

Vertex operator algebras and integrable systems

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Abstract:

In this talk, we first study classical integrable systems with properties including the existence of Lax pairs, the reality property, and a construction of solutions using loop group actions (dressing actions). Because of the existence of isotropy group on the solution space of classical integrable system, we consider the central extension of the full loop group action and construct a highest weight affine Lie algebra module. We conclude with a discussion on the vertex operator algebra module and Miura transformation in quantized integrable system and compare classical and quantized integrable systems in terms of Lax operators. Comparison with recent development by twistor theory approach may be given if time permits.