A New Loop Algebra and Corresponding Computing Formula of Constant γ in Quadratic-Form Identity

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Abstract: A new loop algebra containing four arbitrary constants is presented, whose commutation operation is concise, and the corresponding computing formula of constant γ in the quadratic-form identity is obtained in this paper, which can be reduced to computing formula of constant γ in the trace identity. As application, a new Liouville integrable hierarchy, which can be reduced to AKNS hierarchy is derived.

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