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Abstracts of Short Communications and Posters

Section:

11. Mathematical Physics

1991 Mathematical Subject Classification: 22, 35, 81
Zhdanov, Renat, Institute of Mathematics, Ukraine:

On classification of separable (2+1)-dimensional Schrödinger equations.

Using the recently suggested direct approach to variable separation in linear partial differential equations we classify inequivalent potentials $V(x_1, x_2)$ allowing for the corresponding Schrödinger equations to be solvable by separation of variables. For each thus obtained potential we give the complete list of coordinate systems providing separability of the Schrödinger equation. Furthermore, the most general time-dependent potential $V(t, x_1, x_2)$ enabling separating of variables in the (1+2)-dimensional Schrödinger equation is obtained. With the use of this result the four classes of separable Schrödinger-Maxwell equations are constructed.

Reference: R. Z. Zhdanov, Separation of variables in (1+2)-dimensional Schrödinger equations, *J. Math. Phys.* **38** (1997), 1197-1217.