

# SIDE 14.2



Contribution ID : 31

## tau function, vertex operator and linearization scheme associated with Lamé function

Wednesday 21 Jun 2023 at 12:30 (00h30')

### Content :

The talk contains two parts. In the first part I will describe a bilinear framework for elliptic soliton solutions (which are composed by the Lamé-type plane wave factors and expressed using Weierstrass functions). The framework includes tau functions in Hirota's form, vertex operators to generate such tau functions and the associated bilinear identities. These are introduced in detail for the KdV equation and sketched for the KP hierarchy. The second part I will report an elliptic direct linearisation scheme associated with discrete Lamé-type plane wave factors. This scheme allows us to have lattice KP equations and lattice Boussinesq equations that have elliptic soliton solutions. In both continuous and discrete cases, the so-called elliptic  $N$ -th roots of unity are needed to define plane wave factors and implement reductions. This talk is based on a joint work with Xing Li (arxiv: 2204.01240) and a joint work with Frank Nijhoff and Yingying Sun (1909.02948).

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