

Zamolodchikov integrability via rings of invariants

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Zamolodchikov periodicity is periodicity of certain recursions associated with box products of two finite type Dynkin diagrams. We suggest an affine analog of Zamolodchikov periodicity, which we call Zamolodchikov integrability. We conjecture that it holds for products of a finite type Dynkin diagram and an affine extended Dynkin diagram. We prove this conjecture for the case of $A_m \square A_{2n-1}^{(1)}$. The proof employs cluster structures in certain classical rings of invariants, previously studied by S. Fomin and the author.

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