

Deatonomization of cluster integrable systems

Wednesday, 6 February 2019 14:00 (1 hour)

To any Newton polygon one can assign the cluster integrable system. The group G of discrete flows acts on the phase space, preserving the integrals of motion of the cluster integrable system. After deautonomization the action G leads to q -difference equations, which are equations of isomonodromic deformations of linear q -difference equations. Finally, these equations can be explicitly solved using Nekrasov functions of $5d$ supersymmetric gauge theory or partition functions of topological strings. The Seiberg-Witten curve for corresponding supersymmetric gauge theory and toric Calabi-Yau are constructed from the initial Newton polygon.

Based on joint works with A. Marshakov and P. Gavrylenko.

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Session Classification: Mikhail Bershtein: Deatonomization of cluster integrable systems