FDITE13 Integrable systems 1

lecturer: László Fehér

Topics:

The goal of the course is to expose the role of the classical and quantum Yang-Baxter equations in integrable systems and to give an introduction to the relevant mathematical techniques. The following topics will be treated: Liouville integrability, Lax equations and zero curvature equations, double Lire algebras, Lie bialgebras, Poisson-Lie groups, Yang-Baxter (RTT=TTR) algebras from the quantization of quadratic Poisson algebras. The theory will be illustrated, for example, by the treatment of Toda lattices, the non-linear Schrodinger equation and exactly solvable vertex models of statistical physics.

Recommended literature:

- Korepin V.E., Bogoliubov N.M., Izergin A.G.: Quantum Inverse Scattering Method and Correlation Functions, Cambridge University Press 1993.
- Chari V., Pressley A.: A Guide to Quantum Groups, Cambridge University Press 1994.