#### **ABSTRACT**

In the present talk we will review the theory of classical non-skew-symmetric non-dynamical r-matrices with spectral parameters and their usage in the theory of integrable classical and quantum spin chains.

We will explain the relation of these r-matrices with the theory of infinite-dimensional almost-graded Lie algebras with Kostant-Adler decomposition. We will present several classes of examples of such the r-matrices, naturally lying out of the Belavin-Drinfeld classification.

In particular, we will present classical r-matrices related to integrable multidimensional tops (Manakov tops). We will also outline a sub-class of the non-skew-symmetric classical r-matrices permitting to construct, except for the linear tensor brackets, also the quadratic tensor brackets that lead to Maillet and reflection equation algebras.

We will, in detail, consider Gaudin models with and without external magnetic field and their generalizations based on non-skew-symmetric classical r-matrices. Applications of these models to integrable BCS-type models will be briefly discussed.

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