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G2-Elliptic Integrable Model: the 6th-Order Integral

Abstract

The sixth-order integrals of the rational, trigonometric and elliptic G2-integrable models will be presented. Their explicit construction in algebraic variables and exact commutation with the corresponding Hamiltonians will be discussed. It will be shown how the elliptic integral reduces to the trigonometric one, and how both reduce to the rational integral in the appropriate limits.