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## On the generalized Sundman transformations and integrable $Li\{e\}n$ -type equations

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In this talk we discuss applications of the generalized Sundman transformations for finding families of integrable  $Li\{e\}n$ -type equations. Under integrable equations here we understand equations for which we can construct the general analytical solution. Employing connections, given by the generalized Sundman transformations, between  $Li\{e\}n$ -type equations and equations of the Painlevé–Gambier type we demonstrate a possibility of finding new integrable  $Li\{e\}n$ -type equations. We consider connections between  $Li\{e\}n$ -type equations and type I–III Painlevé–Gambier equation. As a result, we obtain nine criteria for the integrability of the  $Li\{e\}n$ -type equations. We also consider applications of this approach for finding autonomous Lagrangians, Jacobi multipliers and first integrals for  $Li\{e\}n$ -type equations.

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