Mathematical Physics

# On General Form of N-fold Supersymmetry

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We analyze general structure of N-fold supersymmetry which provides a systematic framework to construct weakly quasi-solvable quantum mechanical systems. Main ingredients of our analysis are dimensional analysis and introduction of an equivalent class of linear differential operators associated with N-fold supersymmetry for each N. To illustrate how they work, we construct the most general form of N-fold supersymmetric systems for N=2, 3, and 4.

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